# *Milk and Dairy Products in India – Production, Consumption and Exports*

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Amul plant at Anand (Gujarat)

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A milk booth in Mumbai

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# 1. Introduction

- India is the largest producer of milk producing more than 100 million tons of milk per annum. Yet, her per capita milk consumption is around 250 g per day.

- India has a population of more than 1 billion with diverse food habits, cultures, traditions and religions. Regional variations within the country can be mind boggling. On one hand, the country has plains with long tradition of milk production and consumption. On the other hand, there are forest and hilly regions with no tradition of dairying. Most of coastal belts also do not have much of dairy tradition.

- Cow is holy for Hindus who make up more than 80 per cent of the population of India. Buffalo enjoys no such holy status. Cow slaughter is banned in many states of India. There are no restrictions on buffalo culling.

All this makes India a very complex dairy country.

Till about year 2000, India was not on the radar screen of most international dairy companies, since India was neither a major importer nor an exporter of dairy products. Through the 70's, 80's and 90's India used to take some milk powder and butter oil as aid. Exports from India were insignificantly small. From 2000 onwards, Indian dairy products, particularly milk powder, casein, whey products and ghee started making their presence felt in global markets.

The decade of 2000-10 will be recorded in dairy history as the decade of exports. But the next decade will be different. Signs of change are already visible. On one hand, India is finding it difficult to sustain exports of dairy products due to low global prices and high domestic prices. On the other hand, some dairy products and companies from India have been able to make their mark on international markets leading to increase in their exports even when the overall global market sentiment has turned negative.

Reintroduction of subsidies by European Union, continuing global economic downturn and devaluation of currency of a major dairy exporting country like New Zealand combined with high domestic prices have made dairy imports into India attractive. The day is not far when India will become a net importer of dairy products. It is expected that initially large-scale imports will be of dairy commodities, which will be used by Indian dairy cooperatives and companies to make reconstituted milk and other branded dairy products. Imports of branded dairy products may trickle in later.

**Table 1.1 – Projected growth rate of milk production and dairy products consumption**

| Product | Projected Growth Rate<br>Per cent per annum |
|---|---|
| Milk production | 3 |
| Ghee consumption | 9 |
| Table Butter consumption | 10 |
| *Paneer* (cottage cheese) | 10 |
| Processed cheese | 14 |
| Dairy whiteners and condensed milk | 8 |

India's milk production will continue to grow at about 3 per cent per annum in spite of difficulties

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due to stagnant livestock herd size and shortage of fodder. Due to increasing population, per capita availability of milk will increase by only about 1.5 per cent per annum. For an economy growing at about 6 per cent per annum, this increase in availability will be grossly inadequate.

Production growing at only 3 per cent and consumption growing at more than double the rate is obviously going to lead to a mismatch between demand and supply. This will create opportunities for international dairy companies.

On one hand, India is expected to enter the international market with demand for commodities like skimmed milk powder and butter oil. On the other hand, growing prosperity and fast growth of organized modern retail and western style fast food outlets will lead to increased consumption of products like cheese and table butter. This will throw up opportunities for branded dairy products to enter this huge market of more than a billion people.

Helping international as well as Indian companies understand the dairy scenario of India from a macro-level perspective is the prime objective of this study. Facts and statistics, instead of opinions and impressions, are the key building blocks of this report.

During the study, we have tried, as far as possible, to rely on official data from some department / ministry / agency / directorate of government of India. This poses a problem since government agencies of India are slow in releasing data. For example, Director General of Commercial Intelligence & Statistics, Kolkata (responsible for compiling data on India's imports and exports) had till the 1 August 2009 released monthly export data in respect of only December 2008. Department of Animal Husbandry's latest data is given in their Handbook released in December 2006, which gives data only for financial year ended on March 2006.

Inadequacy of official data is a perennial problem with most developing countries. Fortunately, in case of India the problem is not as severe. India has one of the oldest and most reliable census systems in the world. India conducts a fairly reliable livestock survey regularly. Data on economic fundamentals is extremely detailed and easily available. Trade data collection system of India is better than of most developing countries and is much more reliable than of most non-democratic countries.

Separating the useful and relevant from irrelevant and useless is always a challenge. It is more when so when one has an ocean of data (parts of which may be a bit old). This is a challenge that we are able to undertake with our long experience in India and Indian dairy / livestock industry in particular. We have our ear on the ground in India. We understand the dynamics of fast-changing India. We use the historical data provided by government agencies and rely on our experience and insightful expertise to see trends that others notice much later.

We hope that the study helps you get a macro-level understanding of the dairy scenario in India. This may however not answer all the queries that you may have. We look forward to conducting in-depth micro-level studies related to Indian dairy industry for you based on your requirements.

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# 2. Overview of Indian Economy

## 2.1. Rate of growth – past years

Global economic conditions deteriorated sharply during the year 2008 with several advanced economies experiencing their sharpest declines in the post-World War II period.

The Indian economy, which was on a robust growth path up to 2007-08, averaging at 8.9 per cent during the period 2003-04 to 2007-08, witnessed moderation in 2008-09, with the deceleration turning out to be somewhat sharper in the third and fourth quarters.

**Table 2.1 – Growth Rates of Real GDP from 2000-01 to 2008-09**

| Sector | | | 2000-01 to 2007-08 (Average) | 2005-06 | 2006-07 | 2007-08* | 2008-09# |
|---|---|---|---|---|---|---|---|
| | | | (Per Cent) | | | | |
| 1 | Agriculture and Allied Activities | | 2.6 | 5.9 | 3.8 | 4.9 | 1.6 |
| | | | (20.8) | (19.6) | (18.5) | (17.8) | (17.1) |
| 2 | Industry | | 7.2 | 8.0 | 10.6 | 7.4 | - |
| | | | (19.6) | (19.4) | (19.5) | (19.2) | (18.7) |
| | 2.1 | Mining and Quarrying | 4.8 | 4.9 | 5.7 | 3.3 | 3.6 |
| | 2.2 | Manufacturing | 7.9 | 9.0 | 12.0 | 8.2 | 2.4 |
| | 2.3 | Electricity, Gas and Water Supply | 5.0 | 4.7 | 6.0 | 5.3 | 3.4 |
| 3 | Services | | 8.9 | 11.0 | 11.2 | 10.8 | - |
| | | | (59.6) | (61.1) | (61.9) | (63.0) | (64.2) |
| | 3.1 | Trade, Hotels, Restaurants, Transport, Storage and Communication | 10.3 | 11.5 | 11.8 | 12.4 | 9.0 |
| | 3.2 | Financing, Insurance, Real Estate and Business Services | 8.8 | 11.4 | 13.9 | 11.7 | 7.8 |
| | 3.3 | Community, Social and Personal Services | 5.8 | 7.2 | 6.9 | 6.8 | 13.1 |
| | 3.4 | Construction | 10.5 | 16.5 | 12.0 | 10.1 | 7.2 |
| 4 | **Real GDP at Factor Cost** | | **7.2** | **9.4** | **9.6** | **9.0** | **6.7** |
| | | | (100) | (100) | (100) | (100) | (100) |
| Memo: | | | | | | | |
| a) | Real GDP at factor cost Rs. billion (1999-2000 base) | | | 26,128 | 28,643 | 31,297 | 33,394 |
| b) | GDP at current market prices Rs. billion | | | 35,803 | 41,458 | 43,209 | 49,332 |
| * : Quick Estimates. | | | | | | | |
| # : Revised Estimates as on 29 May 2009. | | | | | | | |
| Note : Figures in parentheses denote shares in real GDP. | | | | | | | |
| Source : Central Statistical Organisation. | | | | | | | |

According to the estimates released by the Central Statistical Organisation (CSO) on 29th May 2009, real GDP growth during the fourth quarter (Q4) of 2008-09 was lower at 5.8 per cent as compared with 8.6 per cent in the corresponding period of 2007-08, reflecting deceleration of



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growth in all its constituent sectors. During Q3 of 2008-09, GDP growth at fixed prices was 5.8 per cent as compared to the growth of 9.3 per cent in Q3 of 2007-08. The sector-wise growth figures indicate a different picture. Manufacturing has been the worst affected by slowdown with growth falling to 0.9 and -1.4 per cent respectively in Q3 and Q4 of 2008-09 from 8.6 and 6.3 per cent respectively of corresponding quarters of 2007-08. Agriculture, forestry and fishing went into negative territory with growth of -0.8 per cent during Q3 of 2008-09, but recovered quickly to 2.7 per cent in Q4. The Q4 figure compares well with the Q4/2007-08 agriculture growth of 2.2 per cent. The fall in Q3/2008-09 is more noticeable because in the corresponding period of previous year the growth was 8.1 per cent. Probably, the fall in Q3 of 2008-09 was on account of steep fall in commodity prices.

The slowdown in industrial growth was largely an outcome of some cyclical downturn and adverse global factors. The services sector recorded moderation from its double digit growth of earlier years. The countercyclical rise in the growth of community social and personal services has been caused by implementation of Sixth Pay Commission recommendations for employees of government and public sector.

Robust continuing growth in construction sector indicates that Indian economy continues to make investments in sectors like infrastructure and housing. This indicates that even though the rate of growth has slowed down, the country is firmly on the path of growth and people continue to be optimistic about the future.

## 2.2. Inflation

Wholesale Price Index (WPI) based weekly inflation rate went into negative territory at the beginning of June 2009. The inflation rate was recorded at -1 .61 per cent for the week ended June 6. This raised fears of deflation, but the negative figure has to be seen in context of the high inflation recorded during middle of 2008.

Inflation as measured by year-on-year variations in the wholesale price index (WPI), had increased sharply from 7.7 per cent at end-March 2008 to an intra-year peak of 12.9 per cent on August 2, 2008, reflecting the impact of some pass-through of higher international crude oil prices to domestic prices as well as continued increase in the prices of metals, chemicals, machinery and machinery tools, oilseeds/edible oils/oil cakes and raw cotton. The double-digit inflation caused the government to initiate measures to keep prices in check.

Subsequently, when effects of global economic downturn were felt across the world, international commodity prices crashed. This caused WPI inflation to decline sharply to 0.3 per cent as on March 28, 2009.

During March-June 2009, inflation has been around zero. This has raised fears of recession / deflation. However, most experts are of the view that fundamentals of Indian economy continue to remain strong and there is no noticeable contraction in demand.

Usually, in most of the developed countries, inflation is published based on Consumer Price Index (CPI). A CPI-based inflation tracks the year-on-year rise in prices paid by consumers to retailers. In India, the general inflation is published based on the WPI. The WPI tracks the year-on-year rise in prices at the wholesaler level. It tracks a much wider basket of commodities including industrial commodities.

The following chart gives a graphic picture of the stable situation with respect to inflation in India.

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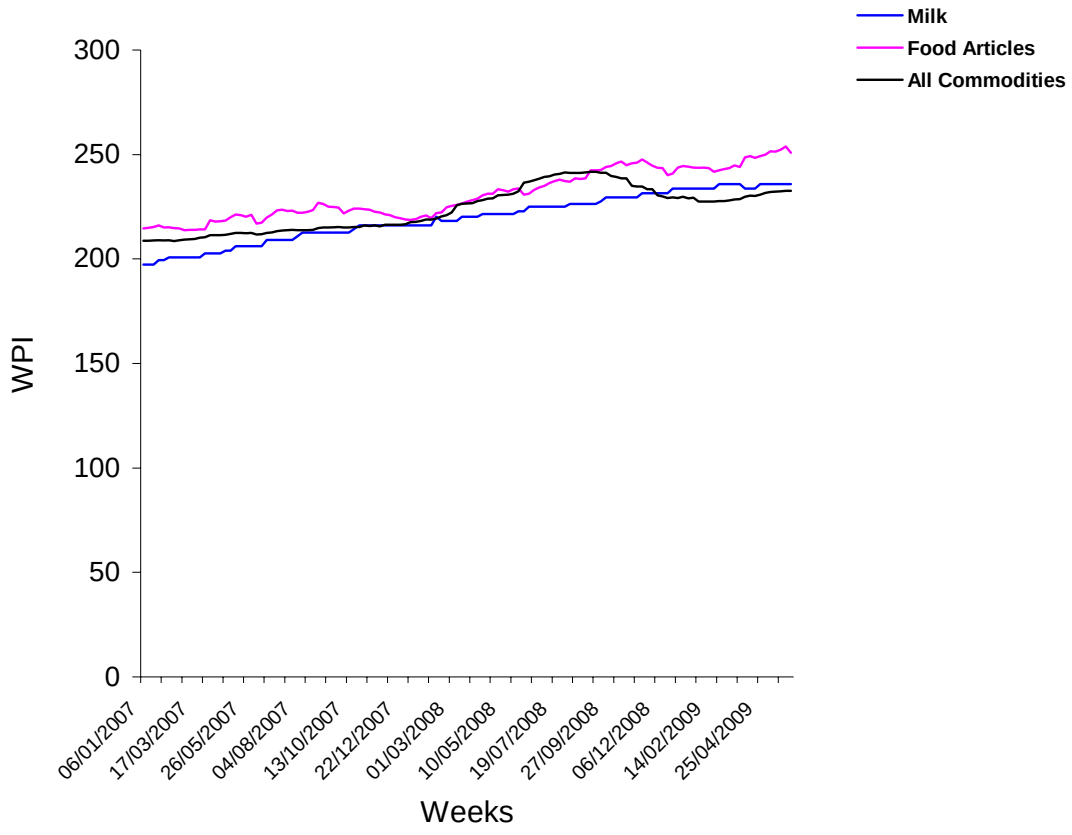
**Chart 2.1 – Wholesale Price Index movement from January 2007 to 6 June 2009**




Source: Economic Adviser to Govt. of India and HS&SL

## 2.3. Growth continues

In April-May 2009, elections were held in India to elect members for the lower house of the Parliament. Election results have brought into power a more stable government. Dr. Manmohan Singh, who was the Prime Minister during 2004-09, is now in saddle without the shackles of left parties. With the new confidence, he is expected to give a stronger push for reforms and other items on economic agenda. This has led to optimism in Indian stock markets and business circles despite the depressing global conditions.

The global economic outlook has deteriorated sharply in the past year. In a sign of the ferocity of the down turn, the IMF marked down, yet again, its estimate for global growth in 2009 to a range of -1.0 to -0.5 per cent, the first global contraction in 60 years. With all the advanced economies – the United States, Europe and Japan - having firmly gone into recession, the contagion of the crisis from the financial sector to the real sector has been unforgiving and total.

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**Table 2.2 – Growth Rates of Real GDP – Global Scenario**

| Region / Country | 2007 | 2008 | 2009 |
|---|---|---|---|
| **Advanced Economies** | | | |
| Euro Area | 2.6 | 0.9 | -3.2 |
| Japan | 2.4 | -0.7 | -5.8 |
| Korea | 5.0 | 4.1 | 3.5 |
| UK | 3.0 | 0.7 | -2.8 |
| US | 2.0 | 1.1 | -2.6 |
| OECD Countries | 2.6 | 1.2 | -0.4 |
| **Emerging Economies** | | | |
| Argentina | 8.7 | 6.5 | 3.6 |
| Brazil | 5.7 | 5.8 | 1.8 |
| China | 13.0 | 9.0 | 6.7 |
| India | 9.0 | 7.1 | 5.3 |
| Indonesia | 6.3 | 6.1 | 5.5 |
| Malaysia | 6.3 | 5.8 | 4.8 |
| Thailand | 4.8 | 4.7 | 4.5 |
| All figures in per cent | | | |
| Figures for 2008 and 2009 are IMF Projections | | | |
| Growth rates for India relate to fiscal year | | | |
| Source: Reserve Bank of India | | | |

Contrary to the 'decoupling hypothesis', emerging economies too have been hit by the crisis. The decoupling hypothesis, which was intellectually fashionable even as late as a year ago, held that even if advanced economies went into a downturn, emerging economies will remain unscathed because of their substantial foreign exchange reserves, improved policy framework, robust corporate balance sheets and relatively healthy banking sector.

Given the evidence of the last few months – capital flow reversals, sharp widening of spreads on sovereign and corporate debt and abrupt currency depreciations – the 'decoupling hypothesis' stands invalidated. Reinforcing the notion that in a globalized world no country can be an island, growth prospects of emerging economies have been undermined by the cascading financial crisis with, of course, considerable variation across countries.

India has been hit by the crisis, despite mitigating factors, due to India's rapid and growing integration into the global economy. The contagion of the crisis has spread to India even though the effect is not severe and the first signs of revival are already in the air.

There is clear evidence of economic activity slowing down. Real GDP growth has moderated modestly in the first and second quarters of 2008/09, and sharply in the third and fourth quarters (from 9.3 and 8.6 to 5.8 and 5.8). The services sector, which has been the country's prime growth engine for the last five years, is slowing.

For the first time in seven years, exports declined in absolute terms for six months in a row during October 2008 - April 2009. India's merchandise exports, after recording a steady growth of 33.7 per cent during April-August 2008, showed deceleration in September 2008. Subsequently, exports recorded decline, viz., (-12.2 per cent in October ), (-20.1 per cent in November), (-5.2 per cent in December), (-22.4 per cent in January 2009), February 2009 (-21.7 per cent) and the highest decline in the month of March 2009 (-33.3 per cent) mainly exhibiting the impact of global financial turmoil and economic slowdown.

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Recent data indicate that demand for bank credit is slackening despite comfortable liquidity in the system. Index of industrial production has shown some negative growth and investment demand is decelerating. All these factors suggest that growth will moderate more than what had been earlier thought.

On the other hand, in addressing the fall out of the crisis, India has several advantages. Some of these are recent developments. Most notably, headline inflation has fallen sharply. The decline in inflation should revive and support consumption demand and reduce input costs for corporates. Furthermore, the decline in global crude prices and naphtha prices, if sustained, will reduce the size of subsidies to oil and fertilizer companies, opening up fiscal space for infrastructure spending. From the external sector perspective, it is projected that imports will shrink more than exports keeping the current account deficit modest.

There are also several structural factors that have come to India's aid. First, notwithstanding the severity and multiplicity of the adverse shocks, India's financial markets have shown admirable resilience. This is in large part because India's banking system remains sound, healthy, well capitalized and prudently regulated. Second, the comfortable reserve position provides confidence to overseas investors. Third, since a large majority of Indians do not participate in equity and asset markets, the negative impact of the wealth loss effect that is plaguing the advanced economies should be quite muted. Consequently, consumption demand should hold up well. Fourth, because of India's mandated priority sector lending, institutional credit for agriculture has remained unaffected. The farm loan waiver package implemented by the Government should further insulate the agriculture sector from the crisis.

Over the last five years, India clocked an unprecedented nine per cent growth, driven largely by domestic consumption and investment even as the share of net exports has been rising. Growing entrepreneurial spirit, rise in productivity and high rate of savings were the drivers of this growth. These fundamental drivers are still in place and will continue to take the country on the growth path, even though the global crisis has dented India's growth trajectory.

The first signs of revival are already in the air in India. Stock markets have found their feet and seem to have put the bottom behind them. Initial bunch of results announced by companies for financial year 2008-09 have been encouraging. Low commodity prices have injected new life into many projects that were earlier considered unviable.

Most Indians are optimistic about the immediate as well as long-term future and the momentum of confidence in the economy is building by the day. This is not adequately reflected in the projections released by various economists since most projections are a few months old. However, the optimism can be clearly observed in any interaction with Indian businessmen.

## 2.4. Forecasts of Growth Rates

Many professional forecasters have lowered their projections of future growth of Indian economy. However, even at the lower level, the projected growth rates are high when one sees the negative growth rates of developed economies.

Summing up the forecasts, the general consensus is that Indian GDP growth at a rate which is in the range of 4.0 to 7.5 per cent. All the forecasts have been made before the announcement of results of Parliamentary elections. There has been a sea-change in outlook after the elections since before the results came in, it was widely expected that the country was heading for a phase of political instability with a hung Parliament. Rejection of regional parties by voters and a clear mandate in favor of Congress-led UPA has enthused business houses. Based on the atmosphere of general optimism and taking into account the concerns about monsoon, we

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conclude that **Indian economy will continue to grow during 2009-10 at around 6 per cent or more per annum**.

Services are likely to be affected, with growth rate falling to around 7 per cent from the double-digit rates that have been seen in the past years. Slowdown in industrial growth will be marginal. Agriculture and allied activities are likely to remain unaffected by global factors. The growth of agriculture and allied activities will depend largely on the monsoon during June-September 2009.

**Table 2.3 – Forecasts of Growth Rates (in per cent) by various agencies for 2009-10**

| Agency | Overall Growth | Agriculture | Industry | Services | Month Of Projection |
|---|---|---|---|---|---|
| ASSOCHAM | 6.5 | - | - | - | Dec 2008 |
| JP Morgan | 6.2 | - | - | - | Nov 2008 |
| Citigroup | 5.5 | - | - | - | Mar 2009 |
| CRISIL | 6.1 | 3.0 | 4.5 | 7.7 | Feb 2009 |
| Economic Advisory Council to Prime Min. | 7.0-7.5 | - | - | - | Jan 2009 |
| Merril Lynch | 5.3 | 2.7 | 3.3 | 6.7 | Mar 2009 |
| Centre for Monitoring Indian Economy | 6.6 | - | - | - | Apr 2009 |
| NCAER | 6.9 | 2.7 | 6.6 | 8.4 | Jan 2009 |
| OECD | 4.3 | - | - | - | Mar 2009 |
| UNCTAD* | 7.0 | - | - | - | Jan 2009 |
| Asian Development Bank* | 5.0 | - | - | - | Mar 2009 |
| International Monetary Fund | 5.25 | - | - | - | Mar 2009 |
| World Bank | 4.0 | - | - | - | Mar 2009 |
| ICRIER | 4.8-5.5 | - | - | - | Mar 2009 |
| **Range** | **4.0-7.5** | **2.7-3.0** | **3.3-6.6** | **6.7-8.4** | |
| - : Not Available * : Calendar Year | | | | | |
| Source: Macroeconomic and Monetary Developments in 2008-09, Reserve Bank of India | | | | | |

## 2.5. Business Confidence

Business Confidence Index (BCI) of the National Council of Applied Economic Research (NCAER) quarterly business expectations survey (67th round) declined sharply from 119.9 in October 2008 to 91.4 in January 2009. Thus, the BCI lost 28.5 points (23.8 per cent) in January 2009 over its October 2008 level. According to quarterly business expectations survey of the Confederation of Indian Industry, the business confidence index (CII-BCI) for October 2008-March 2009 has also declined both over the preceding six months as well as over the corresponding period of the previous year.

The decline in business confidence reflects uncertainties about global economic outlook and concerns about high cost of funds.

The decline is also more pronounced because most of corporate houses in past years have increased their exposure to services export sector. With global slowdown, services export are likely to be worst affected. The despondency in the corporate world may have much to do with

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the difficulties that many of them may be facing with their software export companies where anything less than a double-digit growth creates headaches.

There is no data available about sector-wise business expectations. Agro-based industries and other manufacturing companies are not likely to be as negative in their outlook towards future.

**Table 2.4 – Business Expectations surveyed by various agencies**

| Agency | Business Expectations | | Growth over a year ago % | Growth over previous round % |
|---|---|---|---|---|
| | Period | Index | | |
| NCAER | November 2008-January 2009 | Business Confidence Index | -40.6 | -23.8 |
| CII | October 2008-March 2009 | Business Confidence Index | -15.1 | -7.7 |
| Dun & Bradstreet | April-June 2009 | Business Optimism Index | -39.0 | -2.0 |

The above surveys have been carried out before the poll results were announced. There has been a change after announcement of the results. Situation has not changed for business houses, who have a significant portion of their revenues coming from services exports. For all companies deriving revenues from domestic market, the outlook has certainly improved from what it seemed like a few months ago.

## 2.6. Monsoon

According to India Meteorological Department (IMD) forecast released in April 2009, the rainfall during the South-West monsoon season (June-September) 2009 for the country as whole was likely to be 96 per cent of the Long Period Average (LPA) with a model error of +/- 5 per cent.

On 24 June 2009, IMD modified the above forecast. IMD's long range forecast update for the 2009 south-west monsoon season (June to September) is that monsoon season rainfall for the country as a whole is likely to be 93% of the long period average with a model error of ±4%. The Long period average rainfall over the country as a whole for the period 1941-1990 is 89 cm.

Over the four broad geographical regions of the country, rainfall for the 2009 South-West Monsoon Season is likely to be 81% of its LPA over North-West India, 92% of its LPA over North-East India, 99% of its LPA over Central India and 93% of its LPA over South Peninsula, all with a model error of ± 8 %.

The most worrying aspect of the above forecast is that North-West India, which receives less average rain than the rest of the country, is likely to face a drought like situation. North-West India includes some of the most fertile lands of the country.

The long period average and coefficient of variation of rainfall based on the 1941-1990 data for all India and 4 broad geographical regions are given below along with the forecasts:

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**Table 2.5 – Forecast for 2009 Southwest Monsoon Rainfall issued by IMD on 24 June 2009**

| Area | Long period Average (mm) | Coefficient of variation (%) | Forecast % of LPA |
|---|---|---|---|
| All India (June to September) | 890 | 10 | 93 |
| NW India | 612 | 19 | 81 |
| Central India | 994 | 14 | 99 |
| NE India | 1429 | 8 | 92 |
| South Peninsula | 725 | 15 | 93 |
| Source: Indian Meteorological Department Press Release dated 24 June 2009 | | | |

The operational forecast issued by IMD for the 2008 seasonal rainfall over the country as a whole was accurate as the first and second stage forecasts were 99 per cent and 100 per cent of LPA respectively and the actual rainfall was 98 per cent of LPA.

During 2008, seasonal rainfall was 107 per cent of its LPA over Northwest India, 96 per cent of its LPA over Central India, 96 per cent of its LPA over south Peninsula and 94 per cent of its LPA over Northeast India. Out of 36 meteorological subdivisions, 30 meteorological subdivisions recorded normal rainfall. Only 2 (Punjab and Orissa) recorded excess rainfall. Deficient rainfall was recorded in Nagaland, Manipur, Mizoram & Tripura, West Madhya Pradesh, Vidarbha and Kerala. 92 per cent of the country's area comprising 32 meteorological subdivisions received excess/normal rainfall and the remaining 8 per cent received deficient rainfall during the season.

If IMD forecast for 2009 (93 per cent of LPA) is correct, during 2009 higher percentage area of the country will receive deficient rainfall. This can lead to drought-like situation in many regions of the country. The forecast for 2009 monsoon had caused some concern but the real reason for worry is the progress of monsoon till mid-August.

Rainfall till 12 August. Red areas received deficient rain (-20% to -59%), Yellow – scanty rain (-60% to -99%), Green – normal (-19% to +19%), Blue- Excess (>+19%)

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## 2.7. Population

**Table 2.6 – India's population – official projections**

| Year | Population | Urban Population |
|---|---|---|
| As on 1st March | million | % |
| 2004 | 1,079 | 28.5 |
| 2005 | 1,096 | 28.7 |
| 2006 | 1,112 | 28.9 |
| 2007 | 1,129 | 29.1 |
| 2008 | 1,145 | 29.3 |
| 2009 | 1,161 | 29.6 |
| 2010 | 1,177 | 29.8 |
| 2011 | 1,193 | 30.0 |
| 2012 | 1,208 | 30.2 |
| 2013 | 1,224 | 30.5 |
| 2014 | 1,239 | 30.7 |
| Source: Registrar General & Census Commissioner | | |

Some interesting facts about India's population are as under:

- The population of India is expected to increase from 1029 million to 1400 million during the period 2001-2026 - an increase of 36 percent in twenty- five years at the rate of 1.2 percent annually. As a consequence, the density of population will increase from 313 to 426 persons per square kilometer.

- The crude birth rate will decline from 23.2 during 2001-05 to 16.0 during 2021-25 because of falling level of total fertility. In contrast, the crude death rate is expected to fall marginally due to changing age structure of the population with the rising median age as a result of continuing decline in fertility and increase in the expectation of life at birth. It will drop from 7.5 during 2001-05 to 7.2 during 2021-25.

- Between 2001 and 2026, because of the declining fertility, the proportion of population aged under 15 years is projected to decline from 35.4 to 23.4 percent; the proportion of the middle (15-59 years) and the older ages (60 years and above) are set to increase considerably. With the declining fertility, along with the increases in life expectancy, the number of older persons in the population is expected to increase by more than double from 71 million in 2001 to 173 million in 2026 - an increase in their share to the total population from 6.9 to 12.4 percent. The proportion of population in the working age-group 15-59 years is expected to rise from 57.7 percent in 2001 to 64.3 percent in 2026.

- Another important consequence of the declining fertility will be that, at the national level, the population in the school-going age of 5-14 years is expected to decline from 243 million in 2001 to 222 million in 2026. The share of the population aged 5-14 years to total population of all ages is expected to decrease by 5 percent from 24 percent in 2001 to 19 per cent in 2011 and by 3 per cent between 2011 to 2026 (19 to 16 per cent).

- The youth population in the age- group 15-24 years is expected to increase from 195 million in 2001 to 240 million in 2011 and then continue to decrease to 224 million in 2026. Its proportion to total population is expected to fall from 19 per cent in 2001 to 16 per cent in 2026.

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Rural and urban population of different states of India is as follows.

**Table 2.7– Population – rural and urban – of states**

| State | Rural | Urban |
|---|---|---|
| | 000 persons | |
| Andhra Pradesh | 54,227 | 18,642 |
| Arunanchal Pradesh | 771 | 100 |
| Assam | 22,913 | 2,337 |
| Bihar | 66,754 | 6,811 |
| Chhattisgarh | 18,192 | 3,291 |
| Delhi | 840 | 11,579 |
| Goa | 671 | 403 |
| Gujarat | 30,936 | 16,284 |
| Haryana | 15,821 | 5,742 |
| Himachal Pradesh | 5,558 | 581 |
| Jammu & Kashmir | 5,065 | 1,705 |
| Jharkhand | 20,343 | 3,910 |
| Karnataka | 34,112 | 15,168 |
| Kerala | 23,567 | 7,230 |
| Madhya Pradesh | 46,018 | 14,069 |
| Maharashtra | 55,122 | 37,219 |
| Manipur | 1,452 | 469 |
| Meghalaya | 1,805 | 277 |
| Mizoram | 428 | 279 |
| Nagaland | 572 | 238 |
| Orissa | 32,108 | 5,083 |
| Punjab | 15,707 | 7,450 |
| Rajasthan | 42,977 | 12,319 |
| Sikkim | 447 | 57 |
| Tamil Nadu | 34,508 | 21,564 |
| Tripura | 2,751 | 449 |
| Uttar Pradesh | 132,536 | 32,414 |
| Uttaranchal | 6,373 | 1,944 |
| West Bengal | 59,617 | 19,320 |
| A&N Islands | 197 | 101 |
| Chandigarh | 90 | 794 |
| Dadra & Na. Haveli | 181 | 24 |
| Daman & Diu | 107 | 58 |
| Lakshwadeep | 29 | 29 |
| Pondicherry | 311 | 568 |
| **All-India** | **733,107** | **248,505** |
| Source: NSS Survey, 2004-05 | | |

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## 2.8. Map Of India showing states

**Chart 2.2 – Map of India showing states**




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## 2.9. Key Economic Indicators

**Table 2.8 – Key Indicators of India's economy – absolute values**

| S. No. | Item | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
|---|---|---|---|---|---|---|
| | | Absolute Values | | | | |
| 1 | Gross Domestic Product at factor cost (Rs. billion) | | | | | |
| | At current prices | 28,780 | 32,760 | 37,794 | 43,209 | 49,332 |
| | At 1999-2000 prices | 23,880 | 26,130 | 28,711 | 31,297 | 33,394 |
| 2 | Gross Domestic Product at market prices (Rs. billion) | | | | | |
| | At current prices | 31,490 | 35,800 | 41,292 | 47,234 | 53,218 |
| 3 | Gross National Product at factor cost (Rs. billion) | | | | | |
| | At current prices | 28,550 | 32,500 | 37,496 | 42,970 | 49,062 |
| | At 1999-2000 prices | 23,670 | 25,930 | 28,498 | 31,149 | 33,236 |
| 4 | Foodgrains Production (mio tons) | 198.4 | 208.6 | 217.3 | 230.8 | 229.9 |
| 5 | Index of Industrial Production | 204.8 | 221.5 | 247.1 | 268.0 | 274.3 |
| Source: Economic Survey 2007-08; Central Statistical Organisation; Reserve Bank of India | | | | | | |

**Table 2.9 – Key Indicators of India's economy – Percentage change over previous year**

| S. No. | Item | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
|---|---|---|---|---|---|---|
| | | Percentage change over previous period | | | | |
| 1 | Gross Domestic Product at factor cost | | | | | |
| | At current prices | 13.4 | 13.8 | 15.7 | 14.3 | 14.2 |
| | At 1999-2000 prices | 7.5 | 9.4 | 9.6 | 9.0 | 6.7 |
| 2 | Gross Domestic Product at market prices | | | | | |
| | At current prices | 14.3 | 13.7 | 15.8 | 14.4 | 12.7 |
| 3 | Gross National Product at factor cost | | | | | |
| | At current prices | 13.3 | 13.8 | 15.7 | 14.6 | 14.2 |
| | At 1999-2000 prices | 7.3 | 9.6 | 9.7 | 9.3 | 6.7 |
| 4 | Foodgrains Production | -7.0 | 5.2 | 4.2 | 6.2 | -0.4 |
| 5 | Index of Industrial Production | 8.4 | 8.2 | 11.6 | 8.5 | 2.4 |
| Source: Economic Survey 2007-08; Central Statist. Organisation; Reserve Bank of India; HS&SL | | | | | | |

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## 2.10. Balance of Payments & International Trade

The impact of the rapid shrinkage in global demand and trade was particularly felt on India's current account in second half of 2008-09 with widening trade deficit, some moderation in services exports and remittances and the consequent expansion in current account deficit.

With exports recording a steady decline since October 2008, the growth in the overall exports during 2008-09 (April-March) at USD 166.7 billion decelerated to 2.4 per cent (as against an increase of 28.9 per cent in 2007-08).

Imports have recorded a steady decline since December 2008 and the overall imports during 2008-09 at USD 283.8 billion, experienced a growth of 12.9 per cent, much lower than that registered during the previous year (35.4 per cent) on account of deceleration in both oil and non-oil imports.

India's trade deficit widened during 2008-09 to USD 117.1 billion, an increase of USD 28.6 billion (32.3 per cent) over the corresponding period of the previous year.

The adverse impact of the global financial market turmoil and liquidity problems on India's Balance of Payments was also felt in terms of reversal of foreign institutional investment inflows and decline in long-term and short-term debt flows. A positive development was, however, turnaround in NRI (non-resident Indian) flows and resilience of FDI (foreign direct investment) inflows in the face of reversal of capital flows, reflecting the attractiveness of India as a long term investment destination. The higher gross capital outflows during the second half of 2008-09 due to large portfolio outflows and higher repayments under short-term trade credits led to a negative capital account balance during the period.

**Table 2.10 – India's Balance of Payments during 2007-08 and April-December 2008-09**

(US$ billion)

| Item | 2007-08 PR | 2007-08 PR | | | | 2008-09 P | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Apr-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Apr-Dec | Apr-Jun | Jul-Sep | Oct-Dec | Apr-Dec |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Exports | 166.2 | 34.4 | 38.3 | 41.0 | 113.6 | 49.1 | 47.7 | 36.7 | 133.5 |
| Imports | 257.8 | 56.3 | 59.5 | 67.0 | 182.9 | 79.6 | 86.2 | 73.0 | 238.9 |
| Trade Balance | -91.6 | -22.0 | -21.2 | -26.1 | -69.3 | -30.5 | -38.5 | -36.3 | -105.3 |
| Net Invisibles | 74.6 | 15.3 | 16.9 | 21.5 | 53.8 | 21.5 | 25.7 | 21.7 | 68.9 |
| Current Account Balance | -17.0 | -6.7 | -4.3 | -4.5 | -15.5 | -9.0 | -12.8 | -14.6 | -36.5 |
| Net Capital Account | 108.0 | 17.8 | 33.2 | 31.0 | 82.0 | 11.1 | 7.9 | -3.7 | 15.3 |
| Overall Balance* | 92.2 | 11.2 | 29.2 | 26.7 | 67.2 | 2.2 | -4.7 | -17.9 | -20.4 |
| *Memo:* | | | | | | | | | |
| Export growth (%) | 28.9 | 15.8 | 17.0 | 33.0 | 21.9 | 43.0 | 24.6 | -10.4 | 17.5 |
| Import growth (%) | 35.2 | 20.9 | 22.2 | 41.9 | 28.3 | 41.3 | 44.9 | 8.9 | 30.6 |
| Invisibles receipts growth (%) | 29.7 | 19.8 | 36.8 | 33.2 | 30.1 | 28.4 | 32.9 | -0.6 | 18.8 |
| Invisibles payments growth (%) | 18.7 | 17.3 | 17.0 | 6.9 | 13.2 | 15.5 | 14.3 | -2.1 | 8.7 |

*: Overall balance includes errors and omissions. PR: Partially Revised. P: Preliminary.

Source: Reserve Bank of India

Combined effect of negative capital account balance and current account deficit led to erosion



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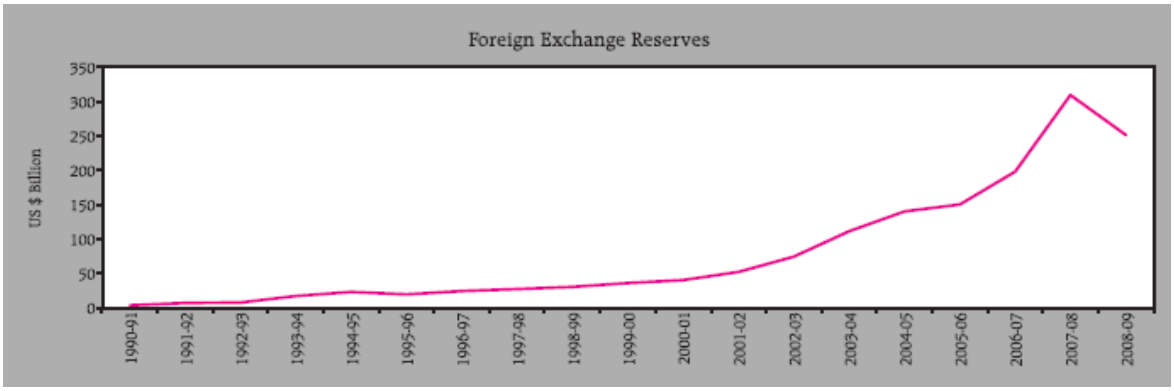
of foreign exchange reserves during 2008-09.

**Table 2.11 – India's Foreign Exchange Reserves from 2002-03 to 2008-09**

| End of | Total Foreign Exchange Reserves | |
|---|---|---|
| | Rupees Billion | USD Billion |
| 2002-03 | 3,615 | 76 |
| 2003-04 | 4,901 | 113 |
| 2004-05 | 6,191 | 142 |
| 2005-06 | 6,764 | 152 |
| 2006-07 | 8,682 | 199 |
| 2007-08 | 12,380 | 310 |
| 2008-09 | 12,839 | 252 |
| Source: Reserve Bank of India | | |

**Chart 2.3 –Chart showing India's Foreign Exchange Reserves from 1990-91 to 2008-09**




Source: Reserve Bank of India

Outflows on capital account and current account deficit led on one hand to reduction of foreign exchange reserves. On the other hand, it led to demand for US Dollars in the market leading the US currency to appreciate against Indian Rupee.

In the April-June 2009 quarter, there has been a reversal in the USD-INR exchange rate curve (see next section) indicating a fall in the demand for Dollars in the market. This indicates that the worst is over for Indian economy as far as effect of global economic downturn is concerned.

## 2.11. Foreign Exchange

During 2008-09, the rupee depreciated on account of widened trade deficit, capital outflows and strengthening of the US dollar vis-à-vis other major currencies. The rupee/US dollar exchange rate was Rs. 39.99 per dollar at end-March 2008. It fell to Rs. 52.09 per dollar on March 5, 2009, before recovering to Rs. 50.95 per dollar at end-March 2009. As on March 31, 2009, the Indian rupee had depreciated by 21.5 per cent against the US dollar over its level on March 31, 2008. Over the same period, the rupee experienced a depreciation of 6.5 per cent against the euro, 22.8 per cent against the Japanese yen and 23.6 per cent against the Chinese yuan. However, the rupee showed an appreciation of 9.1 per cent against the pound sterling. The rupee/US dollar exchange rate was 49.90 on April 15, 2009. As on April 15, 2009, the rupee had generally appreciated against the US dollar, the euro and the Japanese yen but depreciated against the pound sterling over the end-March 2009 level.

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**Chart 2.4 – Movement of Rupee vis-à-vis Major Currencies**

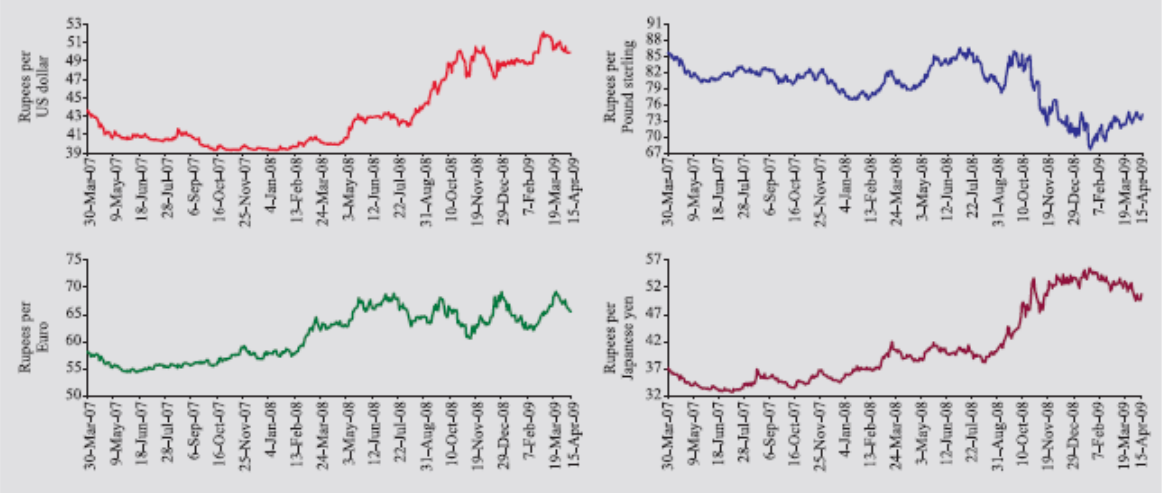
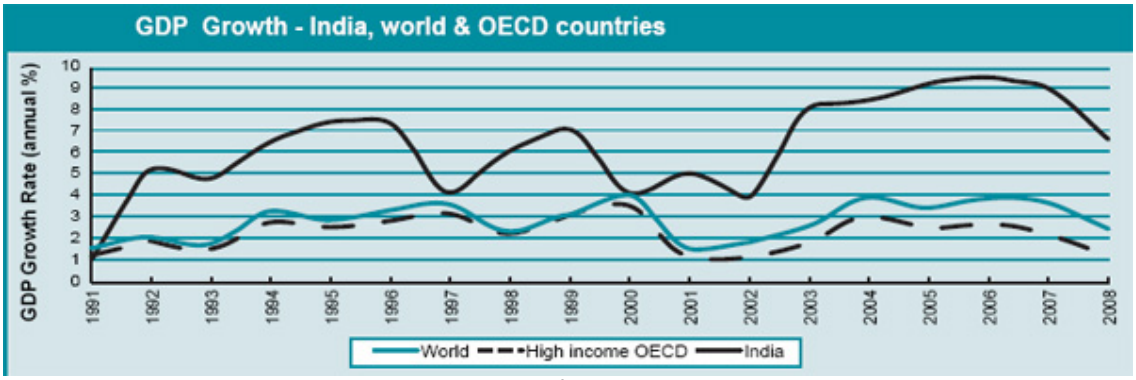



**Table 2.12 – RBI Reference Rate for Indian Rupee against major currencies from 2003 to 2009**

| Date | 1 USD = | 1 GBP = | 1 EURO= | 100 YEN= |
|---|---|---|---|---|
| 15-May-09 | 49.55 | 75.30 | 67.38 | 51.87 |
| 15-May-08 | 42.40 | 82.57 | 65.84 | 40.51 |
| 15-May-07 | 40.87 | 80.99 | 55.39 | 33.98 |
| 15-May-06 | 45.39 | 85.88 | 58.55 | 41.34 |
| 16-May-05 | 43.49 | 80.22 | 54.75 | 40.37 |
| 14-May-04 | 45.44 | 80.05 | 53.72 | 39.71 |
| 19-May-03 | 47.06 | 76.78 | 55.06 | 40.84 |
| Source: Reserve Bank of India | | | | |

**Chart 2.5 – Comparison of growth of India, world and OECD countries from 1991 to 2008**




Source: Economic Survey 2008-09



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# 3. Livestock Scenario

## 3.1. Livestock overview

India ranks first in respect of buffalo, 2nd in cattle and goats, 3rd in sheep, 4th in ducks, 5th in chickens and 6th in camel population in the world. India has 57 per cent of the world's buffalo population.

India possesses 27 acknowledged indigenous breeds of cattle and seven breeds of buffaloes. Various government sponsored schemes are being implemented for genetic improvement of cattle and buffalo with a view to enhance the per capita availability of consumption of milk through increased milk production. Efforts are also made to protect and preserve the indigenous cattle and buffalo in their native tract, which are facing threat of extinction. The elite animals are selected and registered on the basis of their performance for production of superior pedigree bulls, bullmothers, frozen semen and frozen embryos for future breeding improvements.

The National Project for Cattle and Buffalo Breeding envisages 100 per cent grant in aid to implementing agencies. The Project will also promote about 34,000 private A.I. practitioners and build up an annual frozen semen production capacity of 70 million doses.

Cow is a holy animal for a large percentage of India's population. Hence, the slaughter of cow and cow's progeny is banned in many states. This decreases the utility of male animals. Traditionally bullocks were used in fields. With increasing use of tractors and electrical equipment, bullocks have lost much of their utility. In the absence of significant value generation from males, the cattle sector as a whole is declining.

In India, there have been some efforts at improving genetic structure of cattle by introduction of higher yielding breeds. However, wide scale adoption of crossbreeds is restricted due to their non-acclimatization to the tropical climates prevailing in most parts of the country. Besides, their higher maintenance cost, lower disease resistance, and the poor success of artificial insemination are other barriers to adoption of crossbreeding. There are also species-specific constraints. The crossbred cow has to be replaced frequently to maintain the flow of benefits. Thus, frequent and higher acquisition costs, lack of disposal facilities (cattle slaughter is banned in most Indian states), and poor draught characteristics of male cattle are important impediments to wide-scale adoption of crossbreeding technology in cattle. Nonetheless, under certain ecological and economic conditions, adoption of crossbreeding technology in cattle has been quite encouraging. The states of Kerala and Punjab, for instance, have a considerably higher proportion of crossbred cattle.

Buffalo has gained in India due to the religious baggage associated with cow. There are no restrictions on buffalo slaughter. While meat contributes to the value equation of buffaloes, one cannot also ignore the fact that due to centuries of selective breeding Indian buffalo yields more milk than a common Indian cow. As a result, buffalo herds had been increasing at a rate of about 2 per cent per annum. In recent years, there has been a slowdown in the growth of buffalo herds due to factors like shortage of fodder and grazing lands, low prices of milk etc. It is expected that demand-side pressures will continue to push the growth in buffalo, though it may be difficult to touch the 2 per cent per annum mark.

Buffalo, as a dairy animal, is almost unique to India and surrounding countries. National Dairy Development Board (NDDB) has made efforts for improving buffalo herd management practices. Efforts towards upgrading of buffalo breeds have been indigenous. In certain regions,

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nondescript low-milk-yielding species have been upgraded using high-milk-yielding breeds such as the Murrah.

A large number of India's livestock, particularly in the arid and semi-arid environments, suffer from inadequate feeding. The feed and fodder shortages, in fact, have been the main limiting factors in raising livestock productivity. Cereal crop residues comprise the main feed for livestock. However, these are deficient in crude protein and several other nutrients. Concentrate feeding is restricted to lactating, high-yielding bovines and work animals. Small ruminants derive their feed requirements mainly from grazing on common lands.

Arable agriculture contributes a major fodder resource in the form of crop residues which are extensively fed to the animals. Wheat straw is transported from surplus areas such as Punjab and Haryana to deficit areas, mostly the Himalayan hills. Fodder crops like oats, Egyptian clover, fodder rape and chicory are grown during winter, while maize, pennisetum, sorghum and cowpeas are sown during the summer. Cultivation of forage crops is restricted to irrigated areas and land rich farmers. Sale of green fodder through retail outlets is a common practice. Cultivation of perennial grasses such as napier and napier X Bajra (*Pennisetum*) hybrids is becoming popular. Intensive fodder cultivation is restricted to States such as Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Gujarat, Maharashtra, Andhra Pradesh and Karnatka. The area cultivated for fodder amounts to 4 per cent of the total cultivable area. However, exclusive pastures and grasslands are widespread and are grazed by domestic animals. The total area of permanent pastures and grasslands is about 12.4 million ha or 3.9 per cent of the country's geographical area. An area of 15.6 million ha, classified as waste land, is also used for grazing. Forests, and their associated grasslands and fodder trees, are another major source of grazing and fodder collection.

While decrease of pastures and grazing lands has already started affecting the growth of goat and sheep, shortage of green fodder is becoming a strong constraint for dairy animals.

The growth in area under fodder crops has been sluggish in most parts of the country, except in the irrigated regions. This is a reflection of the rising competition between food and fodder crops for limited land and other resources. Crop breeding research has evolved high-yielding varieties of a number of forage crops. However, these have not been adopted widely due to lack of awareness about new cultivars, non-availability of irrigation water throughout the year, and problems of insect pests/diseases.

As a result of the above factors, the growth of cattle and buffalo herds in India is not keeping pace with the growth of human population. Table and chart given later illustrate this very well.

In 1987 India had 255 cows and 97 buffaloes per 1000 persons. The corresponding figures for 2007 were 158 cows and 87 buffaloes per 1000 humans. In absolute terms, the number of cattle reduced during the period from 199.695 million to 177.840 million while the number of buffaloes increased from 75.967 million to 98.7 million. The reduction in number of cattle has been offset by the increase in buffaloes keeping the total number of bovines constant at about 276 million. Since the population of India is increasing every year, the constant number of bovines translates into reducing bovines per 1000 persons.

In spite of the number of bovines remaining constant, Indian milk production has been rising constantly. In the twenty years when bovine population has remained constant, milk production has more than doubled. During the said 20 years, even though the number of animals per 1000 persons has reduced, the availability of milk per person has increased from about 160g/person/day to 252 g/person/day. This indicates increasing efficiency of milk production in India.

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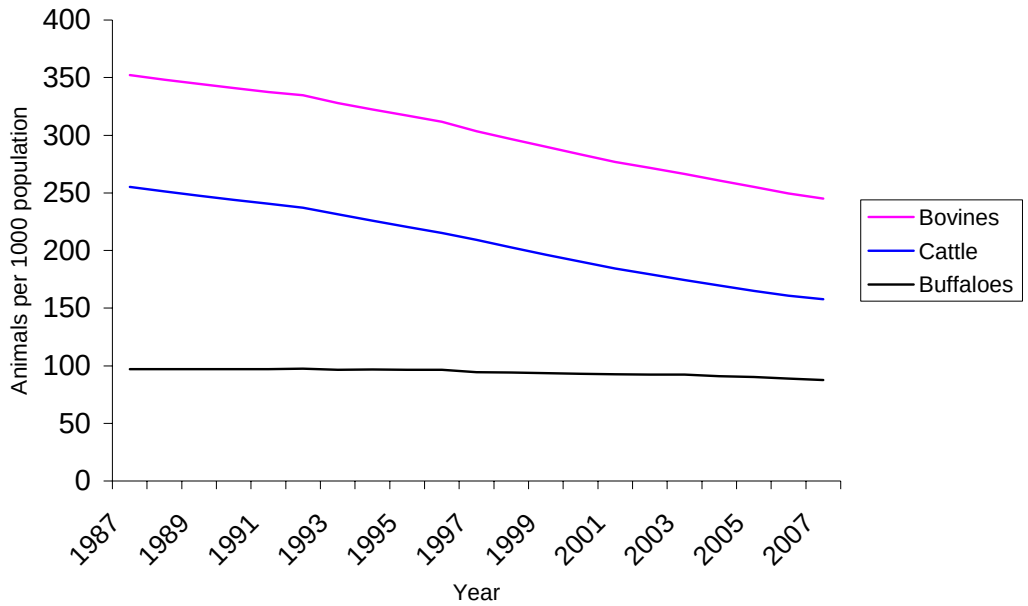
**Table 3.1 – Bovine herd size in India from 1987 to 2007 in relation to human population**

| YEAR | Cattle | Buffalo | Total | Population | Animals per |
|---|---|---|---|---|---|
| | 000 | 000 | 000 | Million | 1000 popul. |
| 1987 | 199,695 | 75,967 | 275,662 | 783 | 352 |
| 1988 | 200,650 | 77,470 | 278,120 | 798 | 348 |
| 1989 | 201,600 | 79,000 | 280,600 | 814 | 345 |
| 1990 | 202,500 | 80,570 | 283,070 | 830 | 341 |
| 1991 | 203,500 | 82,160 | 285,660 | 846 | 337 |
| 1992 | 204,584 | 84,206 | 288,790 | 863 | 335 |
| 1993 | 203,634 | 84,850 | 288,484 | 880 | 328 |
| 1994 | 202,684 | 86,719 | 289,403 | 897 | 322 |
| 1995 | 201,734 | 88,375 | 290,109 | 915 | 317 |
| 1996 | 200,784 | 90,063 | 290,847 | 933 | 312 |
| 1997 | 198,882 | 89,918 | 288,800 | 951 | 304 |
| 1998 | 196,535 | 91,252 | 287,787 | 970 | 297 |
| 1999 | 194,216 | 92,586 | 286,802 | 989 | 290 |
| 2000 | 191,924 | 93,920 | 285,844 | 1,009 | 283 |
| 2001 | 189,660 | 95,254 | 284,914 | 1,029 | 277 |
| 2002 | 187,422 | 96,588 | 284,010 | 1,046 | 272 |
| 2003 | 185,180 | 97,922 | 283,102 | 1,062 | 266 |
| 2004 | 182,996 | 98,175 | 281,171 | 1,079 | 261 |
| 2005 | 180,837 | 98,875 | 279,712 | 1,096 | 255 |
| 2006 | 178,703 | 98,805 | 277,508 | 1,112 | 250 |
| 2007 | 177,840 | 98,700 | 276,540 | 1,129 | 245 |

Source: FAO & HS&SL

**Chart 3.1 –Herd size of cattle and buffaloes in India from 1987 to 2007 in relation to human population**



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## 3.2. Livestock herd size by species

**Table 3.2 – Livestock herd size in India by species**

| Species | 1951 | 1956 | 1961 | 1966 | 1972 | 1977 | 1982 | 1987 | 1992 | 1997 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | In Millions | | | | | | | | | | |
| Cattle | 155.3 | 158.7 | 175.6 | 176.2 | 178.3 | 180 | 192.5 | 199.7 | 204.6 | 198.9 | 185.2 |
| Adult Female Cattle | 54.4 | 47.3 | 51 | 51.8 | 53.4 | 54.6 | 59.2 | 62.1 | 64.4 | 64.4 | 64.5 |
| Buffalo | 43.4 | 44.9 | 51.2 | 53 | 57.4 | 62 | 69.8 | 76 | 84.2 | 89.9 | 97.9 |
| Adult Female Buffalo | 21 | 21.7 | 24.3 | 25.4 | 28.6 | 31.3 | 32.5 | 39.1 | 43.8 | 46.8 | 51 |
| **Total Bovines** | **198.7** | **203.6** | **226.8** | **229.2** | **235.7** | **242** | **262.2** | **275.7** | **288.8** | **288.8** | **283.1** |
| Sheep | 39.1 | 39.3 | 40.2 | 42.4 | 40 | 41 | 48.8 | 45.7 | 50.8 | 57.5 | 61.5 |
| Goat | 47.2 | 55.4 | 60.9 | 64.6 | 67.5 | 75.6 | 95.3 | 110.2 | 115.3 | 122.7 | 124.4 |
| Horses and Ponies | 1.5 | 1.5 | 1.3 | 1.1 | 0.9 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 |
| Camels | 0.6 | 0.8 | 0.9 | 1 | 1.1 | 1.1 | 1.1 | 1 | 1 | 0.9 | 0.6 |
| Pigs | 4.4 | 4.9 | 5.2 | 5 | 6.9 | 7.6 | 10.1 | 10.6 | 12.8 | 13.3 | 13.5 |
| Mules | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 |
| Donkeys | 1.3 | 1.1 | 1.1 | 1.1 | 1 | 1 | 1 | 1 | 1 | 0.9 | 0.7 |
| Yak | NC | NC | 0 | 0 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.1 |
| Mithun | NA | NA | NA | NA | NA | NA | NA | NA | 0.2 | 0.2 | 0.3 |
| **Total Livestock** | **292.9** | **306.6** | **336.5** | **344.5** | **353.2** | **369.4** | **419.6** | **445.2** | **470.9** | **485.4** | **485** |

NC : Not Collected; NA: Not Available * Includes Chicken, ducks, turkey & other birds

Source : Livestock Census 2003

**Table 3.3 – Annual Growth Rate of Livestock herd size in India by species**

| Species | 1951-56 | 1956-61 | 1961-66 | 1966-72 | 1972-77 | 1977-82 | 1982-87 | 1987-92 | 1993-97 | 1997-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Growth Rate in Per Cent | | | | | | | | | |
| Cattle | 0.43 | 2.04 | 0.07 | 0.24 | 0.19 | 1.35 | 0.74 | 0.49 | -0.56 | -1.18 |
| Adult Female Cattle | -2.76 | 1.52 | 0.31 | 0.61 | 0.45 | 1.63 | 0.95 | 0.73 | 0.02 | 0.02 |
| Buffalo | 0.68 | 2.66 | 0.69 | 1.61 | 1.55 | 2.39 | 1.71 | 2.08 | 1.32 | 1.43 |
| Adult Female Buffalo | 0.66 | 2.29 | 0.89 | 2.4 | 1.82 | 0.76 | 3.78 | 2.29 | 1.32 | 1.44 |
| Total Bovines | **0.49** | **2.18** | **0.21** | **0.56** | **0.53** | **1.62** | **1** | **0.93** | **0** | **-0.33** |
| Sheep | 0.1 | 0.45 | 1.07 | -1.16 | 0.5 | 3.53 | -1.29 | 2.13 | 2.51 | 1.12 |
| Goat | 3.26 | 1.91 | 1.19 | 0.88 | 2.29 | 4.73 | 2.96 | 0.9 | 1.26 | 0.22 |
| Horses and Ponies | 0 | -2.82 | -3.29 | -3.93 | 0 | 0 | -2.33 | 0.5 | 0.24 | -1.68 |
| Camels | 5.92 | 2.38 | 2.13 | 1.92 | 0 | -0.37 | -1.53 | 0.59 | -2.45 | -5.94 |
| Pigs | 2.18 | 1.2 | -0.78 | 6.65 | 1.95 | 5.79 | 1.09 | 3.77 | 0.77 | 0.29 |
| Mules | -7.79 | 4.56 | 9.86 | 0 | 2.38 | 7.63 | 5.51 | 2.25 | 2.98 | -4.21 |
| Donkeys | -3.29 | 0 | 0 | -1.89 | 0 | 0.4 | -1.21 | 0.21 | -1.93 | -4.92 |
| Yak | NC | NC | 8.45 | 5.92 | 26.58 | 0 | -21 | 8.45 | 0 | 0 |
| **Total Livestock** | **0.92** | **1.87** | **0.47** | **0.55** | **0.9** | **2.58** | **1.19** | **1.13** | **0.61** | **-0.01** |

NC : Not Collected; Source: Department of Animal Husbandry, Govt. of India

The above figures are from Livestock Census 2003. Government of India conducts livestock census every 5 years. Results of 2008 census had not been published till end of June 2009. FAO data for cattle, buffaloes and goats till 2007 is as follows.

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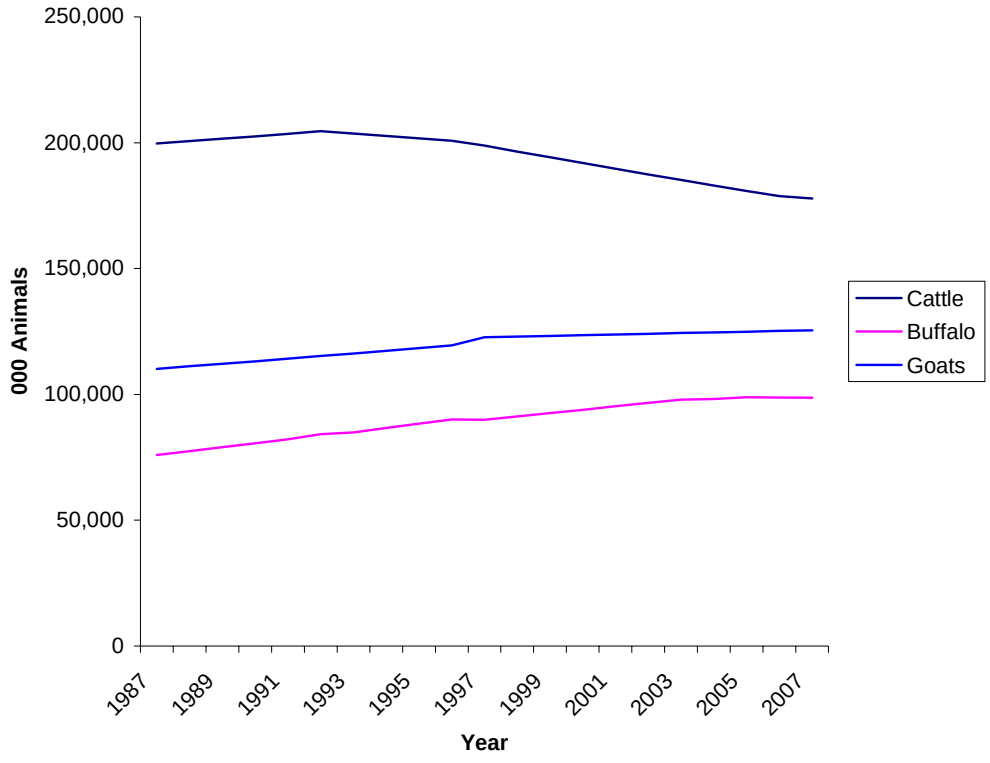
**Table 3.4 – Cattle, Buffalo and goat herd sizes in India from 2000 to 2007**

| Year | Cattle | Buffaloes | Goats |
|---|---|---|---|
| | 000 Animals | | |
| 2000 | 191,924 | 93,920 | 123,533 |
| 2001 | 189,660 | 95,254 | 123,805 |
| 2002 | 187,422 | 96,588 | 124,077 |
| 2003 | 185,180 | 97,922 | 124,358 |
| 2004 | 182,996 | 98,175 | 124,632 |
| 2005 | 180,837 | 98,875 | 124,906 |
| 2006 | 178,703 | 98,805 | 125,181 |
| 2007 | 177,840 | 98,700 | 125,456 |
| Source: FAO | | | |

**Chart 3.2 – Herd size of cattle and buffaloes in India from 1987 to 2007**



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## 3.3. State-wise Dairy Animals herd size & Average Yield

**Table 3.5 – Crossbred cows – Numbers and average yield in various states**

| States / Union Territories | No. of animals in Milk ('000 No.s) | | | | Average Yield Per Animal in Milk (kg/day) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
| Andhra Pradesh | 340.0 | 343.6 | 388.0 | 392.0 | 6.954 | 7.147 | 7.365 | 7.345 |
| Arunanchal Pradesh | 11.9 | 12.0 | 6.0 | 1.0 | 7.770 | 7.700 | 6.705 | 6.000 |
| Assam | 120.0 | 124.6 | 122.0 | 124.0 | 3.333 | 3.288 | 3.490 | 3.522 |
| Bihar | 61.9 | 74.2 | 367.0 | 366.0 | 5.527 | 5.780 | 5.517 | 5.607 |
| Chattisgarh | 36.1 | 36.3 | 38.0 | 39.0 | 3.856 | 3.861 | 3.863 | 3.874 |
| Goa | 5.0 | 5.4 | 9.0 | 9.0 | 6.586 | 6.958 | 7.506 | 7.167 |
| Gujarat | 129.2 | 142.6 | 160.0 | 170.0 | 8.015 | 8.223 | 8.183 | 8.324 |
| Haryana | 234.3 | 240.5 | 190.0 | 189.0 | 6.796 | 6.791 | 6.842 | 6.871 |
| Himachal Pradesh | 107.1 | 107.7 | 246.0 | 254.0 | 3.369 | 3.363 | 3.100 | 3.184 |
| Jammu & Kashmir* | - | - | - | - | - | - | - | |
| Jharkand | 46.3 | 42.6 | 53.0 | 56.0 | 6.351 | 6.058 | 5.955 | 5.577 |
| Karnataka | 543.4 | 685.0 | 697.0 | 699.0 | 5.995 | 5.575 | 5.629 | 5.833 |
| Kerala | 829.3 | 723.6 | 705.0 | 703.0 | 6.901 | 7.007 | 7.007 | 7.164 |
| Madhya Pradesh | 73.3 | 73.5 | 74.0 | 103.0 | 5.861 | 5.863 | 5.864 | 5.922 |
| Maharashtra | 763.0 | 791.0 | 948.0 | 1,017.0 | 6.845 | 6.755 | 6.679 | 6.519 |
| Manipur | 13.3 | 14.0 | 14.0 | 14.0 | 6.689 | 6.735 | 7.547 | 7.490 |
| Meghalaya | 12.3 | 12.7 | 13.0 | 14.0 | 8.927 | 8.962 | 8.988 | 8.929 |
| Mizoram | 3.7 | 3.7 | 4.0 | 4.0 | 8.070 | 8.250 | 8.242 | 8.120 |
| Nagaland | 16.0 | 20.2 | 23.0 | 25.0 | 7.570 | 7.180 | 6.500 | 6.386 |
| Orissa | 228.1 | 232.1 | 294.0 | 305.0 | 5.238 | 5.503 | 4.902 | 5.117 |
| Punjab | 631.1 | 657.6 | 658.0 | 690.0 | 8.550 | 8.682 | 8.738 | 8.948 |
| Rajasthan | 57.0 | 69.0 | 85.0 | 101.0 | 5.423 | 6.217 | 6.060 | 6.971 |
| Sikkim | 19.8 | 21.0 | 19.0 | - | 5.000 | 5.000 | 5.314 | - |
| Tamil Nadu | 840.0 | 904.4 | 922.0 | 1,699.0 | 6.150 | 6.177 | 6.244 | 6.272 |
| Tripura | 18.1 | 18.2 | 18.0 | 18.0 | 3.542 | 3.730 | 3.915 | 4.117 |
| Uttar Pradesh | 553.9 | 578.7 | 598.0 | 535.0 | 6.637 | 6.735 | 6.804 | 6.890 |
| Uttaranchal | 40.6 | 72.3 | 76.0 | 78.0 | 7.020 | 6.736 | 6.664 | 6.686 |
| West Bengal | 464.9 | 494.0 | 524.0 | 557.0 | 5.684 | 5.552 | 5.514 | 5.371 |
| A&N Islands | 4.0 | 4.0 | 4.0 | 4.0 | 4.540 | 4.430 | 4.501 | 3.521 |
| Chandigarh | 4.4 | 4.4 | 4.0 | 4.0 | 9.000 | 8.800 | 8.766 | 8.763 |
| D&N. Haveli* | - | - | - | - | - | - | - | |
| Daman & Diu | - | - | - | 0.004 | - | - | - | 4.073 |
| Delhi | 25.6 | 26.5 | 27.0 | 27.0 | 6.410 | 6.350 | 6.186 | 6.110 |
| Lakshadweep | 0.2 | 0.2 | 0.2 | - | 4.140 | 4.140 | 5.136 | - |
| Pondicherry | 17.4 | 18.1 | 18.0 | 19.0 | 5.370 | 5.450 | 5.673 | 5.645 |
| TOTAL@ | **6,251** | **6,554** | **7,304** | **8,216** | **6.520** | **6.528** | **6.395** | **6.437** |

* Details Not available; '-' denotes no production data reported; @ Total of only those states / UT's for which data reported

Source: Department of Animal Husbandry, Government of India



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**Table 3.6 – Non descript cows – Numbers and average yield in various states**

| States / Union Territories | No. of animals in Milk ('000 No.s) | | | | Average Yield Per Animal in Milk (kg/day) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
| Andhra Pradesh | 1,617.0 | 1,232.1 | 1,200.0 | 1,236.0 | 1.961 | 1.888 | 1.857 | 1.856 |
| Arunanchal Pradesh | 27.9 | 27.9 | 66.0 | 10.0 | 1.180 | 1.180 | 1.364 | 1.150 |
| Assam | 1,360.0 | 1,375.0 | 1,395.0 | 1,382.0 | 0.894 | 0.905 | 0.912 | 0.927 |
| Bihar | 1,218.3 | 1,288.3 | 2,279.0 | 2,260.0 | 1.715 | 1.811 | 1.687 | 1.971 |
| Chattisgarh | 1,346.4 | 1,350.6 | 1,369.0 | 1,356.0 | 0.904 | 0.906 | 0.912 | 0.925 |
| Goa | 17.4 | 18.1 | 17.0 | 17.0 | 1.603 | 1.624 | 1.533 | 1.665 |
| Gujarat | 1,374.1 | 1,395.9 | 1,401.0 | 1,427.0 | 3.153 | 3.196 | 3.308 | 3.344 |
| Haryana | 272.6 | 268.9 | 183.0 | 182.0 | 4.286 | 4.323 | 4.373 | 4.381 |
| Himachal Pradesh | 322.9 | 330.3 | 296.0 | 292.0 | 2.045 | 2.013 | 2.053 | 1.972 |
| Jammu & Kashmir* | - | - | - | - | - | - | - | |
| Jharkand | 736.9 | 721.8 | 1,091.0 | 1,099.0 | 1.562 | 1.727 | 1.585 | 1.575 |
| Karnataka | 1,805.2 | 1,414.0 | 1,437.0 | 1,440.0 | 2.138 | 2.067 | 2.099 | 2.183 |
| Kerala | 189.2 | 142.8 | 116.0 | 112.0 | 2.547 | 2.608 | 2.573 | 2.641 |
| Madhya Pradesh | 3,231.8 | 3,251.6 | 3,267.0 | 3,350.0 | 1.679 | 1.685 | 1.776 | 1.759 |
| Maharashtra | 2,235.0 | 2,258.0 | 1,913.0 | 1,954.0 | 1.445 | 1.460 | 1.453 | 1.460 |
| Manipur | 47.1 | 46.0 | 46.0 | 47.0 | 1.351 | 1.370 | 1.398 | 1.409 |
| Meghalaya | 93.2 | 93.2 | 95.0 | 99.0 | 0.759 | 0.738 | 0.757 | 0.740 |
| Mizoram | 5.5 | 4.5 | 5.0 | 5.0 | 1.513 | 1.560 | 1.682 | 1.099 |
| Nagaland | 25.0 | 22.0 | 12.0 | 13.0 | 1.500 | 0.786 | 2.211 | 2.218 |
| Orissa | 1,702.6 | 1,660.9 | 1,795.0 | 1,767.0 | 0.501 | 0.528 | 0.845 | 0.869 |
| Punjab | 137.9 | 103.0 | 103.0 | 106.0 | 2.381 | 3.099 | 3.106 | 2.758 |
| Rajasthan | 2,196.0 | 2,090.0 | 2,056.0 | 2,075.0 | 2.783 | 2.790 | 2.862 | 3.020 |
| Sikkim | 12.0 | 13.0 | 15.0 | - | 2.000 | 2.000 | 1.676 | - |
| Tamil Nadu | 1,363.0 | 1,311.7 | 1,293.0 | 815.0 | 2.554 | 2.663 | 2.680 | 2.734 |
| Tripura | 133.4 | 131.1 | 128.0 | 127.0 | 1.099 | 1.161 | 1.200 | 1.189 |
| Uttar Pradesh | 3,350.1 | 3,418.1 | 3,463.0 | 3,456.0 | 2.637 | 2.409 | 2.455 | 2.464 |
| Uttaranchal | 390.6 | 385.2 | 394.0 | 394.0 | 1.896 | 1.898 | 1.877 | 1.891 |
| West Bengal | 3,149.5 | 3,199.0 | 3,262.0 | 3,319.0 | 1.933 | 1.932 | 1.949 | 1.963 |
| A&N Islands | 13.0 | 14.0 | 12.0 | 12.0 | 2.340 | 2.170 | 2.444 | 2.073 |
| Chandigarh | 0.4 | 0.3 | 1.0 | 1.0 | 3.500 | 3.000 | 2.883 | 2.933 |
| D&N. Haveli* | - | - | - | - | - | - | - | |
| Daman & Diu | - | - | - | 0.322 | - | - | - | 2.537 |
| Delhi | 13.8 | 14.1 | 15.0 | 15.0 | 4.350 | 4.222 | 4.287 | 4.201 |
| Lakshadweep | 0.3 | 0.4 | 0.3 | - | 3.150 | 3.185 | 2.730 | - |
| Pondicherry | 1.6 | 1.8 | 2.0 | 1.0 | 2.240 | 2.370 | 2.860 | 2.669 |
| **TOTAL@** | **28,389** | **27,583** | **28,723** | **28,370** | **1.903** | **1.923** | **1.945** | **1.970** |

* Details Not available; '-' denotes no production data reported; @ Total of only those states / UT's for which data reported

Source: Department of Animal Husbandry, Government of India



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**Table 3.7 – Buffaloes – Numbers and average yield in various states**

| States / Union Territories | No. of animals in Milk ('000 No.s) | | | | Average Yield Per Animal in Milk (kg/day) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
| Andhra Pradesh | 3,912.0 | 3,733.0 | 3,774.0 | 3,961.0 | 3.196 | 3.813 | 3.920 | 3.967 |
| Arunanchal Pradesh | - | - | - | - | - | - | - | - |
| Assam | 146.0 | 141.0 | 145.0 | 146.0 | 1.671 | 1.789 | 1.765 | 1.748 |
| Bihar | 1,298.4 | 1,365.0 | 1,923.0 | 1,989.0 | 3.479 | 3.651 | 3.411 | 3.406 |
| Chattisgarh | 264.5 | 266.0 | 271.0 | 271.0 | 2.782 | 2.801 | 2.825 | 2.886 |
| Goa | 18.5 | 20.0 | 21.0 | 21.0 | 3.541 | 3.160 | 3.096 | 3.064 |
| Gujarat | 2,690.9 | 2,756.0 | 2,824.0 | 2,861.0 | 3.968 | 4.081 | 4.193 | 4.256 |
| Haryana | 1,844.8 | 1,874.0 | 1,968.0 | 1,984.0 | 5.957 | 5.960 | 6.140 | 6.200 |
| Himachal Pradesh | 319.6 | 320.0 | 345.0 | 334.0 | 3.165 | 3.243 | 2.694 | 2.746 |
| Jammu & Kashmir* | - | - | - | - | - | - | - | |
| Jharkand | 137.0 | 125.0 | 234.0 | 237.0 | 5.934 | 6.116 | 5.593 | 5.584 |
| Karnataka | 1,650.9 | 1,453.0 | 1,475.0 | 1,481.0 | 3.141 | 2.538 | 2.500 | 2.490 |
| Kerala | 21.4 | 18.0 | 17.0 | 16.0 | 6.158 | 6.212 | 6.222 | 6.365 |
| Madhya Pradesh | 2,360.3 | 2,363.0 | 2,372.0 | 2,796.0 | 3.332 | 3.338 | 3.338 | 3.334 |
| Maharashtra | 2,200.0 | 2,237.0 | 2,267.0 | 2,312.0 | 3.558 | 3.560 | 3.579 | 3.586 |
| Manipur | 11.9 | 12.0 | 13.0 | 13.0 | 2.980 | 3.045 | 2.893 | 2.947 |
| Meghalaya | 2.7 | 3.0 | 3.0 | 3.0 | 1.755 | 1.765 | 1.783 | 1.871 |
| Mizoram | 1.3 | 1.0 | 1.0 | 1.0 | 1.736 | 1.750 | 1.767 | 1.759 |
| Nagaland | 0.2 | 2.0 | 3.0 | 3.0 | 3.090 | 2.245 | 2.957 | 2.507 |
| Orissa | 218.5 | 214.0 | 221.0 | 225.0 | 2.401 | 2.632 | 2.491 | 2.536 |
| Punjab | 2,479.9 | 2,522.0 | 2,539.0 | 2,531.0 | 6.670 | 6.651 | 6.798 | 7.049 |
| Rajasthan | 3,014.0 | 3,118.0 | 3,145.0 | 3,167.0 | 4.197 | 4.293 | 4.412 | 4.488 |
| Sikkim | 0.2 | 0.2 | 0.3 | - | 2.000 | 2.000 | 1.541 | - |
| Tamil Nadu | 976.0 | 947.0 | 924.0 | 508.0 | 4.112 | 4.125 | 4.202 | 4.161 |
| Tripura | 2.5 | 2.0 | 2.0 | 2.0 | 2.437 | 2.501 | 2.466 | 2.711 |
| Uttar Pradesh | 6,585.0 | 6,748.0 | 6,927.0 | 7,541.0 | 4.200 | 4.256 | 4.314 | 4.318 |
| Uttaranchal | 458.9 | 485.0 | 493.0 | 497.0 | 4.210 | 4.181 | 4.111 | 4.106 |
| West Bengal | 154.5 | 155.0 | 154.0 | 154.0 | 5.272 | 5.325 | 5.216 | 5.371 |
| A&N Islands | 5.0 | 5.0 | 4.0 | 4.0 | 2.800 | 2.980 | 3.419 | 2.610 |
| Chandigarh | 13.3 | 14.0 | 13.0 | 14.0 | 6.000 | 6.000 | 6.130 | 5.946 |
| D&N. Haveli* | - | - | - | - | - | - | - | |
| Daman & Diu | - | - | - | 0.220 | - | - | - | 4.159 |
| Delhi | 96.7 | 98.0 | 100.0 | 101.0 | 6.060 | 6.021 | 6.038 | 6.180 |
| Lakshadweep* | - | - | - | - | - | - | - | |
| Pondicherry | 1.4 | 1.0 | 1.0 | 1.0 | 4.570 | 4.800 | 5.367 | 5.384 |
| **TOTAL@** | **30,886** | **30,998** | **32,179** | **33,173** | **4.126** | **4.241** | **4.287** | **4.300** |

* Details Not available; '-' denotes no production data reported; @ Total of only those states / UT's for which data reported

Source: Department of Animal Husbandry, Government of India



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**Table 3.8 – Goats – Numbers and average yield in various states**

| States / Union Territories | No. of animals in Milk ('000 No.s) | | | | Average Yield Per Animal in Milk (kg/day) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
| Andhra Pradesh* | - | - | - | - | - | - | - | - |
| Arunanchal Pradesh* | - | - | - | - | - | - | - | - |
| Assam | 388.0 | 435.0 | 367.0 | 385.0 | 0.181 | 0.189 | 0.195 | 0.192 |
| Bihar | 6,587.4 | 6,646.0 | 4,079.0 | 4,557.0 | 0.138 | 0.142 | 0.139 | 0.127 |
| Chattisgarh | 517.8 | 520.0 | 522.0 | 524.0 | 0.212 | 0.216 | 0.218 | 0.220 |
| Goa* | - | - | - | - | - | - | - | - |
| Gujarat | 1,724.9 | 1,742.0 | 1,802.0 | 1,820.0 | 0.370 | 0.381 | 0.388 | 0.387 |
| Haryana | 371.8 | 377.0 | 158.0 | 156.0 | 0.784 | 0.787 | 0.776 | 0.758 |
| Himachal Pradesh | 193.2 | 194.0 | 187.0 | 156.0 | 0.433 | 0.435 | 0.440 | 0.449 |
| Jammu & Kashmir* | - | - | - | - | - | - | - | - |
| Jharkand | 2,690.0 | 2,557.0 | 2,239.7 | 2,258.0 | 0.130 | 0.131 | 0.130 | 0.127 |
| Karnataka | 1,815.1 | 1,413.0 | 1,441.0 | 1,441.0 | 0.072 | 0.075 | 0.072 | 0.075 |
| Kerala | 507.2 | 378.0 | 355.0 | 362.0 | 0.574 | 0.567 | 0.578 | 0.600 |
| Madhya Pradesh | 2,088.3 | 2,092.0 | 2,102.0 | 3,126.0 | 0.439 | 0.442 | 0.443 | 0.445 |
| Maharashtra | 3,946.0 | 3,958.0 | 3,668.0 | 3,688.0 | 0.205 | 0.208 | 0.208 | 0.209 |
| Manipur* | - | - | - | - | - | - | - | - |
| Meghalaya* | - | - | - | - | - | - | - | - |
| Mizoram* | - | - | - | - | - | - | - | - |
| Nagaland | 0.5 | 22.0 | 13.6 | 15.0 | 0.420 | 0.330 | 0.591 | 0.345 |
| Orissa | 69.7 | 70.0 | 64.0 | 72.0 | 0.099 | 0.110 | 0.110 | 0.110 |
| Punjab | 124.0 | 120.0 | 100.0 | - | 0.990 | 1.027 | 1.027 | - |
| Rajasthan | 4,017.0 | 4,150.0 | 4,237.0 | 4,300.0 | 0.565 | 0.569 | 0.588 | 0.625 |
| Sikkim* | - | - | - | - | - | - | - | - |
| Tamil Nadu* | - | - | - | - | - | - | - | - |
| Tripura | 148.9 | 120.0 | 121.0 | 121.0 | 0.017 | 0.026 | 0.025 | 0.055 |
| Uttar Pradesh | 3,779.6 | 3,852.0 | 3,919.0 | 3,905.0 | 0.694 | 0.703 | 0.711 | 0.715 |
| Uttaranchal* | - | - | - | - | - | - | - | - |
| West Bengal | 2,752.9 | 2,771.0 | 2,781.0 | 2,801.0 | 0.116 | 0.116 | 0.120 | 0.118 |
| A&N Islands | 22.0 | 22.0 | 15.0 | 14.0 | 0.410 | 0.420 | 0.484 | 0.431 |
| Chandigarh* | - | - | - | - | - | - | - | - |
| D&N. Haveli* | - | - | - | - | - | - | - | - |
| Daman & Diu | - | - | - | 0.702 | - | - | - | 0.833 |
| Delhi | - | - | - | - | - | - | - | - |
| Lakshadweep | 7.4 | 6.0 | 30.2 | - | 0.630 | 0.637 | 0.045 | - |
| Pondicherry* | - | - | - | - | - | - | - | - |
| TOTAL@ | **31,752** | **31,445** | **28,202** | **29,700** | **0.314** | **0.323** | **0.325** | **0.346** |

* Details Not available; '-' denotes no production data reported; @ Total of only those states / UT's for which data reported

Source: Department of Animal Husbandry, Government of India



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## 3.4. Livestock health

The livestock health situation in India is definitely improving. India has always been free from the dreaded Mad Cow Disease (BSE) and has been free from Rinderpest since 1995. There has not been a single incidence of Contagious Bovine Pleuro Pneumonia (CBPP) in India during the previous 14 years. Foot and Mouth Disease remains the only issue of concern, though better controlled compared to past years.

**Table 3.9 – Incidence of Diseases in Dairy Animals in India during 2006 (January-December)**

| Disease Name | Species | Outbreak | Attack | Death |
|---|---|---|---|---|
| | | Number of | | |
| Foot & Mouth Disease | Bovine | 1,623 | 49,469 | 280 |
| | Buffalo | 5 | 10,244 | 59 |
| Anthrax | Bovine | 43 | 202 | 146 |
| | Buffalo | * | 6 | 6 |
| Rabies | Bovine | 16 | 42 | 42 |
| | Buffalo | 0 | 0 | 0 |
| Bovine anaplasmosis | Bovine | 14 | 73 | 1 |
| | Buffalo | 0 | 0 | 0 |
| Bovine babesiosis | Bovine | 26 | 1,233 | 6 |
| | Buffalo | 0 | 0 | 0 |
| Brucellosis | Bovine | 0 | 0 | 0 |
| Haemorrhagic septicaemia | Bovine | 405 | 2,633 | 1,056 |
| | Buffalo | 313 | 1,441 | 766 |
| Surra / Trypanosomasis | Bovine | 18 | 255 | 2 |
| | Buffalo | 5 | 61 | 7 |
| Blackleg / Black quarter | Bovine | 527 | 2,204 | 1,029 |
| | Buffalo | 4 | 49 | 29 |
| Coccidiosis | Bovine | 9 | 137 | 0 |
| | Buffalo | 0 | 0 | 0 |
| Distomatosis (liver fluke) / Fascioliasis | Bovine | 65 | 527,559 | 11 |
| | Buffalo | * | 49 | 0 |
| * Outbreaks have been included in bovine | | | | |
| Source: Annual Report 2007-08, Department of Animal Husbandry, Govt. of India | | | | |

India has been recognized by the World Organisation of animal Health (OIE) as free from Rinderpest infection on 25th May, 2006. The country has been recognized by the World Organisation of animal Health (OIE) as free from Contagious Bovine Pleuropneumonia (CBPP) on 25th May, 2007.

''Foot and Mouth Disease Control Programme'' is being implemented in 54 specified districts in the country to control the Foot and Mouth Disease. This involves 6 monthly vaccinations of susceptible livestock against FMD. Five rounds of vaccinations have been completed. Sixth round of vaccination is in progress. About 28.00 million vaccinations are conducted in every round. Government of India is hopeful of being able to eliminate FMD in the years to come.

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## 3.5. Livestock ownership

Livestock ownership is very widespread in rural India. Majority of marginal and small farmers own livestock. Farmers holding less than 4 acres of land constitute about 91.2 per cent of landowners and they collectively own 80.5 per cent of the cattle and buffalo herds. Average number of cows / buffaloes owned by each landowner in this segment is 2.7 animals.

Medium and large farmers (land holding more than 4 hectare per owner) constitute only 8.8 per cent of the landowners. They own 19.5 per cent of cows and buffaloes.

**Table 3.10 – Livestock holding pattern among landowners**

| Category of Land Holdings | Distribution of Livestock | Per Cent of Holdings | Cattle & Buffalo per holding |
|---|---|---|---|
| | | | |
| Marginal | 36.9 | 57.1 | 1.9 |
| (Below 1.00 ha) | | | |
| Small | 23.5 | 20.3 | 3.6 |
| (1.00 to 1.99 ha) | | | |
| Semi-medium | 20.2 | 13.7 | 4.8 |
| (2.00 to 3.99 ha) | | | |
| **Sub-Total** | **80.5** | **91.2** | **2.7** |
| | | | |
| Medium | 14.7 | 7.3 | 6.7 |
| (4.00 to 9.99 ha) | | | |
| Large | 4.8 | 1.6 | 9.2 |
| (10.00 ha & above) | | | |
| **Sub-Total** | **19.5** | **8.8** | **7.2** |
| Source: Department of Agriculture & Cooperation, Govt. of India | | | |

India does not have any large dairy farms. Even among landowners with 10 hectares or more of land, average number of cattle / buffalo is just 9.2 animals per landowner.

It is important to note that in India dairy farming is a supplementary activity carried on by agriculturists to enhance their income. Dairy animals share living space with families of farmers.

## 3.6. Fodder scenario – present and future

There is a tremendous pressure of livestock on available total feed and fodder, as land available for fodder production has been decreasing. At present, the country faces a net deficit of about 62 per cent green fodder, 22 per cent dry crop residues and 64 per cent concentrate feeds.

Fodder based cheaper feeding strategies are required to reduce the cost of quality livestock product as the feed alone constitutes 70 per cent of milk production cost. To meet the current level of livestock production and its annual growth in population, the deficit in all components of fodder, dry crop residues and feed has to be met from either increasing productivity, utilizing untapped feed resources, increasing land area (not possible due to human pressure for food crops) or through imports.

Although, the area under cultivated fodder crops has increased only marginally since sixties

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(8.47million hectares), the annual productivity has witnessed a quantum jump from 100 tons / hectare green forage to 250 tons / hectare. Similarly, from degraded grasslands, spectacular increase from 1.0 tons / hectare dry biomass to 4.9 tons / hectare has been realized. The growth rate in evolving varieties and quality seed production has also been significant. In spite of the productivity increases, the shortage of fodder continues to magnify with every passing year.

The demand will reach to 1,170 million tons of green fodder and 650 million tons of dry forage and 152 million tons of concentrate feed in 2025. At the current level of growth in forage resources, there will be 65 per cent deficit in green fodder and 25 per cent deficit in dry fodder. Green forage supply situation has to grow at 3.2 per cent to meet the projected demand. (Estimates by Indian Grassland & Fodder Research Institute)

**Table 3.11 – Supply and demand scenario of forage and roughage till 2025**

| Year | Supply | | Demand | | Deficit as %Of demand | |
|---|---|---|---|---|---|---|
| | Green | Dry | Green | Dry | Green | Dry |
| 1995 | 379.3 | 421 | 947 | 526 | 59.95 (568) | 19.95 (105) |
| 2000 | 384.5 | 428 | 988 | 549 | 61.10 (604) | 21.93 (121) |
| 2005 | 389.9 | 443 | 1025 | 569 | 61.96 (635) | 22.08 (126) |
| 2010 | 395.2 | 451 | 1061 | 589 | 62.76 (666) | 23.46 (138) |
| 2015 | 400.6 | 466 | 1097 | 609 | 63.50 (696) | 23.56 (143) |
| 2020 | 405.9 | 473 | 1134 | 630 | 64.21 (728) | 24.81 (157) |
| 2025 | 411.3 | 488 | 1170 | 650 | 64.87 (759) | 24.92 (162) |
| Figure in parenthesis indicates actual deficit; Quantities in million tons | | | | | | |
| Source: Indian Grassland & Fodder Research Institute | | | | | | |

Although the opportunity for area expansion under fodder crops is not feasible and yields of forage crops are reaching a plateau, still a scope exists to increase forage availability through strengthening research and development activities in grassland/grazing land/ rangelands.

## 3.7. Herd size – past trends and future projections

The shortage of fodder, pressures on grasslands due to rapid urbanization and increasing human population have been increasing the cost of rearing dairy animals. In this scenario, buffalo has been able to grow because of higher milk output, preference by consumers for high-fat buffalo milk, higher price for buffalo milk and also because of price paid by meat producers for males.

Cow has been suffering due to ban on cow slaughter in many states and due to reducing use of bullocks as draught animals. This has led to reducing population of cows. Adult female cattle population has not been falling, but the overall cattle population has been falling due to reducing number of bullocks.

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**Table 3.12 – Herd size of dairy animals as per livestock census**

| Species | 1982 | 1987 | 1992 | 1997 | 2003 |
|---|---|---|---|---|---|
| | Million Numbers | | | | |
| Cattle | 192.45 | 199.69 | 204.58 | 198.88 | 185.18 |
| Adult Female Cattle | 59.21 | 62.07 | 64.36 | 64.43 | 64.51 |
| Buffalo | 69.78 | 75.97 | 84.21 | 89.92 | 97.92 |
| Adult Female Buffalo | 32.50 | 39.13 | 43.81 | 46.77 | 50.97 |
| **Total Cattle & Buffalo** | **262.36** | **275.82** | **289.00** | **288.80** | **283.10** |
| Goat | 95.25 | 110.21 | 115.28 | 122.72 | 124.36 |
| Source: All India Livestock Census Estimates, Department of Animal Husbandry, Govt. of India | | | | | |

**Table 3.13 – Growth rates of herds of dairy animals – past and future**

| Species | 1977-82 | 1982-87 | 1987-92 | 1992-97 | 97-2003 | 2003-08 | 2008-13 |
|---|---|---|---|---|---|---|---|
| | Annual Growth Rates (Per Cent) | | | | | Projected Growth Rate Per Cent | |
| Cattle | 1.35 | 0.74 | 0.49 | -0.56 | -1.18 | -1.50 | -2.00 |
| Adult Female Cattle | 1.63 | 0.95 | 0.73 | 0.02 | 0.02 | -0.50 | -1.00 |
| Buffalo | 2.39 | 1.71 | 2.08 | 1.32 | 1.43 | 1.50 | 1.50 |
| Adult Female Buffalo | 0.76 | 3.78 | 2.29 | 1.32 | 1.44 | 1.50 | 1.50 |
| **Total Cattle & Buffalo** | **1.63** | **1.01** | **0.94** | **-0.01** | **-0.33** | -0.42 | -0.67 |
| Goat | 4.73 | 2.96 | 0.90 | 1.26 | 0.22 | 0.20 | 0.15 |
| Source: All India Livestock Census Estimates, Department of Animal Husbandry, Govt. of India | | | | | | HS&SL estimates | |

Looking at the fundamentals of economics of cow rearing in India, it seems that the cattle population will continue to fall. Buffalo herd will continue to grow backed by good price for high-fat buffalo milk and also by increasing prices for buffalo meat in domestic as well as international markets.

**Table 3.14 – Projected herd size of dairy animals**

| Species | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| | Million Numbers | | | | |
| Cattle | 171.70 | 168.27 | 164.90 | 161.60 | 158.37 |
| Adult Female Cattle | 62.91 | 62.28 | 61.66 | 61.04 | 60.43 |
| Buffalo | 105.49 | 107.07 | 108.68 | 110.31 | 111.96 |
| Adult Female Buffalo | 54.91 | 55.73 | 56.57 | 57.42 | 58.28 |
| **Total Cattle & Buffalo** | **277.19** | **275.34** | **273.58** | **271.91** | **270.33** |
| Goat | 125.61 | 125.80 | 125.99 | 126.17 | 126.36 |
| HS&SL estimates | | | | | |

Reducing cow population may not affect cow milk production since the reduction in population of non-descript cows will be accompanied by increase in number of crossbred cows. Higher milk yield of crossbred cows (about 6.5 kg / day) compared to the output of non-descript cows (about 1.9 kg per day) is likely to more than compensate for the reduction in overall cow population.

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# 4. Milk Production

## 4.1. National milk production

India is the largest producer of milk in the World. India's milk production was 100.9 million tons (subject to provisional estimates of Jammu & Kashmir) during 2006-07.

India's milk production has been continuously increasing over the past six decades. **HS&SL estimates that the production will continue to grow at the rate of 3 per cent per annum.** Due to increasing population, even during the years when milk production grows at 3 per cent per annum, **milk availability per capita will grow at only about 1.5 per cent per annum**.

**Table 4.1 – Milk production from 1950-51 to 2011-12**

| Year | Milk Prod. | Per Capita Availability |
|---|---|---|
| | Mio Tons | g per day |
| 1950-51 | 17.0 | 124 |
| 1955-56 | 19.0 | 124 |
| 1960-61 | 20.0 | 124 |
| 1968-69 | 21.2 | 112 |
| 1973-74 | 23.2 | 112 |
| 1979-80 | 30.4 | 127 |
| 1984-85 | 41.5 | 154 |
| 1989-90 | 51.4 | 173 |
| 1994-95 | 63.8 | 194 |
| 1999-2000 | 78.3 | 217 |
| 2000-01 | 80.6 | 220 |
| 2001-02 | 84.4 | 225 |
| 2002-03 | 86.2 | 230 |
| 2003-04 | 88.1 | 231 |
| 2004-05 | 92.5 | 233 |
| 2005-06 | 97.1 | 241 |
| 2006-07 | 100.9 | 245 |
| 2007-08 | 103.9 | 252 |
| 2008-09 | 107.0 | 256 |
| 2009-10 | 110.3 | 260 |
| 2010-11 | 113.6 | 264 |
| 2011-12 | 117.0 | 269 |
| Source: Department of Animal Husbandry, Govt. of India | | |
| 2007-08 onwards figures are HS&SL estimates | | |

Per capita availability of milk in India is very low compared to that of most developed countries. For example, the figures for some other countries are as follows - USA – 661 g / day; United Kingdom – 656 g / day; Ireland – 913 g / day; Australia – 556 g / day; Brazil 327 g/ day. Indian per capita availability is higher than of Japan (199 g / day). However, Japan gets much of its protein requirement from fish, while India is primarily a vegetarian country where milk is an essential source of protein and calcium for most of the population.

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## 4.2. Milk production in states

**Table 4.2 – Share of milk production by cows, buffaloes and goats – state-wise during 2005-06**

| State | Cow | | | Buffalo | Goat | TOTAL |
|---|---|---|---|---|---|---|
| | CB | ND | Total | | | |
| | ('000 tons) | | | | | |
| Andhra Pradesh | 1,051 | 837 | 1,889 | 5,735 | | 7,624 |
| Arunanchal Pradesh | 3 | 4 | 7 | | | 48 |
| Assam | 159 | 468 | 627 | 93 | 27 | 747 |
| Bihar | 749 | 1,626 | 2,375 | 2,473 | 212 | 5,060 |
| Chhatisgarh | 54 | 458 | 512 | 285 | 42 | 839 |
| Goa | 23 | 10 | 33 | 23 | 0 | 56 |
| Gujarat | 516 | 1,742 | 2,258 | 4,445 | 257 | 6,960 |
| Haryana | 474 | 291 | 765 | 4,491 | 43 | 5,299 |
| Himachal Pradesh | 296 | 210 | 506 | 335 | 28 | 869 |
| Jammu & Kashmir* | | | | | | 1,400 |
| Jharkand | 114 | 632 | 746 | 484 | 105 | 1,335 |
| Karnataka | 1,489 | 1,148 | 2,637 | 1,346 | 39 | 4,022 |
| Kerala | 1,839 | 108 | 1,948 | 36 | 79 | 2,063 |
| Madhya Pradesh | 222 | 2,151 | 2,373 | 3,402 | 508 | 6,283 |
| Maharashtra | 2,420 | 1,041 | 3,461 | 3,027 | 282 | 6,769 |
| Manipur | 38 | 24 | 63 | 14 | 0 | 77 |
| Meghalaya | 45 | 27 | 72 | 2 | 0 | 73 |
| Mizoram | 12 | 2 | 14 | 1 | 0 | 15 |
| Nagaland | 59 | 10 | 70 | 3 | 2 | 74 |
| Orissa | 570 | 561 | 1,131 | 208 | 3 | 1,342 |
| Punjab | 2,253 | 107 | 2,360 | 6,511 | 37 | 8,909 |
| Rajasthan | 257 | 2,287 | 2,544 | 5,188 | 981 | 8,713 |
| Sikkim | 38 | 10 | 48 | 0 | 0 | 48 |
| Tamil Nadu | 3,890 | 813 | 4,703 | 771 | 0 | 5,474 |
| Tripura | 27 | 55 | 83 | 2 | 2 | 87 |
| Uttar Pradesh | 1,344 | 3,109 | 4,453 | 11,884 | 1,019 | 17,356 |
| Uttaranchal | 189 | 272 | 461 | 744 | 0 | 1,206 |
| West Bengal | 1,091 | 2,377 | 3,469 | 302 | 121 | 3,891 |
| A&N Islands | 5 | 9 | 14 | 4 | 2 | 20 |
| Chandigarh | 14 | 1 | 15 | 31 | 0 | 46 |
| D&N Haveli* | | | | | | 5 |
| Daman & Diu | 0 | 0 | 0 | 0 | 0 | 1 |
| Delhi | 61 | 22 | 83 | 227 | 0 | 310 |
| Lakshadweep* | | | | | | 2 |
| Pondicherry | 39 | 1 | 41 | 2 | 0 | 43 |
| **TOTAL** | **19,344** | **20,415** | **39,759** | **52,070** | **3,790** | **97,066** |

* Breakup not available CB - Crossbred ND - Non-descript

Source: Department of Animal Husbandry, Government of India



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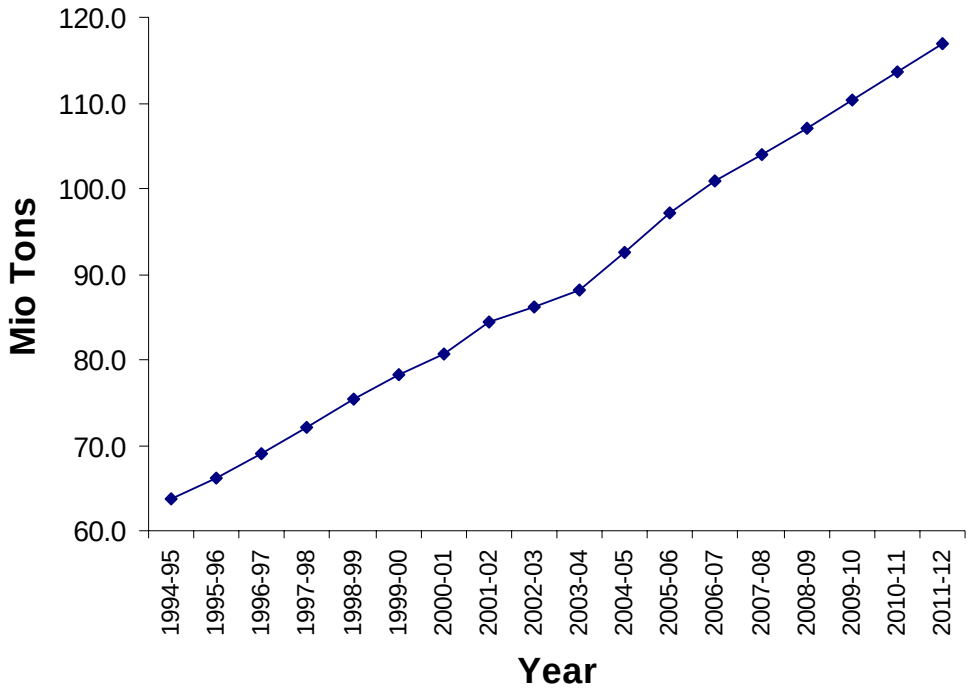
**Chart 4.1 – Increasing milk production**




## 4.3. States with crossbred cows

**Table 4.3 – States where milk from crossbred cows is significant percentage of total milk**

| State | Total Milk 000 Tons | CB Milk as % of Total |
|---|---|---|
| Pondicherry | 43 | 90.70 |
| Kerala | 2,063 | 89.14 |
| Mizoram | 15 | 80.00 |
| Nagaland | 74 | 79.73 |
| Sikkim | 48 | 79.17 |
| Tamil Nadu | 5,474 | 71.06 |
| Meghalaya | 73 | 61.64 |
| Manipur | 77 | 49.35 |
| Orissa | 1,342 | 42.47 |
| Goa | 56 | 41.07 |
| Karnataka | 4,022 | 37.02 |
| Maharashtra | 6,769 | 35.75 |
| Himachal Pradesh | 869 | 34.06 |
| Tripura | 87 | 31.03 |
| Chandigarh | 46 | 30.43 |
| West Bengal | 3,891 | 28.04 |
| Punjab | 8,909 | 25.29 |
| Source: DAHD; Data relates to year 2005-06 | | |

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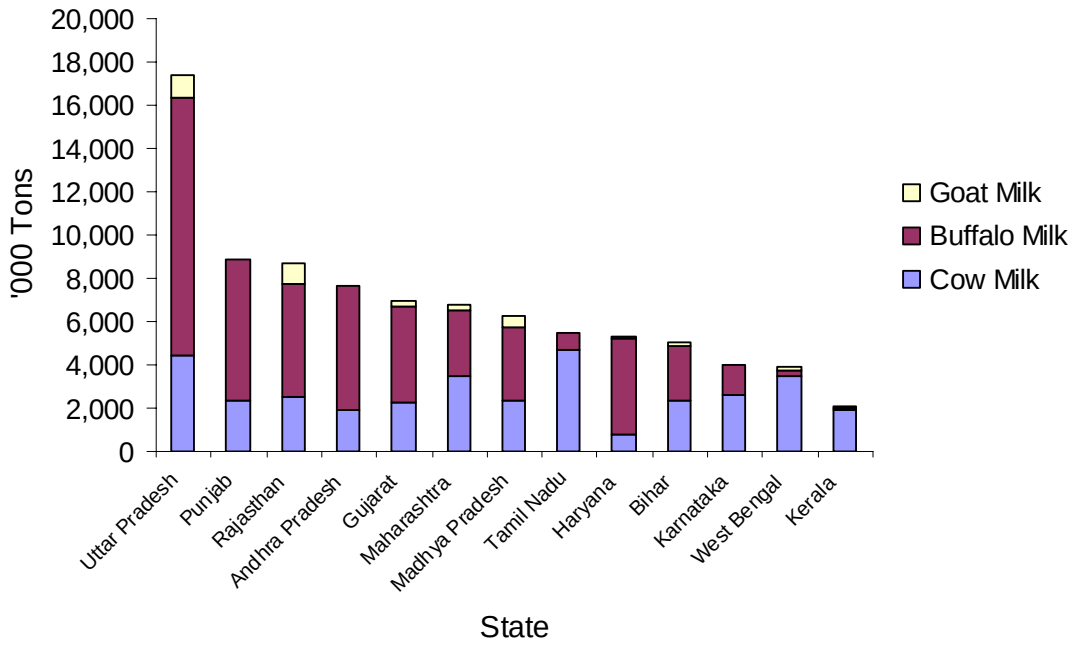
## 4.4. Buffalo states

**Table 4.4 – States where milk from buffalo is significant percentage of total milk**

| State | TOTAL | Buffalo as % of Total |
|---|---|---|
| Haryana | 5,299 | 84.75 |
| Andhra Pradesh | 7,624 | 75.22 |
| Delhi | 310 | 73.23 |
| Punjab | 8,909 | 73.08 |
| Uttar Pradesh | 17,356 | 68.47 |
| Chandigarh | 46 | 67.39 |
| Gujarat | 6,960 | 63.86 |
| Uttaranchal | 1,206 | 61.69 |
| Rajasthan | 8,713 | 59.54 |
| Madhya Pradesh | 6,283 | 54.15 |
| Bihar | 5,060 | 48.87 |
| Maharashtra | 6,769 | 44.72 |
| Goa | 56 | 41.07 |
| **ALL INDIA** | **97,066** | **53.64** |
| Source: DAHD; Data relates to year 2005-06 | | |

## 4.5. Major Dairy states

**Chart 4.2 – Milk production in major dairy states**




Milk production is concentrated in only 13 states of the country. These 13 states produce more than 90 per cent of milk produced in the country.



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**Table 4.5 – Major Dairy States and their production**

| State | Cow | | | Buffalo | Goat | TOTAL |
|---|---|---|---|---|---|---|
| | CB | ND | Total | | | |
| | ('000 tons) | | | | | |
| Uttar Pradesh | 1,344 | 3,109 | 4,453 | 11,884 | 1,019 | 17,356 |
| Punjab | 2,253 | 107 | 2,360 | 6,511 | 37 | 8,909 |
| Rajasthan | 257 | 2,287 | 2,544 | 5,188 | 981 | 8,713 |
| Andhra Pradesh | 1,051 | 837 | 1,889 | 5,735 | | 7,624 |
| Gujarat | 516 | 1,742 | 2,258 | 4,445 | 257 | 6,960 |
| Maharashtra | 2,420 | 1,041 | 3,461 | 3,027 | 282 | 6,769 |
| Madhya Pradesh | 222 | 2,151 | 2,373 | 3,402 | 508 | 6,283 |
| Tamil Nadu | 3,890 | 813 | 4,703 | 771 | 0 | 5,474 |
| Haryana | 474 | 291 | 765 | 4,491 | 43 | 5,299 |
| Bihar | 749 | 1,626 | 2,375 | 2,473 | 212 | 5,060 |
| Karnataka | 1,489 | 1,148 | 2,637 | 1,346 | 39 | 4,022 |
| West Bengal | 1,091 | 2,377 | 3,469 | 302 | 121 | 3,891 |
| Kerala | 1,839 | 108 | 1,948 | 36 | 79 | 2,063 |
| **TOTAL** | **17,595** | **17,637** | **35,235** | **49,611** | **3,578** | **88,423** |
| CB - Croosbred ND - Non-descript | | | | | | |
| Source: Department of Animal Husbandry Data relates to year 2005-06 | | | | | | |

Of the above 13 states, Uttar Pradesh, Punjab, Rajasthan, Andhra Pradesh, Gujarat, Haryana and Madhya Pradesh are predominantly buffalo states since they receive more than half of their milk from buffalos. Kerala, West Bengal, Karnataka, Maharashtra and Tamil Nadu are cow-states since they receive more than half of their milk from cows. In case of Bihar, cows and buffalos contribute almost equally to milk production.

It is interesting to note that buffalo states are very strict about ban on slaughter of cows and progeny, while most of the states getting majority of their milk from cows either permit cow slaughter or used to permit cow slaughter in recent past. It is clear that income from sale of male animals for slaughter supports economy of cow rearing in states where cow slaughter is permitted. On the other hand, absence of income from meat of male cattle leads to farmers preferring buffalo.

## 4.6. Milk Quality

Cow milk in India has fat content of about 3 to 4 per cent and milk-solid-not-fat (MSNF) content is about 8.5 to 9 per cent. Buffalo milk has similar MSNF content, but the fat content is about 5-6 per cent.

Most of the packed milk sold in India is not natural, but is reconstituted milk, which has been formulated to achieve a standardized percentage of fat and MSNF. In some countries, it is necessary to mention on packaged milk, if it is reconstituted milk. Not so in India, where it is necessary, by law, that standardized milk has 4.5 per cent fat and 8.5 per cent MSNF.

Packed milk in India is therefore sold as standard, toned, double-toned or skim-milk, without mentioning whether the milk has come from a cow or buffalo.

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**Table 4.6 – Standards of different types of milk in India**

| Class of milk | Designation | Locality | Minimum | |
|---|---|---|---|---|
| | | | % MF | % MSNF |
| Buffalo milk | Raw, pasteurized, boiled, flavoured and sterilized | Assam; Bihar; Chandigarh; Delhi; Gujarat; Maharashtra; Haryana; Punjab; Uttar Pradesh; West Bengal | 6.0 | 9.0 |
| | | Andaman and Nicobar; Andhra Pradesh; Dadra and Nagar-Haveli; Goa, Daman and Diu; Kerala, Himachal Pradesh; Lakshadw eep; Tamilnadu; Madhya Pradesh; Manipur; Karnataka; Nagaland; NEFA; Orissa; Pondicherry; Rajasthan; Tripura | 5.0 | 9.0 |
| Cow milk | Raw, pasteurized, boiled, flavoured and sterilized | Chandigarh; Haryana; Punjab | 4.0 | 8.5 |
| | | Andaman and Nicobar; Andhra Pradesh; Assam; Bihar; Dadra and Nagar-Havali; Delhi; Gujarat; Goa, Daman and Diu; Himachal Pradesh; Kerala; Madhya Pradesh; Maharashtra; Tamilnadu; Karnataka; Manipur; Nagaland; NEFA; Pondicherry; Rajasthan; Tripura; Uttar Pradesh; West Bengal; Lakshadw eep; Orissa | 3.0 | 9.0 |
| Goat or sheep milk | Raw, pasteurized, boiled, flavoured and sterilized | Chandigarh; Harayana; Kerala; Madhya Pradesh; Maharashtra; Punjab; Uttar Pradesh | 3.5 | 9.0 |
| | | Andaman and Nicobar; Andhra Pradesh; Assam; Bihar; Dadra and Nagar-Haveli; Delhi; Goa, Daman and Diu; Gujarat; Himachal Pradesh; Lakshadw eep; Tamilnadu; Karnataka; Manipur; Nagaland; NEFA; Pondicherry; Orissa; Rajasthan; Tripura; West Bengal | 3.0 | 9.0 |
| Standardized milk | | All India | 4.5 | 8.5 |
| Recombined milk | | All India | 3.0 | 8.5 |
| Toned milk | | All India | 3.0 | 8.5 |
| Double toned milk | | All India | 1.5 | 9.0 |
| Skim milk | - do - | All India | Not more than 0.5 | 8.7 |

MF - Milk fats; MSNF - Milk Solids Not Fat Source: http://w w w .indiaagronet.com/

Microbiological quality of milk is poor in India. The main reason for poor quality is the time lag between milking and reaching the chilling centre. Lack of knowledge about clean milk production and lack of post milking chilling facilities at the village level affect the quality of milk.

In addition to the above problems, milk handled by unorganized sector is often laced with neutralizers like sodium bicarbonate or sodium hydroxide to enhance its shelf life.

Many states also face the problem of synthetic milk, which is not milk at all. Unscrupulous persons mix urea, vegetable oil and other harmful chemicals with water to get a white liquid which is extremely harmful for human beings. Synthetic milk is sometimes mixed with fresh milk. Detection of synthetic milk poses a big challenge to authorities.

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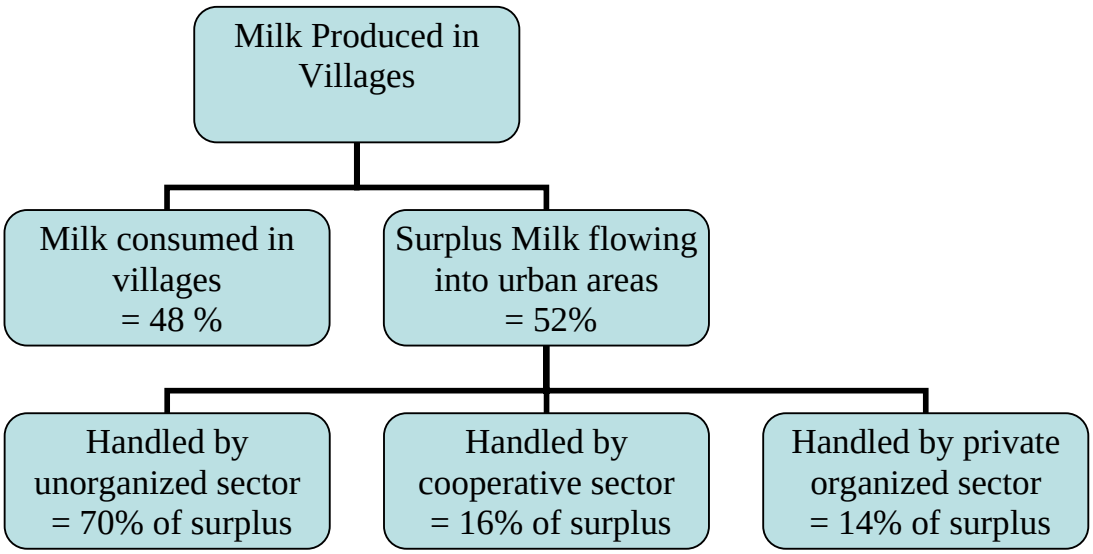
# 5. Structure of Indian dairy industry

## 5.1. Distribution of surplus milk from villages

Almost 95 per cent of India's cattle and buffalos are in rural India. Villages consume about 48 per cent of the milk produced in villages. Surplus from villages flows into urban areas.

**Chart 5.1 – Distribution and consumption pattern of milk produced in villages**




Source: National Dairy Plan 2007-08 to 2011-12, Department of Animal Husbandry, Government of India; Guesstimates made by Department

Almost 70 per cent of surplus from villages comes to urban areas through unorganized sectors. The unorganized channels include milkmen distributing fresh milk to households as well as manufacturers of traditional milk products like *paneer* (cottage cheese), *khoya / mawa* (milk is heated and dried to get this), ghee (clarified butter), *mithai* (sweets).

Milkmen who distribute fresh milk buy it from farmers and sell to city households / manufacturers of traditional milk products. They do not pasteurize the milk and have to necessarily run a quick operation so that milk reaches consumers before it spoils.

It is customary for consumers to boil the milk as soon as it is received. This partly takes care of the lack of pasteurization. This habit of boiling is so deeply ingrained that housewives boil even pasteurized milk before consumption.

## 5.2. Cooperative milk movement

The dairy cooperative movement in India continues to be unparalleled in the world in terms of its scope and scale. Launched in the Kaira district of Gujarat during India's independence, farmers were encouraged to form a cooperative to counter exploitatively low prices offered for their milk by the monopoly milk supplier, Polson Dairy. Kaira cooperative launched its operations in 1946 and operated at two levels. Primary village dairy cooperative society of milk producers collaborated with others in the district to form the milk producers union, which procured and processed the milk. The union processed the milk that was procured from village dairy cooperatives at its processing plants. In addition to collecting surplus milk, Kaira union

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assisted members in expanding production.

Kaira model (also called Anand Pattern / Model) has been refined and perfected during the past six decades. There are three levels of organization – (a) village cooperatives responsible for collecting milk from dairy farmers in villages (b) district level unions who buy milk from village cooperatives and process the milk (c) state level federations who provide marketing support and do brand building.

The basic unit in the Anand Pattern is milk producers' cooperative society, a voluntary association of milk producers in a village who wish to market their milk collectively. Every milk producer who owns at least one dairy animal can become a member of the cooperative by paying a nominal entrance fee and purchasing at least one share. At a general meeting of all members, representatives are elected to form a managing committee, which runs day-today affairs of the cooperative society by setting policies and appointing necessary staff.

Every morning and evening the society buys the surplus milk from its producer-members. The producer is paid for milk usually within 12 hours (for morning milk, in the same evening and for evening milk, the next morning). The payment is made on the basis of fat and SNF (solids-not-fat) content of the milk supplied by the individual producer. The district milk union organizes the transport of collected milk twice daily (whenever the dairy society has no bulk coolers) or according to the schedule based on the quantity of the milk collected and the capacity of bulk coolers from all its affiliated member cooperatives.

Producers in this system are not only ensured regular and remunerative payment for their milk, but also have access to milk production enhancement inputs, support services, to further improve their productivity and income. Micro-level support services such as veterinary first aid and AI are organized by village societies.

District dairy cooperative unions are federated into a state-level cooperative milk marketing federation by subscribing to it at least one share. The federation is responsible for developing and implementing policies on cooperative marketing of all member unions' liquid milk and milk products, product-price mix, cooperative provision of joint services (such as artificial insemination and breeding) and cooperative marketing of support services to members. Out of its net profit, the federation distributes profit share among all member unions according to milk procured by them and provision of by-laws.

All state-level federations are members of National Cooperative Dairy Federation of India (NCDFI). They become members by paying requisite entrance fee and purchasing shares. The NCDFI board consists of all the chairpersons/managing directors of the state federations / state unions / territory unions. The main function of the NCDFI is to promote dairy industry on a cooperative basis. It offers services in procurement, processing and marketing of milk and milk products from one state to another within the country and is also responsible for international marketing. NCDFI also coordinates supply of milk and milk products to institutional consumers such as the army. Further, it organizes and operates the national milk grid. It helps member federations in purchase, storage and distribution of machinery and equipment.

Government has been encouraging and supporting all levels of dairy cooperatives by providing them financial and technical support through National Dairy Development Board (NDDB). NDDB was formed in September 1965. NDDB launched Operation Flood in 1970. Operation Flood used milk powder and butter oil received as aid from donor countries to build dairy infrastructure in India. Operation Flood (OF) was followed by OF-II (1979-85) and OF-III (1987-96). These initiatives of NDDB can be credited with revolutionizing the dairy industry of India.

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## 5.3. Sector-wise distribution of dairies

**Table 5.1 – Dairy processing units in cooperative, private and other sectors**

| State | Cooperative | | Private | | Others* | | Total | |
|---|---|---|---|---|---|---|---|---|
| | No. | Capacity | No. | Capacity | No. | Capacity | No. | Capacity |
| Maharashtra | 62 | 7,801 | 90 | 8,398 | 33 | 3,161 | 185 | 19,360 |
| Uttar Pradesh | 33 | 2,326 | 198 | 16,453 | 1 | 300 | 232 | 19,079 |
| Gujarat | 16 | 9,870 | 11 | 605 | 6 | 570 | 33 | 11,045 |
| Delhi | 0 | 0 | 4 | 0 | 3 | 10,000 | 7 | 10,000 |
| Tamil Nadu | 25 | 4,365 | 20 | 2,675 | 0 | 0 | 45 | 7,040 |
| Haryana | 5 | 865 | 32 | 4,745 | 2 | 130 | 39 | 5,740 |
| Punjab | 13 | 1,580 | 37 | 3,692 | 0 | 0 | 50 | 5,272 |
| Andhra Pradesh | 14 | 2,930 | 24 | 2,107 | 1 | 200 | 39 | 5,237 |
| Karnataka | 16 | 2,213 | 21 | 1,630 | 1 | 400 | 38 | 4,243 |
| Madhya Pradesh | 10 | 1,070 | 18 | 2,677 | 0 | 0 | 28 | 3,747 |
| Rajasthan | 18 | 1,887 | 9 | 745 | 0 | 0 | 27 | 2,632 |
| West Bengal | 2 | 216 | 14 | 1,265 | 1 | 600 | 17 | 2,081 |
| Kerala | 9 | 565 | 8 | 298 | 2 | 35 | 19 | 898 |
| Bihar | 7 | 491 | 2 | 200 | 0 | 0 | 9 | 691 |
| Himachal Pradesh | 3 | 44 | 4 | 545 | 0 | 0 | 7 | 589 |
| Orissa | 8 | 212 | 1 | 50 | 0 | 0 | 9 | 262 |
| Pondicherry | 1 | 50 | 0 | 0 | 0 | 0 | 1 | 50 |
| Goa | 1 | 30 | 0 | 0 | 0 | 0 | 1 | 30 |
| Jammu & Kashmir | 1 | 30 | 0 | 0 | 0 | 0 | 1 | 30 |
| Sikkim | 1 | 15 | 0 | 0 | 0 | 0 | 1 | 15 |
| Tripura | 1 | 10 | 0 | 0 | 0 | 0 | 1 | 10 |
| **TOTAL** | **246** | **36,570** | **493** | **46,085** | **50** | **15,396** | **789** | **98,051** |

Capacity - '000 Litre per day * includes Government Milk Scheme, Government Dairies and Mother Dairies set up by NDDB

Source: Department of Animal Husbandry, Govt. of India As on 31March 2006

It is clear from the above table that the pioneer of cooperative movement in India – Gujarat – leads in capacity in cooperative sector in India with 9.87 million litres per day. Uttar Pradesh has the largest capacity in the private sector – 16.45 million litres per day.

Delhi has neither any cooperative dairies nor any private dairies. Delhi, the capital of India, has only government owned dairies. Much of the milk consumed there is processed outside the capital and is brought in a packed form to the city.

Maharashtra has the largest total milk processing capacity of 19.36 million litres per day. Mumbai, the commercial capital of India, located in Maharashtra is a very big consumer of milk. Dairies in Maharashtra as well as neighbouring Gujarat feed to Mumbai.

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## 5.4. Dairies in cooperative sector

**Table 5.2 – Capacity and performance of Dairy processing units in cooperative sector**

| State | DCS Organized | Farmer Members | Rural Milk procurement | Liquid Milk Sale | Processing Capacity | Difference between procurement and liq. Milk sale |
|---|---|---|---|---|---|---|
| | No.s | ('000) | 000 kg / day | 000 L/day | 000 L/day | 000 L/day |
| Gujarat | 11,615 | 2,428 | 5,857 | 2,226 | 6,720 | 3,631 |
| Maharashtra | 19,192 | 1,621 | 2,698 | 2,595 | 4,650 | 103 |
| Tamil Nadu | 8,031 | 1,998 | 1,981 | 1,329 | 2,601 | 652 |
| Karnataka | 9,619 | 1,809 | 2,700 | 1,597 | 2,530 | 1,103 |
| Andhra Pradesh | 4,561 | 762 | 1,055 | 1,028 | 2,150 | 27 |
| Uttar Pradesh | 18,272 | 845 | 958 | 425 | 1,670 | 533 |
| West Bengal | 2,367 | 184 | 326 | 792 | 1,600 | -466 |
| Punjab | 6,893 | 409 | 780 | 501 | 1,545 | 279 |
| Delhi | | | | 2,103 | 1,350 | -2,103 |
| Rajasthan | 10,852 | 565 | 1,470 | 874 | 1,295 | 596 |
| Madhya Pradesh | 4,815 | 239 | 392 | 304 | 1,000 | 88 |
| Kerala | 3,238 | 733 | 669 | 801 | 905 | -132 |
| Bihar | 5,023 | 254 | 482 | 293 | 666 | 189 |
| Haryana | 5,172 | 239 | 367 | 214 | 530 | 153 |
| Orissa | 1,896 | 130 | 164 | 151 | 185 | 13 |
| Goa | 174 | 19 | 51 | 90 | 75 | -39 |
| Assam | 66 | 3 | 4 | 7 | 60 | -3 |
| Pondicherry | 100 | 32 | 51 | 59 | 50 | -8 |
| Himachal Pradesh | 387 | 20 | 28 | 16 | 40 | 12 |
| Sikkim | 194 | 7 | 7 | 7 | 15 | 0 |
| Nagaland | 76 | 3 | 3 | 4 | 10 | -1 |
| Tripura | 84 | 4 | 3 | 9 | 10 | -6 |
| Chhatisgarh | 445 | 20 | 18 | 30 | | -12 |
| Jharkand | 80 | 2 | 6 | 173 | | -167 |
| **TOTAL** | **113,152** | **12,326** | **20,070** | **15,628** | **29,657** | **4,442** |

DCS - Dairy Cooperative Societies As on 31 March 2005

Source: Department of Animal Husbandry, Govt. of India

The difference between Rural Milk Procurement and Liquid Milk Sale (last column of above table) indicates whether the cooperative dairies of the state have surplus milk or depend on buying from other states. Gujarat has the largest surplus of 3.63 million litres per day. Gujarat Cooperative Milk Marketing Federation (marketing agency of all cooperative dairies of the state) converts this surplus into dairy products like butter, ghee, cheese, milk powder, chocolates, ice cream etc. and sells all over the country.

Delhi, on the other hand, does not procure any milk from rural areas and imports its entire requirement from other states.

Except Gujarat, Karnataka cooperative sector seems to the only one having significant surplus.

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**Table 5.3 – Share of cooperative sector in total milk in major dairy states**

| State | Milk Production | Coop Milk Procurement | | % of Coop Milk to Total |
|---|---|---|---|---|
| | 000 Tons per annum | 000 kg per day | 000 Tons per annum | Per Cent |
| Uttar Pradesh | 17,356 | 958 | 350 | 2.01 |
| Punjab | 8,909 | 780 | 285 | 3.20 |
| Rajasthan | 8,713 | 1,470 | 537 | 6.16 |
| Andhra Pradesh | 7,624 | 1,055 | 385 | 5.05 |
| Gujarat | 6,960 | 5,857 | 2,138 | 30.72 |
| Maharashtra | 6,769 | 2,698 | 985 | 14.55 |
| Madhya Pradesh | 6,283 | 392 | 143 | 2.28 |
| Tamil Nadu | 5,474 | 1,981 | 723 | 13.21 |
| Haryana | 5,299 | 367 | 134 | 2.53 |
| Bihar | 5,060 | 482 | 176 | 3.48 |
| Karnataka | 4,022 | 2,700 | 986 | 24.50 |
| West Bengal | 3,891 | 326 | 119 | 3.06 |
| Kerala | 2,063 | 669 | 244 | 11.84 |
| **TOTAL** | **88,423** | **19,735** | **7,203** | **8.15** |
| Source: Calculated by HS&SL based on DAHD data for 2005-2006 | | | | |

The above states, as mentioned earlier, account for more than 90 per cent of milk produced in the country. A comparison of the rural milk procurement by cooperative sector with the total milk produced in the above states shows the low percentage of milk processed by the cooperative sector.

Gujarat is clearly the leader in cooperative movement with over 30 per cent of total milk produced coming to cooperative dairies. Karnataka at 24.5 per cent is at second position, while Maharashtra is a distant third at 14.55 per cent.

## 5.5. Regulatory environment

Agriculture, including the dairy sector, is a state responsibility; state governments are primarily responsible for development of the sector. Central government supplements the efforts of the state governments through various schemes for achieving accelerated growth of the sector.

The present phase of Indian dairy policy started in the early 1990s, when Government of India introduced major economic policy reforms that favored increasing privatization and liberalization of the economy.

The dairy industry was de-licensed in 1991 with a view to encourage private investment and flow of capital and new technology in the segment. Although de-licensing attracted a large number of players, concerns on issues like excess capacity, sale of contaminated- substandard quality of milk, etc induced the Government to promulgate the MMPO (Milk and Milk Products Order) in 1992.

Milk and Milk Products Order regulates milk and milk products production in the country. The

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order requires no permission for units handling less than 10,000 litres of liquid milk per day or milk solids up to 500 tons per annum. MMPO prescribes state registration to plants producing between 10,000 to 200,000 litres of milk per day. Plants producing over 200,000 litres per day have to be registered with the Central Government.

All milk products except malted foods are covered in the category of industries for which foreign equity participation up to 51 per cent is automatically allowed. Ice cream, which was earlier reserved for manufacturing in the small-scale sector, has now been de-reserved. As such, no licence is required for setting up of large-scale production facilities for manufacture of ice cream.

Central Registering Authority and State Registering Authorities have granted registration to 800 units with a combined capacity of 90 million liters per day of milk up to 31.3.2008. During the year 2007-08, the Central Registering Authority granted 7 new Registration Certificates in private sector for a capacity of 2.09 million liters per day. Now MMPO has been subsumed as Milk and Milk Products Regulation under section 99 of Food, Safety and Standard Act, 2006, implemented by Ministry of Health & Family Welfare.

An Integrated Food Law, i.e. Food Safety and Standards Act, 2006 has been notified on 24.8.2006. The Act will enable in removing multiplicity of food laws and regulatory agencies and will provide single window to food processing sector. Ministry of Health & Family Welfare has been designated as the nodal Ministry for administration and implementation of the Act.

Bureau of Indian Standards creates standards for food products. The Standards of Weights and Measures Act establishes fair trade practices with respect to packaged commodities and requires manufacturers to display information about the nature of the commodity, date of manufacture and retail price on the label.

Besides these, there are a number of commodity-specific quality control orders issued under the Essential Commodities Act, such as the Milk and Milk Products Order for dairy products (mentioned earlier above). This is applicable to both domestic and imported products and regulates the production, distribution and supply of milk products. It establishes sanitary requirements for dairy products, machinery and premises and establishes quality standards for milk and milk products.

Agricultural Products (Grading and Marketing) Act, 1937, commonly known as ‘AGMARK’, is enforced by the Directorate of Marketing and Inspection (DMI) under the Ministry of Rural Development. Under this act, grade standards are prescribed for agricultural and allied commodities. Grading under the provisions of this act is voluntary but manufacturers who comply with the standard are allowed to use ‘AGMARK’ labels on their products.

## 5.6. Leading brands of dairy products

Amul is the only prominent national brand of dairy products in India. Nestle and Britannia, recent entrants into the dairy products segment, have been trying to make inroads into markets across the country. However, both of them are no match to the size and range of Amul.

Mother Dairy Fruit & Vegetable Ltd., promoted by National Dairy Development Board, has a very strong presence in Delhi and surrounding areas. It is trying to expand to other parts of the country. Yet, it is practically unknown in many parts of the country.

Among the leading brands, one can see that except for a few, all brands belong either to the

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cooperative sector or to the government sector. The brands from the government sector are Mother Dairy, Aarey and DMS. Aarey caters to Mumbai and DMS caters to Delhi.

Private sector brands are Nestle, Britannia Milkman, Arokya, Metro Dairy and Paras.

In addition to the prominent brands, there are a large number of small regional brands operating in different cities. By one estimate, the small brands have about 40 per cent share of the market.

**Table 5.4 – Leading brands of milk and dairy products**

| Brand | Company / Organization | Active Mainly in Region |
|---|---|---|
| Amul | Gujarat Cooperative Milk Marketing Federation Ltd | All India |
| Mother Dairy | Mother Dairy Fruit & Vegetable Ltd | Delhi, North India, East India |
| Nestlé | Nestlé India Ltd | All India |
| Briatnnia Milkman | Britannia New Zealand Foods Pvt. Ltd. | All India |
| Nandini | Karnataka Cooperative Milk Producers Federation Ltd | Karnataka |
| Aavin | Tamil Nadu Cooperative Milk Producers Federation Ltd | Tamil Nadu |
| Aarey | Dairy Development Department, Maharashtra State | Mumbai |
| Mahanand | Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit | Maharashtra |
| Vijaya | Andhra Pradesh Dairy Development Cooperative Federation Ltd | Andhra Pradesh |
| Saras | Rajasthan Co-operative Dairy Federation Ltd | Rajasthan |
| Milma | Kerala Cooperative Milk Marketing Federation Ltd | Kerala |
| Arokya | Hatsun Agro Products Ltd | Tamil Nadu |
| Mother Dairy | Mother Dairy Calcutta | West Bengal |
| Metro Dairy | Metro Dairy Ltd | West Bengal |
| Verka | Punjab State Cooperative Milk Producers Federation Ltd, The | Punjab & Chandigarh |
| Heritage | Heritage Foods (India) Ltd | South India |
| Paras | VRS Foods Ltd | Delhi |
| DMS | Delhi Milk Scheme | Delhi |
| Omfed | Orissa State Cooperative Milk Producers Federation Ltd, The | Orissa |

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| Brand | Company / Organization | Active Mainly in Region |
|---|---|---|
| Sanchi | Madhya Pradesh Dugdha Mahasangh (Sahakari) Maryadit | Madhya Pradesh |

Source: HS&SL

## 5.7. Dairy companies catering to domestic market primarily

**Table 5.5 – Contact Details of leading dairy companies excluding companies engaged in exports**

| Name Of Organization | Email | Tel. No. / Fax |
|---|---|---|
| National Dairy Development Board,<br>PB No. 40,<br>Anand 388 001, Gujarat | rs@nddb.coop<br>abhijit@nddb.coop<br>anand@nddb.coop | (+91) 2692- 260148 /260149 /260160<br>Fax: (02692) 260157 |
| Nestle India Ltd.<br>Nestlé House<br>Jacaranda Marg, M Block<br>DLF City Phase II<br>Gurgaon, Haryana 122 002<br><br>Mr. Mayank Trivedi, Sr. Vice President | mayank.trivedi@in.nestle.com | (+91)-124 238 93 00<br>Fax: (+91)-124 238 94 11/ 238 9399 |
| Rajasthan Co-Operative Dairy Federation Limited,<br>Saras Sankul, Jawahar Lal Nehru Marg, JAIPUR,<br>Rajasthan | rcdfho_jp1@sancharnet.in | (+91) 141-2702501-8,<br>Fax: (+91)-141-2702537 |
| The Punjab State Cooperative Milk Producers' Federation Ltd.<br>SCO 153-55, Sector 34-A<br>Chandigarh -160022 | milk-hod@chd.nic.in,<br>rti-milkfed@chd.nic.in | (+91)-172-5041812-813-814-815<br>Fax: +91-172-2604302/ 5041856 |
| Tamilnadu Co-operative milk producers' Federation Ltd.,<br>Aavin Illam,<br>Madhavaram Milk Colony,<br>Chennai 600051 | mdaavin@satyam.net.in,<br>info@aavinmilk.com | (+91) 44-23464500-501-502<br>Marketing: (+91) 44-23464508<br><br>Fax: (+91) 44 23464505 |
| Andhra Pradesh Dairy Development Cooperative Federation Ltd.<br>Lalapet, Hyderabad 500017 | apddcf@hd1.vsnl.net.in | Ph: (+91) 40 27019097-851-171-671,<br>Chairman – (+91) 40 27019402/ 27019414<br>MD - (+91) 40 27019233<br><br>Fax: (+91) 40-27019938 |

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| Name Of Organization | Email | Tel. No. / Fax |
|---|---|---|
| Bihar State Cooperative Milk Producers' Federation Ltd.<br>Dairy Development Complex,<br>PO Bihar Veterinary College,<br>Patna 800014 | compfed@bih.nic.in | (+91) 612 2220387, 2228953,<br>Fax: 0612-2234306 |
| Haryana Dairy Development Cooperative Federation Ltd.<br>Bay No. 21-22,<br>Sahkarita Bhawan, Sector – 2,<br>Panchkula, Haryana<br><br>Mr. Subhash Chandra Goel - MD | vitaindia@gmail.com | MD - (+91) 0172 2586826/2585159 |
| The Kerala Co-operative Milk Marketing Federation Ltd.<br>"Milma Bhawan",<br>Pattom Palace P.O.,<br>Thiruvananthapuram – 695004,<br>Kerela | md@milma.com<br>milma@milma.com<br>kcmmf@milma.com<br>milma@md2.vsnl.net.in | (+91) 471 – 2555981 to 2555985<br>Fax: (+91) 471 - 2555992 |
| Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit<br>NKMM International House, 3rd Floor, 178 Backbay Reclamation, B M Chinai Marg,<br>Mumbai 400020 | mahafed@bom3.vsnl.net.in | (+91) 22 26856360/ 61, 65962685<br>GM (Mktg) - (+91) 22-26856379<br>Fax: (+91) 22-26856780, 26858375 |
| M.P. State Cooperative Dairy Federation Limited,<br>Dugdha Marg, Dugdha Bhavan,<br>Habibganj, Bhopal: 462024<br><br>Ms. Shikha Dubey – MD<br>Mr. R.P. Bilung – GM (Mktg) | mpcdf@sancharnet.in | (+91)-755- 4253972-5<br>MD - (+91)-755-2602145<br>GM (Mktg) - (+91)-755-2680400-3 (PBX – 312)<br>Fax (+91)-755-2583149 |
| Pradeshik Cooperative Dairy Federation Ltd.<br>29 Park Rd, Lucknow 226001 | pcdf1@satyam.net.in | (+91) 522 2236466/ 75,<br>Fax: (+91) 522-2266472 |
| The Orissa State Cooperative Milk Producers' Federation ltd.<br>D-2, Saheed Nagar<br>Bhubaneswar-751007<br><br>Mr. Basant Kumar Mishra – DGM(Mktg) | omfed@yahoo.com | (+91) 674-2544576, 2546030, 2546121, 2540417, 2540273<br>Fax- (+91) 674-2540974 |

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| Name Of Organization | Email | Tel. No. / Fax |
|---|---|---|
| Heritage Foods (India) Limited.<br>6-3-541/C, Panjagutta<br>Hyderabad - 500 082<br><br>Mr. J. Sambamurthy (Head Sales & Marketing) | hfil@heritagefoods.co.in<br>jsmurthy@heritagefoods.co.in | (+91) 40-23391221/222<br>Fax: (+91) 40 - 23318090<br><br>(+91) 9392645999 (Mobile) |
| Lotus Dairy Products Pvt. Ltd.<br>1, District Shopping Centre,<br>3rd Floor, Madhav Plaza,<br>Opp. J. P. Phatak,<br>Sahakar Marg,<br>Jaipur 302015<br><br>Mr. D.D. Verma is Director | lotusdairy@yahoo.com<br>lotus.dairy@yahoo.co.in | (+91)-141-2741373<br><br>(+91) 9829258060/61 (Mobile)<br><br>Fax: (+91)-141-2742307 |

Source: HS&SL

Note: The above list is not exhaustive.

Cooperative sector of dairy industry in India is not actively involved in exports. The only exception is Gujarat Cooperative Milk Marketing Federation Ltd., known in many countries through their brand – Amul.

Britannia New Zealand Foods Pvt. Ltd. was established in March 2002. The company was a joint venture between Britannia Industries Ltd. and Fonterra Co-operative Group. Britannia is a leading biscuit manufacturer of India, while Fonterra Co-operative Group is New Zealand's largest dairy company and is one of the 10 largest dairy companies in the world. Fonterra has now moved out of the venture.

Nestle India Ltd. has been active in India for many decades. However, the company has become active in dairy products in recent years.

National Dairy Development Board (NDDB) is included in the above table, though its primary role is to encourage state-level federations. NDDB, through its subsidiaries, is also an active player in dairy market, especially in Delhi and surrounding areas.

## 5.8. Dairy companies actively engaged in exports

**Table 5.6 – Contact Details of leading dairy companies actively engaged in exports**

| Organization | Contact Person | Contact Details |
|---|---|---|
| Gujarat Cooperative Milk Marketing Federation,<br>PO Box 10, Amul Dairy Road,<br>Anand 388 001, Gujarat | Mr. Jayen Mehta,<br>Asst. General Manager (Marketing)<br><br>jayen@amul.coop | (+91) 2692-240070 (Direct)<br>(+91) (2692) 258506, 258507, 258508, 258509 Fax no. (+91) (2692) 240208, 240185<br>**GM (Planning & Mktg) -** (+91) (2692) 261102, 221271<br>gcmmf@amul.com |



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| Organization | Contact Person | Contact Details |
|---|---|---|
| Sterling Agro Industries Ltd.<br>11th Floor,<br>Aggarwal Cyber Plaza 2,<br>Netaji Subhash Place,<br>Pitampura, New Delhi-110034 | Mr. Sharad Saluja<br><br>sharad@steragro.com | (+91) 98113 45050 (Mobile)<br><br>(+91) 11-47008000 (EPBX)<br><br>Fax: (+91) 11-47008010 |
| VRS Foods Ltd.<br>(Paras Dairy)<br>B-1 & B-2,Ground Floor,<br>Ishwar Nagar, Mathura Road, New Delhi-110062<br><br>Mr. Arif Hussain – Deputy Manager (Brand) | Mr. Gaurav Gupta,<br>Export Manager<br><br>gaurav.gupta@parasdiary.com<br>arif.hussain@parasdiary.com | (+91) 11-26842355 - 58,<br>Fax: 91-11-26842359, 40674077<br><br>exports@parasdairy.com |
| Mother Dairy Fruit & Vegetable Pvt. Ltd.,<br>NDDB HOUSE<br>Safdarjung Enclave<br>New Delhi -110029 | Mr. Arvind K. Kulshreshtha,<br>SINT - JOBSKADE 130, 3024,<br>EN ROTTERDAM<br>THE NETHERLANDS | (+31) 104157441<br>Fax: (+31) 104157444/49<br>safal@kabelfoon.nl<br>Mr. N. Babu,<br>(+91) 11 41529100<br>Fax: +91 011 41527170<br>Mr. Venkat,<br>(+91) 11 27921729 / 30<br>export@motherdairy.com |
| Modern Dairies Limited<br>136 km, G.T. Road,<br>P. Box.3,<br>Karnal-132001 (Haryana) | Mr. A.K. Aggarwal,<br>Sr. G.M. (Commercial) | Cell. (+91) 98960 33555<br>Office (+91) 1745-242901, 02, 03,<br>Fax : +91-1745-242900<br>Email - akaggarwal@milkplus.com<br>works@milkplus.com |
| Hatsun Agro Product Ltd.<br>5-A, Vijayaraghava Road,<br>T. Nagar,<br>Chennai 600 017<br><br>Mr. S. Bhoopal – Marketing Manager | Mr. Illangabon P.<br>Deputy General Manager (Commercial)<br><br>bhoopal@hatsun.com | (+91) 44-28150014<br>Fax : +91- 44 - 28152508<br><br>pli@hatsun.com |
| CEPHAM MILK SPECIALITIES LTD.<br>6 KM Dera Bassi - Barwala Road,<br>Village Bhagwas, Distt. Patiala,<br>Derabassi, Punjab (INDIA) | Mr. C.L. Saini,<br>Export Manager | (+91) 9316119625<br>(+91) 1762-280797<br>Export Mgr. - (+91) 1762-506450<br>Fax : +91-1762-282514<br><br>cepham@glide.net.in or<br>info@cephamindia.com |



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| Organization | Contact Person | Contact Details |
|---|---|---|
| Schreiber Dynamix Dairies Ltd.<br>'A' wing, 306-307,<br>Dynasty Business Park,<br>58,Andheri-Kurla Road,Andheri(E),<br>Mumbai - 400 059<br>Maharashtra, | Mr. Amitabh Ray,<br>MD<br><br>Mr. Neeraj Singhania,<br>Vice President | (+91) 22-67711900.<br>Fax :- (+91)-22-67711910<br><br>neeraj@dynamixdairy.com<br>info@dynamixdairy.com |
| Mahaan Group<br>78/3, Janpath, 2nd Floor, New Delhi-110001. | Mr. Vishal Seth,<br>General Manager | (+91)-11-23353191/92/93<br>Fax :- (+91)-11-23718056<br><br>info@mahaanfoods.com |
| Source: HS&SL | | |

Note: The above list is not exhaustive.

## 5.9. Liquid milk market

Liquid Milk sold by organized sector (cooperative / private / others) is sold after pasteurization duly packed in printed LDPE / LLDPE pouches of 250 ml / 500 ml / 1000 ml. Most popular pack size is 500 ml. Standardized milk with 4.5 per cent fat constitutes almost 65 per cent of all milk sold by organized sector.


LDPE / LLDPE packed milk is most often sold by special kiosks set up primarily for selling milk. The kiosks receive their supply fresh from the local dairy every morning and evening. Since LDPE / LLDPE packed milk has low shelf life without refrigeration and the kiosks generally do not have any refrigeration facility, the milk is sold within 2-3 hours of being received. The trucks that carry the milk from dairies to the kiosks also do not have any refrigeration. This makes it necessary that the kiosks are within a short distance of the processing dairy. The logistics involved in distribution of LDPE / LLDPE packed milk makes the operation low-cost.

As an illustration of the logistics of liquid milk marketing, it is interesting to note that Mother Dairy Fruit And Vegetable Pvt. Ltd. (A subsidiary of National Dairy Development Board) markets more then 2.2 million liters of milk daily in Delhi and surrounding areas of Western U.P. and Haryana, Mumbai and Hyderabad. Mother Dairy Milk has a market share of 66% in the branded sector in Delhi where it sells 2 million liters of milk daily and undertakes its marketing operations through more then 10,000 retail outlets. There are 780 exclusive outlets of mother Dairy out of this. (Source: www.nddb.org)

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The logistics of distribution of liquid milk make it imperative that liquid milk is marketed only locally. This explains the fact that there are no national brands in liquid milk. Amul has built its reputation nationally in dairy products, but has failed to become a national brand for liquid milk. Amul has been making efforts to sell liquid milk in LDPE / LLDPE pouches in Delhi and in states neighbouring Gujarat. However, the success that they have achieved is limited. Mother Dairy has a presence in many regions of the country besides Delhi, but even Mother Dairy cannot be called a national brand.

## 5.10. UHT milk market

Shelf-stable milk products are processed by UHT continuous flow sterilization followed by aseptic packaging. Sterilization is achieved most successfully by direct heating systems, steam injection, or steam infusion, in which the temperature of milk is rapidly raised to 140°C by direct mixing with steam, followed immediately by rapid cooling though flash vacuum evaporation of water that condensed in the product from the steam.

UHT milk or long-life milk constitutes about 1 per cent of total liquid milk sold by organized sector. UHT milk is packed in tetrapacks and is sold through a channel which is different than the one used for LDPE/LLDPE packed milk. UHT milk is sold by food / confectionery outlets. UHT milk packed in tetrapacks is unable to compete with LDPE / LLDPE milk due to high cost.


In milk-scarcity states, UHT milk is gaining popularity due to difficulties in obtaining liquid milk packed in LDPE / LLDPE packs. In particular, North-East India is a major market for UHT milk.

There are no reliable estimates about the size or growth of UHT milk market in India. Tetra Pak, the monopoly supplier of packaging material for this segment, has been bullish on the growth of this segment. In October 2008, Tetra Pak announced that it was investing over EUR 88 million to build a state-of-the-art packaging material manufacturing plant in India to meet growing demand of the Indian dairy and beverage industries as well as growing demand from other emerging markets around the Indian subcontinent. We do not know whether this investment is due to growth in UHT milk market or due to growth in beverages.

Gujarat Cooperative Milk Marketing Federation Ltd. has reported that Amul UHT milk volumes grew by 26 per cent in 2008-09. This is likely to be significantly higher than the figure of growth for the overall market for UHT.

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# 6. Consumption of milk & milk products

## 6.1. National milk and milk products consumption

Out of every rupee spent in 2006-07 by the average **rural Indian** on consumption, Rs. 0.52 was spent on food. Of this, Rs. 0.17 was spent on cereals and cereal substitutes, Rs. 0.08 on milk and milk products, Rs. 0.06 on vegetables, Rs. 0.04 on sugar, salt and spices, and Rs. 0.04 on beverages, refreshments, processed food and purchased meals.

Out of every rupee spent in 2006-07 by the average **urban Indian** on consumption, Rs. 0.39 was spent on food. Of this, Rs. 0.09 was spent on cereals and cereal substitutes, Rs. 0.07 on milk and milk products, Rs. 0.06 on beverages, refreshments and processed food, and Rs. 0.04 on vegetables.

Looking at the above consumption figures for rural and urban India, one can see that as percentage of consumption, rural consumption of milk and milk products is higher than the urban consumption. This is, however, not true in absolute terms. Urban incomes being higher, even though spend on milk and milk products is lower in percentage terms, in absolute terms the urban expenditure is higher. Average urban consumer expenditure on milk and milk products is Rs. 97 per month per capita, while the corresponding figure for rural consumers is Rs. 56.

**Table 6.1 – Average consumer expenditure per person on selected food groups in 2006-07; major states, rural and urban**

| State | Milk & milk products | | Egg, Fish & Meat | | Vegetables | | Fruits | |
|---|---|---|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Rural | Urban | Rural | Urban |
| Andhra Pradesh | 40 | 74 | 32 | 42 | 40 | 48 | 15 | 28 |
| Assam | 24 | 56 | 69 | 107 | 57 | 78 | 10 | 26 |
| Bihar | 39 | 62 | 13 | 25 | 44 | 56 | 5 | 16 |
| Chhatisgarh | 9 | 44 | 12 | 18 | 42 | 63 | 5 | 17 |
| Gujarat | 98 | 143 | 8 | 11 | 55 | 70 | 16 | 32 |
| Haryana | 199 | 180 | 6 | 10 | 45 | 55 | 19 | 33 |
| Jharkhand | 24 | 69 | 21 | 30 | 48 | 81 | 6 | 18 |
| Karnataka | 40 | 69 | 24 | 29 | 30 | 38 | 19 | 27 |
| Kerala | 48 | 60 | 84 | 94 | 41 | 46 | 48 | 57 |
| Madhya Pradesh | 45 | 84 | 7 | 12 | 29 | 44 | 7 | 21 |
| Maharashtra | 46 | 107 | 23 | 34 | 40 | 60 | 23 | 44 |
| Orissa | 12 | 45 | 20 | 36 | 42 | 63 | 6 | 16 |
| Punjab | 167 | 185 | 5 | 8 | 55 | 64 | 19 | 30 |
| Rajasthan | 130 | 145 | 7 | 11 | 37 | 52 | 9 | 24 |
| Tamil Nadu | 35 | 64 | 35 | 43 | 43 | 49 | 16 | 24 |
| Uttar Pradesh | 68 | 96 | 10 | 17 | 40 | 49 | 10 | 19 |
| West Bengal | 21 | 51 | 55 | 95 | 55 | 76 | 7 | 21 |
| India | 56 | 97 | 24 | 34 | 43 | 57 | 12 | 28 |
| All values in Rs. per month per capita | | | | | | | | |
| Source: NSS Household Consumption Survey 2006-07 | | | | | | | | |

The above table shows the contrast in food habits across states. Haryana, Punjab, Rajasthan and Gujarat lead in rural milk consumption, while these states are close to the bottom in consumption of meat, eggs and fish. Maharashtra, with cosmopolitan population of Mumbai, has a high urban consumption of milk, but low rural consumption.

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West Bengal, Kerala and Assam consume more meat, eggs and fish than milk and milk products. The same pattern is seen across all north-eastern states (not listed above). West Bengal and Kerala are traditionally fish-eating states with no dairy tradition. Assam and north-eastern states have a hilly terrain, where dairying has not been historically practiced. They have a meat-eating tradition and hence low spends of milk and milk products are to be expected.

The following table gives national private consumer expenditure on selected food items at current prices.

**Table 6.2 – National private consumer expenditure on selected food items at current prices**

| | 1999-00 | 2003-04 | 2004-05 | 2005-06 | 2006-07@ | 2007-08* | Y-o-Y growth |
|---|---|---|---|---|---|---|---|
| Food, Beverages and Tobacco | 6,470 | 7,426 | 7,785 | 8,731 | 9,777 | 10,995 | 6.85 |
| Milk & milk products | 1,037 | 1,202 | 1,319 | 1,422 | 1,545 | 1,729 | 6.60 |
| Meat, egg & fish | 506 | 655 | 693 | 773 | 857 | 966 | 8.41 |
| Fruits & Vegetables | 1,135 | 1,467 | 1,520 | 1,784 | 1,921 | 2,197 | 8.60 |
| All values in Rs. billion, except year-on-year growth which is in per cent per annum @Provisional Estimates * Quick Estimates | | | | | | | |
| Source: HS&SL and Statistical Pocket Book India, 45th Edition | | | | | | | |

The following table gives national private consumer expenditure on selected food items at 1999-2000 prices.

**Table 6.3 – National private consumer expenditure on selected food items at 1999-00 prices**

| | 1999-00 | 2003-04 | 2004-05 | 2005-06 | 2006-07@ | 2007-08* | Y-o-Y growth |
|---|---|---|---|---|---|---|---|
| Food, Beverages and Tobacco | 6,470 | 6,835 | 6,896 | 7,404 | 7,742 | 8,238 | 3.07 |
| Milk & milk products | 1,037 | 1,008 | 1,060 | 1,138 | 1,163 | 1,201 | 1.85 |
| Meat, egg & fish | 506 | 599 | 613 | 637 | 677 | 724 | 4.57 |
| Fruits & Vegetables | 1,135 | 1,193 | 1,195 | 1,310 | 1,370 | 1,503 | 3.57 |
| All values in Rs. billion, except year-on-year growth which is in per cent per annum @Provisional Estimates * Quick Estimates | | | | | | | |
| Source: HS&SL and Statistical Pocket Book India, 45th Edition | | | | | | | |

Looking at the above tables, it can be seen that expenditure on meat, egg and fish as well as fruits and vegetables is increasing at a significantly higher rate than milk and milk products. At 1999-2000 prices, the growth rate of milk and milk products is less than the rate for food, beverages and tobacco. However, this difference in rate of growth is nominal when one looks at current prices data. This indicates that the expenditure on milk and milk products at current prices is rising at the same rate as for food articles, while at fixed base prices it is rising at relatively slower rate. In other words, the rate of increase in quantity terms is lower for milk and milk products.

It seems that rising prices of milk and changing lifestyles have put a dampener on consumption growth of milk and milk products. Consumers are continuing to buy more milk and milk products, but the rate of growth in quantity terms is lower than for other food products.

It is likely that traditional culture of milk consumption has been losing out to continued attack from new beverages including carbonated beverages, fruit juices, tea, coffee etc.

Reducing consumption of milk products is also confirmed by comparing results of the two quinquennial surveys of household expenditure conducted in 1999-2000 and 2004-05.

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**Table 6.4 – Comparison of Monthly per capita quantity and value of consumption of milk & milk products during 2004-05 and 1999-2000**

| | RURAL | | | URBAN | | |
|---|---|---|---|---|---|---|
| | Quantity | Value | No. of Households reporting consumption | Quantity | Value | No. of Households reporting consumption |
| | kg | Rs. | per 1000 | kg | Rs. | per 1000 |
| Milk Liquid (Litre) | 3.866 | 44.32 | 713 | 5.107 | 73.30 | 850 |
| Milk Condensed / Powder | 0.009 | 0.37 | 32 | 0.008 | 0.66 | 39 |
| Curd | 0.016 | 0.28 | 39 | 0.039 | 0.83 | 108 |
| Ghee | 0.017 | 1.94 | 70 | 0.042 | 6.54 | 222 |
| Butter | 0.001 | 0.04 | 4 | 0.009 | 0.60 | 54 |
| Ice Cream | | 0.04 | 7 | | 0.41 | 25 |
| Other Milk Products | 0.039 | 0.17 | 20 | 0.041 | 0.50 | 46 |
| **Milk & Milk Products** | | **47.31** | **749** | | **83.30** | **882** |
| Source for data given above: NSS Household Consumption Survey, 61st Round, 2004-05 | | | | | | |
| Milk Liquid (Litre) | 3.790 | 38.37 | 678 | 5.100 | 62.66 | 829 |
| Milk Condensed / Powder | | | | 0.030 | 0.81 | 41 |
| Curd | | | | 0.060 | 0.83 | 89 |
| Ghee | 0.030 | 3.03 | 89 | 0.070 | 7.98 | 234 |
| Butter | | | | 0.020 | 0.58 | 41 |
| Ice Cream | | | | | | |
| Other Milk Products | | | | | | |
| **Milk & Milk Products** | | **42.56** | **711** | | **74.17** | **869** |
| Source for data given above: NSS Household Consumption Survey, 55th Round, 1999-2000 | | | | | | |
| Milk & Milk Products total is higher than sum of products mentioned above due to some products not included above. | | | | | | |

While the above comparison which is more than five years old indicates a fall in milk consumption in quantity terms, recent data suggests otherwise.

Most dairy companies are reporting booming sales of milk as well as dairy products. Some of it is due to shift of consumers from unorganized sector to organized sector products. But there is also growth in real terms in consumption of milk and milk products.

Survey of Household Consumer Expenditure in India carried out in July 2006 – June 2007 and published in October 2008 shows an appreciable jump of 10.38 per cent in rural expenditure and 14.78 per cent in urban expenditure on milk and milk products. This indicates that expenditure on milk and milk products continues to grow in Indian in spite of the growing



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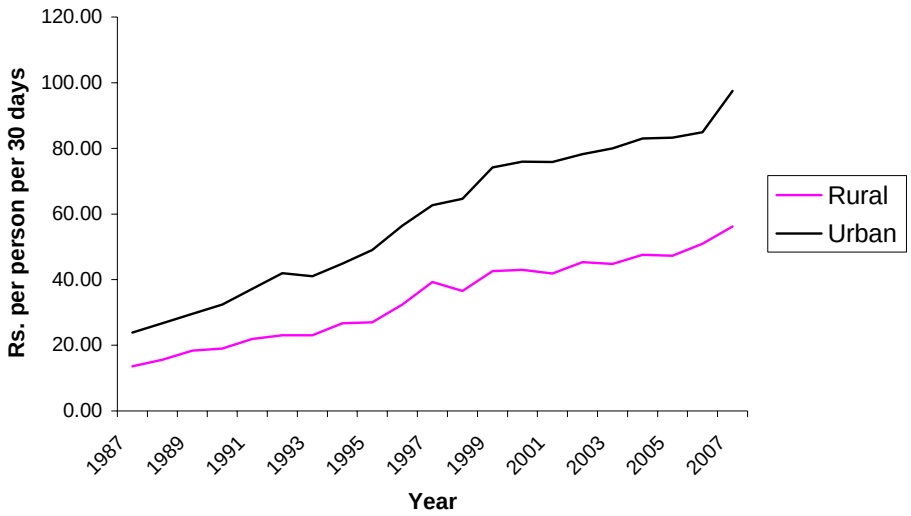
popularity of other beverages and food products.

**Table 6.5 – Changes in average value of consumption of milk & milk products per person per 30 days over National Sample Survey Rounds: all-India**

| NSS Round of Household Expenditure Survey & period | Rural | Urban | Growth | |
|---|---|---|---|---|
| | | | Rural | Urban |
| | Rs. per person per 30 days | | Per Cent over previous period | |
| 43rd Round (July 1987 to June 1988) | 13.63 | 23.84 | | |
| 44th Round (1988-89) | 15.65 | 26.74 | 14.82 | 12.16 |
| 45th Round (1989-90) | 18.35 | 29.53 | 17.25 | 10.43 |
| 46th Round (1990-91) | 19.04 | 32.37 | 3.76 | 9.62 |
| 47th Round (July-Dec 1991) | 21.90 | 37.21 | 15.02 | 14.95 |
| 48th Round (Jan-Dec 1992) | 23.00 | 42.00 | 5.02 | 12.87 |
| 49th Round (Jan-June 1993) | 23.00 | 41.00 | 0.00 | -2.38 |
| 50th Round (July 1993 to June 1994) | 26.70 | 44.90 | 16.09 | 9.51 |
| 51st Round (1994-95) | 27.00 | 49.00 | 1.12 | 9.13 |
| 52nd Round (1995-96) | 32.38 | 56.45 | 19.93 | 15.20 |
| 53rd Round (Jan-Dec 1997) | 39.31 | 62.75 | 21.40 | 11.16 |
| 54th Round (Jan to June 1998) | 36.54 | 64.63 | -7.05 | 3.00 |
| 55th Round (July 1999 to June 2000) | 42.56 | 74.17 | 16.48 | 14.76 |
| 56th Round (July 2000 to June 2001) | 42.97 | 75.90 | 0.96 | 2.33 |
| 57th Round (July 2001 to June 2002) | 41.91 | 75.82 | -2.47 | -0.11 |
| 58th Round (July 2002 to Dec 2002) | 45.34 | 78.19 | 8.18 | 3.13 |
| 59th Round (January to Dec. 2003) | 44.76 | 79.96 | -1.28 | 2.26 |
| 60th Round (January to June 2004) | 47.60 | 82.98 | 6.34 | 3.78 |
| 61st Round (July 2004 to June 2005) | 47.31 | 83.30 | -0.61 | 0.39 |
| 62nd Round (July 2005 to June 2006) | 50.94 | 84.94 | 7.67 | 1.97 |
| 63rd Round (July 2006 to June 2007) | 56.23 | 97.49 | 10.38 | 14.78 |
| Source: HS&SL and National Sample Survey Organisation | | | | |

**Chart 6.1 – Changes in average value of consumption of milk & milk products from 1987 to 2007**



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## 6.2. Milk per capita consumption across states

**Table 6.6 – Monthly per capita quantity of consumption of milk (liquid) by State/UT**

| State | Monthly Per Capita Consumption (Rural) | Monthly Per Capita Consumption (Urban) |
|---|---|---|
| | Litres / Month | |
| Haryana | 13.126 | 9.585 |
| Punjab | 11.545 | 10.574 |
| Chandigarh | 8.182 | 10.459 |
| Himachal Pradesh | 8.720 | 8.166 |
| Rajasthan | 9.498 | 7.379 |
| Jammu & Kashmir | 8.017 | 8.313 |
| Delhi | 6.539 | 8.204 |
| Uttaranchal | 6.599 | 6.398 |
| Gujarat | 4.975 | 6.702 |
| Sikkim | 5.568 | 4.918 |
| Uttar Pradesh | 4.637 | 5.100 |
| Daman & Diu | 3.549 | 4.827 |
| Karnataka | 3.299 | 4.866 |
| Pondicherry | 2.917 | 4.883 |
| Madhya Pradesh | 3.413 | 4.326 |
| Andhra Pradesh | 3.051 | 4.375 |
| Tamil Nadu | 2.480 | 4.823 |
| Maharashtra | 2.727 | 4.393 |
| Goa | 3.193 | 3.920 |
| Bihar | 2.978 | 3.814 |
| Dadra & Na. Haveli | 0.866 | 5.691 |
| Kerala | 2.822 | 3.656 |
| Jharkhand | 1.442 | 3.935 |
| West Bengal | 1.453 | 2.590 |
| Chhattisgarh | 0.667 | 2.989 |
| Assam | 1.310 | 1.998 |
| Tripura | 1.069 | 2.113 |
| A&N Islands | 1.447 | 1.578 |
| Orissa | 0.779 | 2.246 |
| Meghalaya | 0.769 | 1.914 |
| Mizoram | 0.395 | 1.815 |
| Arunanchal Pradesh | 0.634 | 1.471 |
| Nagaland | 0.291 | 0.867 |
| Manipur | 0.172 | 0.333 |
| Lakshwadeep | 0.216 | 0.269 |
| **All-India** | **3.866** | **5.107** |
| Source: NSS Household Consumption Survey, 61st Round, 2004-05 | | |

From the above table it is clear that there is wide variation in liquid milk consumption among various states.



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Top milk consuming states / UT's of the country are Haryana, Punjab, Chandigarh, Himachal Pradesh, Rajasthan, Jammu & Kashmir and Delhi. Interestingly, Haryana, Punjab, Himachal Pradesh, Rajasthan, Uttaranchal and Sikkim are the only states in the country where rural per capita consumption of milk is higher than urban per capita consumption.

North Eastern states (Assam, Tripura, Meghalaya, Manipur, Mizoram, Nagaland, Arunanchal Pradesh) and states with high forest cover (Orissa, Jharkhand and Chhatisgarh) have very low milk consumption.

Islands (Andaman & Nicobar and Lakshwadeep) also have very low milk consumption. Coastal regions consume more fish and have no tradition of dairying. Hence, milk consumption in coastal regions is low. Kerala and West Bengal have typical coastal culture where fish is a staple diet. Not surprisingly, milk consumption in these states is low. Other coastal states like Andhra Pradesh, Tamil Nadu, Karnataka and even Gujarat and Maharashtra are large states with significant areas that have no coastal fish-eating culture. Hence, the average per capita consumption in these states is not so low.

Milk (as well as milk products) consumption is largely determined by cultural and historical factors. Prosperity leads to higher milk consumption only if the cultural traditions of the region are favorable. Cultural traditions of India can be divided into three streams – (a) Plains around rivers – where agriculture and dairying flourished (b) Coastal – fishing was the major activity (c) Forests – forest produce and mining were the main activities. Since dairying flourished in plains near rivers, milk consumption tradition is also the strongest in these regions.

Based on the above understanding of India's culture, it seems that Uttar Pradesh and Bihar have potential to increase milk consumption. As these states become prosperous, milk consumption is likely to increase. On the other hand, increasing prosperity is unlikely to lead to any significant jump in milk consumption in Kerala or A & N islands.

States that have a tradition and culture of high consumption of liquid milk also rate high in consumption of milk products. Though there are strong regional differences in types of milk products consumed, when viewed in terms of overall consumption of milk products, states with high liquid milk consumption score high. Traditionally West Bengal and eastern states have a tradition of sweets made from *chhanna* (cottage cheese) while north-western states have a tradition of *khoa / mawa* (discussed in Chapter 7).

Rasgulla – a chhanna based sweet

Urbanization is bringing a cosmopolitan urban culture to various states and is a great leveler. Delhi is a state with no rural population and high incomes. It is located in the middle of states with tradition of high milk consumption. Hence, Delhi has the highest per capita expenditure on milk and milk products. Similar data about other urban centers like Mumbai (Maharashtra), Kolkata (West Bengal), Chennai (Tamil Nadu) and Bangaluru (Karnataka) is not available since these cities are part of large states with vast rural and semi-urban population. The consumption

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statistics for the states with large metropolitan centers show high per capita urban consumption of milk.

Organized dairy sector in India concentrates its marketing efforts on large urban conglomerates where consumption of milk is high.

**Table 6.7 – Average expenditure (Rs.) per person per 30 days on milk & milk products in various states during 2005-06 and 2006-07**

| State | Rural | Urban | Rural | Urban | Growth rate % | |
|---|---|---|---|---|---|---|
| | 2006-07 | | 2005-06 | | Rural | Urban |
| | Rs. per person per 30 days | | Rs. per person per 30 days | | | |
| Andhra Pradesh | 40.00 | 74.10 | 34.25 | 67.47 | 16.79 | 9.83 |
| Arunanchal Pradesh | 21.34 | | 22.10 | | -3.44 | |
| Assam | 24.11 | 55.55 | 23.05 | 55.57 | 4.60 | -0.04 |
| Bihar | 38.62 | 62.47 | 35.24 | 50.50 | 9.59 | 23.70 |
| Chhatisgarh | 9.34 | 43.81 | 6.90 | 62.23 | 35.36 | -29.60 |
| Delhi | | 186.69 | | 149.72 | | 24.69 |
| Gujarat | 97.98 | 142.77 | 88.39 | 116.28 | 10.85 | 22.78 |
| Haryana | 199.01 | 179.88 | 147.83 | 162.26 | 34.62 | 10.86 |
| Himachal Pradesh | 146.83 | 160.62 | 123.44 | 166.43 | 18.95 | -3.49 |
| Jammu & Kashmir | 114.51 | 141.72 | 112.40 | 139.88 | 1.88 | 1.32 |
| Jharkand | 24.24 | 69.13 | 20.80 | 68.67 | 16.54 | 0.67 |
| Karnataka | 40.36 | 68.62 | 35.20 | 61.00 | 14.66 | 12.49 |
| Kerala | 48.46 | 60.00 | 44.76 | 62.37 | 8.27 | -3.80 |
| Madhya Pradesh | 44.75 | 84.19 | 42.12 | 81.20 | 6.24 | 3.68 |
| Maharashtra | 45.60 | 106.84 | 41.91 | 83.34 | 8.80 | 28.20 |
| Manipur | 12.65 | | 6.25 | 15.01 | 102.40 | |
| Meghalaya | 16.30 | | | | | |
| Mizoram | | 54.63 | 20.42 | 53.52 | | 2.07 |
| Orissa | 11.70 | 44.74 | 12.24 | 38.26 | -4.41 | 16.94 |
| Punjab | 167.24 | 185.21 | 146.27 | 170.90 | 14.34 | 8.37 |
| Rajasthan | 129.68 | 144.63 | 120.55 | 130.21 | 7.57 | 11.07 |
| Tamil Nadu | 34.87 | 64.41 | 34.13 | 63.65 | 2.17 | 1.19 |
| Tripura | 16.18 | 53.63 | 14.98 | 59.17 | 8.01 | -9.36 |
| Uttar Pradesh | 67.50 | 95.54 | 58.24 | 88.97 | 15.90 | 7.38 |
| Uttaranchal | | 118.20 | | | | |
| West Bengal | 20.72 | 51.32 | 21.97 | 45.45 | -5.69 | 12.92 |
| North Eastern States | 22.09 | 46.59 | 17.97 | 43.80 | 22.93 | 6.37 |
| Group of UT's | 64.97 | 142.72 | 46.35 | 151.60 | 40.17 | -5.86 |
| **All-India** | **56.23** | **97.49** | **50.94** | **84.94** | **10.38** | **14.78** |

Source: HS&SL and NSS Household Consumption Survey, 2006-07 & 2005-06

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## 6.3. Milk & milk products consumption trends

The growth of per capita expenditure on milk and milk products in both rural and urban markets should be seen in conjunction with the continuous increase in Indian population. The two factors (growth in population as well as in per capita consumption of milk and milk products) lay the foundation for strong growth of Indian dairy consumption trends.

While the national consumption of dairy and dairy products, there is a strong shift from unorganized sector to organized sector especially in urban areas. Though there is no statistical data about the shift, almost all dairy companies / cooperatives have been reporting growth rates that are much higher than the figures for growth of dairy consumption in the country.

For example, Chairman of Gujarat Cooperative Milk Marketing Federation (Amul) said in Annual General Meeting on 5 June 2009 that total milk procurement by their member unions during the year 2008-09 averaged 8.719 mio kilograms per day, representing a quantum growth of 14.87 per cent over 7.590 mio kilograms per day achieved during 2007-08. This high growth of 14.87 per cent in milk procurement was achieved, over and above impressive growth of 12.9 per cent, of previous year. Amul sales registered a quantum growth of 27.7 per cent in 2008-09 and 22.9 per cent in 2007-08.

The double digit growth rates of Amul are in line with similar figures reported by many other dairy companies / cooperatives. Almost all dairy companies / cooperatives with good domestic marketing operations and strong brand identity are planning or considering expansion.

A study by industry chambers (FICCI) had estimated a double-digit growth rate for most milk products including Ice-Cream (25 per cent), Milk Products (10 per cent), Traditional / Unorganized milk products (10 per cent), Organized Branded milk products (15 per cent), *Khoa* / *chhana* based sweets (10 per cent), Butter(10 per cent) , Curds and curd products (12 per cent). The study had predicted high single digit growth rates for other items - Milk and Dairy products (4.5 per cent), Milk (4.5 per cent), Milk liquid / packaged (5 per cent), Milk Products (8 per cent), Milk powder including infant milk (7 per cent), Ghee (5.5 per cent), Cheese / *Paneer* (8 per cent).

There is a significant shift of consumers from unbranded to branded products; from unorganized sector to organized sector and from villages to cities. Due to this shift, the industry is experiencing growth which is significantly higher than the national consumption / expenditure / population growth figures suggest.

## 6.4. Milk & milk products consumption – drivers of growth

Indian dairy industry is growing. The drivers of growth can be summed up as follows:

- **Increase in population** – India's population is increasing at the rate of about 1.4 per cent per annum. This means that India is adding about 16 million people every year to her population.

- **Migration to cities** - The urban population in the country, which was 28 percent in 2001, is expected to increase to 38 percent by 2026. The urban growth would account for over two-thirds (67 percent) of total population increase by 2026. Out of the total population increase of 371 million during 2001-2026 in the country, the share of increase in urban population is expected to be 249 million. Since on all-India basis, per capita consumption of milk & milk products is almost double in urban India compared to rural India, increase



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of population in cities is likely to lead to significant increase in consumption.

- **Economic growth –** Despite global economic downturn, India has continued to grow. Economic growth decelerated in 2008-09 to 6.7 per cent. This represented a decline of 2.1 per cent from the average growth rate of 8.8 per cent in the previous five years (2003-04 to 2007-08). Per capita GDP growth, a proxy for per capita income, which broadly reflects the improvement in the income of the average person, grew by an estimated 4.6 per cent in 2008-09. The tempering of growth momentum has to be seen in context of the global scenario as well as the historical data. India's annual Growth Rate of GDP per capita was 1.52 per cent in 60's, 0.75 per cent in 70's, 3.70 per cent in 80's and 3.73 per cent in 90's. It is clear that even though the contagion of global downturn has affected India, the fundamentals of Indian economy continue to be strong. As the world economy improves, Indian economy is sure to race ahead.

**Table 6.8 – Annual Growth Rate of Per capita Net National Product from 2000-01 to 2007-08**

| Year | Annual Growth Rate of Per Capita Net National Product | |
|---|---|---|
| | At current Prices | At 1999-00 prices |
| | Per Cent | |
| 2000-01 | 5.1 | 1.8 |
| 2001-02 | 6.6 | 3.7 |
| 2002-03 | 6.2 | 2.0 |
| 2003-04 | 10.5 | 7.0 |
| 2004-05 | 11.1 | 5.6 |
| 2005-06 | 12.1 | 7.9 |
| 2006-07 | 13.5 | 8.2 |
| 2007-08 | 12.7 | 7.6 |
| Source: Economic Survey 2008-09 Govt. of India | | |

With increasing incomes, expenditure on milk and milk products is bound to increase.

Chapati with ghee

- **Cultural and historical factors** - Across much of plains around the major rivers of India, milk and milk products have been glorified for centuries through religious and mythological stories. Ghee is used in many religious rituals of Hindus. It requires no special storage facilities (unlike butter) in the hot climate of India. It is used for a variety of applications – as cooking medium in household kitchens, as a garnishing on foods and



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Indian breads called *rotis* / *chapatis*, as a raw material for a large variety of traditional Indian sweets and also in many religious ceremonies including for lighting up the funeral pyres. Ghee is often replaced by hydrogenated vegetable oil (called *vanaspati* in India). Most sweet shops in India have two variety of sweets – high quality ones made from ghee and low quality ones made from *vanaspati*. Price-conscious consumers tend to buy *vanaspati*, even though they wish to buy the ghee sweets. As incomes rise with growth in GDP, more and more consumers buy ghee sweets instead of *vanaspati* sweets.

- **Health awareness** – Milk and all milk products are perceived as the key to good health. Demand for vanaspati has suffered due to the negative publicity that *vanaspati* has been receiving on account of health concerns. Media has also been publishing about cholesterol increasing effect of ghee, but consumers largely ignore this.

- **High living** – **aspirational quality of butter and ghee**. Indian tradition glorifies use of butter and ghee. Notwithstanding all that modern medicine might say, a significantly large number of Indians believe that butter and ghee are healthier than all other oils and fats. Health considerations aside, consuming butter and ghee is a sign of luxurious living for most Indians.

- **Brand consciousness** – With increasing prosperity, number of Indians buying branded products is increasing. This is leading to a shift from loose products sold by the unorganized sector to branded products of the organized sector. In dairy sector, it means that more people consume packed milk instead of loose milk supplied by the milkman who used to come from nearby village every morning. The same holds true for milk products like butter, ghee, *paneer* (cottage cheese) etc. This leads to good growth for dairy companies / cooperatives.

Western observers tend to assume a direct relationship between increasing incomes in a country and beef consumption there. In India, vast majority is prohibited from eating beef on religious grounds. Hence, increasing incomes do not lead to increased beef consumption. However, increasing incomes in India have a significant bearing on the consumption of butter, ghee and other milk products.

A woman farmer brings milk to a collection center

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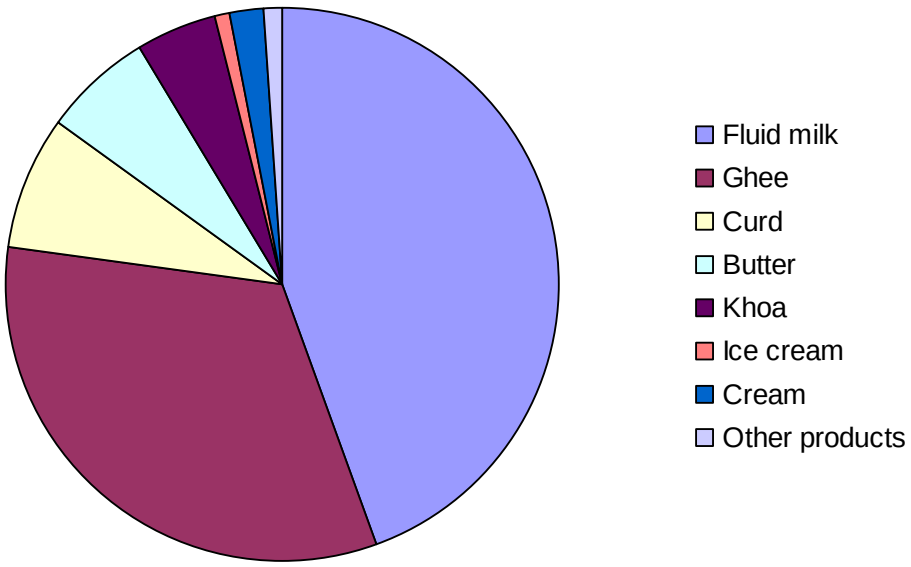
# 7. Dairy products – production & consumption

## 7.1. Milk converted to products

Nearly 45 per cent of the total milk production is consumed as liquid milk. 47 per cent is converted into traditional products like cottage butter, ghee, *paneer* (cottage cheese), *khoya* (milk boiled and dried) and curd. Only 8 per cent of the milk is used in the production of western products like milk powders, processed cheese, and processed butter.

**Table 7.1 and Chart 7.1 – Utilization of milk in different dairy products**

| Items | Percentage in relation to | |
|---|---|---|
| | Total milk production | Total quantity converted into milk products |
| Fluid milk | 44.5 | - |
| Manufactured milk | 55.5 | 100.0 |
| Ghee | 32.7 | 58.9 |
| Dahi | 7.8 | 14.0 |
| Butter | 6.3 | 11.4 |
| Khoa | 4.9 | 8.8 |
| Ice cream | 0.7 | 1.3 |
| Cream | 1.9 | 3.4 |
| Other products | 1.2 | 2.2 |
| Estimates by http://www.indiaagronet.com/ | | |



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## 7.2. Dairy fats – butter and ghee

Ghee is clarified butter. Cream and butter are boiled long enough to remove all traces of water to get ghee. Butter oil and ghee are similar, except that ghee has a distinct aroma.

About 39 per cent of the country's milk production is used for producing butter and ghee. This may sound strange to anyone outside India but ghee is the most important milk product in India. Ghee is traded as a bulk commodity with prices fluctuating on daily basis.

**Table 7.2 – Production and consumption of butter and ghee**

| Year | Production | Consumption |
|---|---|---|
| | ('000 t) | |
| 2002 | 2,400 | 2,399 |
| 2003 | 2,450 | 2,449 |
| 2004 | 2,600 | 2,608 |
| 2005 | 2,749 | 2,743 |
| 2006 | 3,050 | 3,055 |
| 2007 | 3,360 | 3,360 |
| 2008 | 3,695 | 3,687 |
| 2009* | 4,065 | 4,062 |
| 2013* | 5,027 | 5,205 |
| Source: USDA and HS&SL estimates * Forecast | | |

**Production of butter for table purposes is less than 3 per cent of butter and ghee production.** White butter (other than for table purposes) sold for non-ghee use goes to ice cream manufacturers and some food manufacturers. This quantity is insignificantly small. Generally, white butter is traded in bulk by dairies and is used as a raw material for ghee production. India's butter and ghee production statistics are hence inflated by white butter that is used for ghee production. In other words, white butter is counted twice in the production statistics – first as butter and second time as ghee.

**It is estimated that white butter production is about one third of the butter and ghee production. We hence estimate that ghee production and consumption in 2008 was about 2.4 million tons.**

Butter and ghee production has grown on average at about 10 per cent per annum from year 2006 to 2008. A growth rate of 10 per cent in butter and ghee seems high when viewed in the context of 3 per cent per annum growth in milk production. It has been possible to sustain this growth rate of butter and ghee due to more milk being used for this purpose while less milk is consumed as fluid milk. In other words, percentage of milk consumed as liquid milk has been falling while the percentage used for ghee production has been rising. This shift from liquid milk to butter and ghee (in relative terms) may not be sustainable in long term.

It is projected that butter and ghee production will grow at about 8 per cent per annum for the coming years. This is likely to push up India's butter and ghee production during 2013 to 5,027 tons. The consumption is likely to grow faster at about 9 per cent per annum. It is projected that the consumption of dairy and fats will be about 5,205 tons in 2013. These figures are, however, notional since in these figures white butter is being counted twice over – once as butter and once again as ghee.

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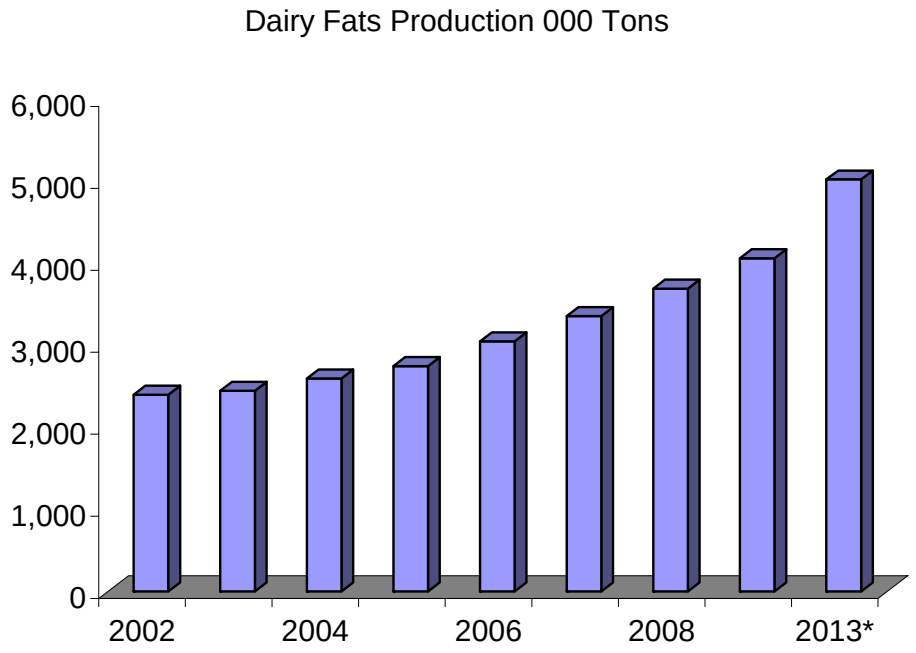
**Chart 7.2 – Evolution of Butter and Ghee Production 2002-2013**




Source : USDA and HS&SL estimates

**Ghee consumption is likely to rise at 9 per cent per annum**. Estimates of ghee consumption are as follows:

**Table 7.3 – Consumption of ghee**

| Year | Consumption of Ghee ('000 t) |
|---|---|
| 2000 | 1,200 |
| 2001 | 1,300 |
| 2002 | 1,400 |
| 2003 | 1,530 |
| 2004 | 1,650 |
| 2005 | 1,800 |
| 2006 | 1,950 |
| 2007 | 2,150 |
| 2008 | 2,350 |
| 2009* | 2,562 |
| 2010* | 2,792 |
| 2011* | 3,043 |
| 2012* | 3,317 |
| 2013* | 3,616 |
| Source: HS&SL estimates *Forecast | |

Amul, a brand owned by Gujarat Cooperative Milk Marketing Federation, has lions share of the table butter market of India. Ghee market however is dominated by private unorganized players. It is estimated that only 5 per cent of the ghee market is serviced by cooperative



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sector.

In relative terms, the penetration of ghee is significantly higher in the north and the west, which are milk-surplus regions. **The north accounts for 58 per cent of ghee consumption and west for 24 per cent.** The south and east together account for the balance 18 per cent.

In India, table butter is usually salted and colored yellow. Unsalted white butter is sold in retail only by small unorganized players. It is difficult to estimate the size of this unorganized market, but it can be treated as insignificantly small.

Table butter is used as bread spread, as garnishing on foods, and also as cooking ingredient in many recipes. Indians have a wide variety of breakfasts. In a number of breakfast options, butter adds to the richness and taste.

Butter, like ghee, enjoys a positive health image in Indian minds.

Unlike ghee, the logistics of butter distribution poses a problem. In the hot climate of India, it is necessary to have a cold chain for transportation and handling of butter. This imposes a constraint on the development of butter market and also to the entry of new companies in the segment.

Ghee has competition from *vanaspati* (hydrogenated vegetable oil), but table butter has no such competition. Margarine has failed to take off in India. Every attempt to introduce margarine to Indian consumers has been a failure. **Table Butter consumption is estimated to be growing at 10 per cent per annum.**

**Table 7.4 – Consumption of table butter**

| Year | Consumption of Table Butter ('000 t) |
|---|---|
| 2000 | 50 |
| 2001 | 55 |
| 2002 | 61 |
| 2003 | 67 |
| 2004 | 75 |
| 2005 | 83 |
| 2006 | 91 |
| 2007 | 100 |
| 2008 | 110 |
| 2009* | 121 |
| 2010* | 133 |
| 2011* | 146 |
| 2012* | 161 |
| 2013* | 177 |
| Source: HS&SL estimates *Forecast | |

Table Butter market is dominated by Gujarat Cooperative Milk Marketing Federation (GCMMF) with their brand Amul. **GCMMF has about 88 per cent of India's table butter market**. Chairman of GCMMF said in June 2009 as well as in earlier years that Amul butter has recorded a double-digit growth rate, even though GCMMF has not disclosed the volumes sold



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by them. During 2008-09, Amul butter recorded 17 per cent growth in value terms. This indicates that the quantity growth during 2008-09 was in the range of 7-9 per cent.

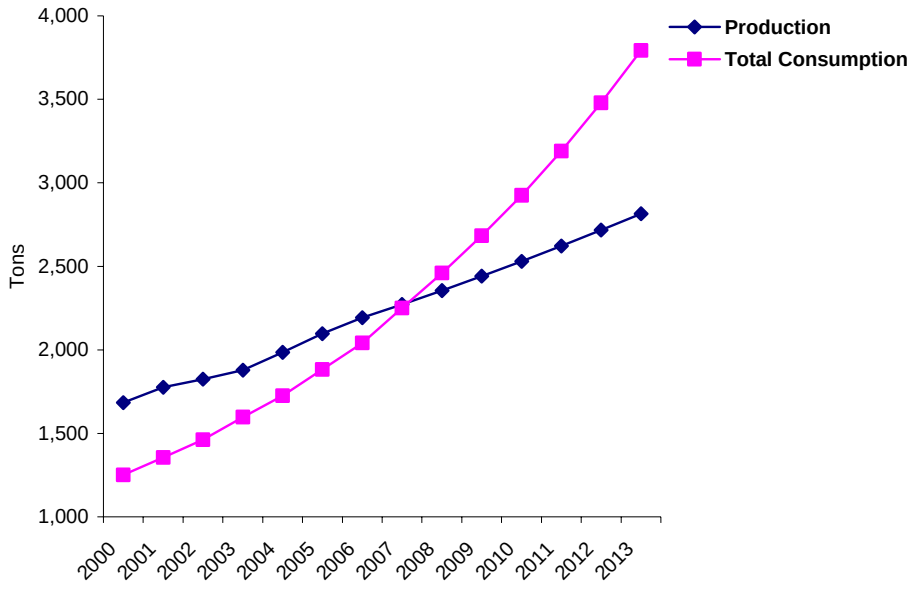
Other major brands are Verka, Vijaya, Sagar, Nandini and Aarey. Britannia Milkman is the latest entrant in this segment. Competition in the butter market has been growing and Amul has started feeling the heat. Modest growth in volumes of Amul butter during 2008-09 can be attributed to the growing clout of competition in the butter market.

**Table 7.5 – Ghee & Table Butter – consumption and milk used for production**

| Year | Milk | | | Consumption | | | Butt & Ghee |
|---|---|---|---|---|---|---|---|
| | Production | Use for butter & ghee | | Ghee | T. Butter | Total | As % of |
| | mio tons | % | 000 tons | 000 tons | 000 tons | 000 tons | Milk used |
| 2000 | 80.6 | 38.00 | 30,628 | 1,200 | 50 | 1,250 | 4.08 |
| 2001 | 84.4 | 38.25 | 32,283 | 1,300 | 55 | 1,355 | 4.20 |
| 2002 | 86.2 | 38.50 | 33,187 | 1,400 | 61 | 1,461 | 4.40 |
| 2003 | 88.1 | 38.75 | 34,139 | 1,530 | 67 | 1,597 | 4.68 |
| 2004 | 92.5 | 39.00 | 36,075 | 1,650 | 75 | 1,725 | 4.78 |
| 2005 | 97.1 | 39.25 | 38,112 | 1,800 | 83 | 1,883 | 4.94 |
| 2006 | 100.9 | 39.50 | 39,856 | 1,950 | 91 | 2,041 | 5.12 |
| 2007 | 103.9 | 39.75 | 41,311 | 2,150 | 100 | 2,250 | 5.45 |
| 2008 | 107.0 | 40.00 | 42,818 | 2,350 | 110 | 2,460 | 5.75 |
| 2009* | 110.3 | 40.25 | 44,378 | 2,562 | 121 | 2,683 | 6.04 |
| 2010* | 113.6 | 40.50 | 45,993 | 2,792 | 133 | 2,925 | 6.36 |
| 2011* | 117.0 | 40.75 | 47,666 | 3,043 | 146 | 3,190 | 6.69 |
| 2012* | 120.5 | 41.00 | 49,397 | 3,317 | 161 | 3,478 | 7.04 |
| 2013* | 124.1 | 41.25 | 51,189 | 3,616 | 177 | 3,793 | 7.41 |

Source: Department of Animal Husbandry, Govt. of India; HS&SL estimates *Forecast

**Chart 7.3 – Ghee and Table Butter production and consumption**

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The above graph is prepared on the assumption that combined production of ghee and table butter is about 5.5 per cent of milk used for producing ghee / table butter. This percentage is a bit lower than the standard fat content in buffalo milk but is much higher than fat content for cow milk.

From the table above, it is clear that in spite of using more and more of milk for ghee and table butter production, after 2009 **it will not be possible for India to meet demand for the products from domestic production alone**. In 2012, the consumption of ghee and table butter is 6.72 per cent of the milk used for production of dairy fats. This is higher than fat content of standard buffalo milk also. Hence, it seems that India will have to resort to import of dairy fats. This can be an opportunity for international dairy companies.

## 7.3. Curd

Indians love to eat curd / yogurt, but they prefer to make it at home rather than buy it from a shop. It is estimated that almost 10 per cent of liquid milk bought by households is converted into curd.

Plain fresh curd is sold by dairy shops in every town and city – small or big. The shops make the curd themselves. There are no estimates available about the size of this unorganized market.

Organized market for curd is restricted to a few large cities. Amul curd is present in a few cities. Nestle is also making its presence felt in some cities. Data about size of organized players' presence in curd market is not available.

There is no market in India for flavored sweet yogurts. Agri-export company Himalaya International has announced that it is setting up a plant in Himachal Pradesh to produce fruit yogurt. It is not clear whether the plant is for export or for domestic market.

Almost entire quantity of curd sold in India is plain without any flavor and without salt or sugar. Some Indians do add sugar to the curd, when eating it. But vast majority of Indians add salt and pepper / chilly powder to curd before eating it.

A variant of curd that is gaining popularity is called *lassi* / *chhach* (butter milk). This is a traditional food consumed all over the country with regional variations. It can be thick or watery thin depending on region. *Lassi* (often thick) is curd churned and cooled with ice. *Lassi* is popular in north India and can be sweet as well as salted. *Chhach* or butter milk is always thin and salted. Spices like cumin powder and mint are often added to *chhach*.

Dairy companies have been making efforts to introduce packed *lassi* and *chhach* in market. Amul Masti (*chhach*) has gained good popularity in western India. Data is not available about the size of market of packed *lassi* and *chhach*.

## 7.4. *Paneer* (cottage cheese) / *chhanna* / *chhanna* based sweets

*Paneer* is a semi hard unripened cheese mainly obtained by acid coagulation. It has a soft and thin rind. Its body is homogeneous without eyeholes and it has a mild and fresh taste. Its colour is white when it is made mainly from buffalo milk and yellowish in other cases.

For preparing *paneer* at a cottage scale, first, milk is heated to boiling point. Coagulation is obtained by adding the required amount of acid coagulant to the milk which is kept under

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stirring. When the whey is clear, it is drained off by hanging the curd in a cloth and later by pressing the paneer slightly. When produced on a commercial scale, *paneer* is pressed into blocks in hoops. Thereafter, *paneer* is removed, cut into pieces of suitable sizes and dipped in chilled water for 3-4 hours to increase its firmness. *paneer* is usually not packed and is sold after cutting.

Industrial scale process for manufacture of *paneer* has been developed by National Dairy Development Board.

In India, *paneer* must meet the following legal requirements: Moisture (maximum) 70 per cent; Milk fat in dry matter (minimum) 50 per cent.

Typical *paneer* has the following composition:

**Table 7.6 – Typical composition of *paneer***

| | Made from | |
|---|---|---|
| | **Cow Milk** | **Buffalo Milk** |
| | Per Cent | |
| Moisture | 52–54 | 50–52 |
| Milk fat | 24–26 | 28–30 |
| Protein | 16–19 | 13–15 |
| Lactose | 2.0–2.2 | 2.2–2.4 |
| Ash | 2.0–2.3 | 1.9–2.1 |

The yield of *paneer* depends upon the quality of milk. It is generally 18 to 20 per cent of the milk used for its preparation.

**Indian *paneer* market is estimated to be around 110,000 tons per annum.** Institutional segment contributes to over 80 per cent of the total *paneer* market. ***Paneer* market is estimated to be growing at about 10 per cent per annum.** (HS&SL estimates)

Presence of organized dairies is less than 15 per cent in the *paneer* market. Amul has a frozen as well as a fresh *paneer* in the market. Many dairy cooperatives as well as small private dairy companies sell *paneer*. Amul pushes its *paneer* in some regions of the country only. Other cooperatives and companies also do localized marketing of *paneer*.

**Chhanna**

*Chhanna* consists of acid coagulated milk solids used for the preparation of many milk based sweets. It differs from *paneer* in that no pressure is applied to remove the whey. *Chhanna* is widely used in the eastern parts of India and Bangladesh. Cow milk is preferred since it yields a soft bodied and smooth textured product. Both these characteristics are suitable for the production of high grade *chhanna* sweets.

Buffalo milk produces a *chhanna* with a slightly hard body, a greasy and coarse texture, and does not produce good quality *chhanna* sweets.

*Chhanna* has the same legal requirements as *paneer* in India, i.e. a maximum moisture content



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of 70 per cent and a minimum content of milk fat in dry matter of 50 per cent.

*Chhanna* from cow milk is light yellow in colour, has a moist surface, soft body and smooth texture. *Chhanna* derived from buffalo milk is whitish in colour. Both have a pleasant sweetish, mildly acid taste. Buffalo milk yields a larger amount of *chhanna*.

**About 100,000 tons of *chhanna* are produced annually in India.** (HS&SL estimates) *Chhanna* is also produced in rural milk sheds and transported by road and rail to larger urban conglomerates in wicker baskets which allow further drainage of whey. *Chhanna* produced in this way is used for the preparation of *sandesh* (a traditional sweet).

**Chhanna-based sweets**

*Rasogolla* is the most common *chhanna*-based sweet. It is prepared using fresh and soft-*chhanna*. It is in the form of balls 30 mm in diameter with a typical spongy body and smooth texture. It is stored and served in sugar syrup.

Freshly-made *chhanna* is squeezed by hand in a muslin cloth to remove as much whey as possible. 1–4 per cent of the wheat flour/semolina is mixed with the *chhanna* in a container and kneaded thoroughly by hand to make a dough. The dough is portioned and rolled into balls of about 15 mm diameter having a smooth surface with no cracks - 1 kg of *chhanna* yields 90–100 *rasogollas*.

The dough balls are cooked in specially prepared whey based medium for about 15 minutes. For *chhanna* made from cow milk, cooking medium with sugar is preferred, and for all other types of *chhanna*, cooking medium without sugar is preferred.

After the cooking is complete, the balls are transferred to a container with water at 30–35°C for texture stabilization and colour improvement of the balls. After 5–10 min of texture stabilization in water, the texture stabilized balls are transferred to sugar syrup. The desired sugar syrup concentration in the final product is 45–50 per cent. This is achieved by dipping the texture-stabilized balls first in 35–40 per cent sugar syrup for 1–2 hours, followed by a second dipping in 58–60 per cent sugar syrup. The product finally acquires the desired sugar concentration after equilibration between the sugar syrup inside and outside the balls is achieved.

There are several other products based on *chhanna*. Some common products are:- *sandesh, chhanna-murki, pantooa, chumchum, khirmohan* and *rasmalai*.

There are no official estimates of the size of *chhanna*-based sweets market. **Based on the estimated market for *chhanna* being 100,000 tons per annum, the size of *chhanna*-based sweets should be more than double or more than 200,000 tons per annum.** (HS&SL estimates)

## 7.5. Processed cheese

Western style processed cheese is sold by large companies under their brands. The processed cheese market including its variants like processed cheese, cheese spreads, mozzarella, flavored and spiced cheese, is **estimated to be 10,000 tons per annum**. (HS&SL estimates) The four metro cities alone account for more than 60 per cent of the consumption. Mumbai is the largest market, accounting for 30 per cent of cheese sold in the country, followed by Delhi (20 per cent), Kolkata (7 per cent) and Chennai (6 per cent). Mumbai has a larger number of domestic consumers compared to Delhi where the bulk institutional segment is larger.

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The growing popularity of processed cheese in India can be gauged from the fact that now one can find processed cheese in small stores as well as in relatively new modern supermarkets. One can find tinned cheese and cheese cubes which are salted and ready-to-eat; cheese spread which was introduced as a substitute for butter; cheese singles (slice) which are used as stuffing for sandwiches; pizza cheese used as topping on pizzas which are fast becoming the preferred fast food in Indian metros. Amul has even introduced a low calorie version of cheese called “slim cheese”.

Top players of branded cheese manufacturing in India include Amul, Britannia, Le Bon, Mother Dairy and others. Out of these, Amul is reported to have a market share of 65 per cent. There are others such as Verka, Vita, Nandini and Vijaya who have a market share in the cheese market but their share is insignificant.

GCMMF has reported that Amul processed cheese volumes grew by 25 per cent during 2008-09. The growth rate of Amul is much higher than the overall growth rate for processed cheese in India since Amul is the market leader in the segment.

India is one of the fastest growing markets for cheese. **The processed cheese market is estimated to be growing at about 14 per cent per annum**. (HS&SL estimates) Aggressive advertising and promotion by dairy companies is expected to push the growth rate. Increasing popularity of pizza shops may also give a boost to processed cheese. Flavored cheese segment however has been declining.

## 7.6. Khoa / mawa

*Khoa* is obtained from cow, buffalo or mixed milk by thermal evaporation of milk in an open pan.

*Khoa*, also *khawa* or *mawa*, is used as a base material for a variety of Indian sweets. Its origin is not known but it has been prepared for centuries in India as the base material for sweets. It is made by the traditional method by milk traders and manufacturers of sweets.

*Khoa* preparation has been the easiest way of preserving rurally-produced milk in the flush season.

**Table 7.7 – Composition of khoa**

| | Cow | Buffalo |
|---|---|---|
| | Per Cent | |
| Moisture | 25.6 | 19.2 |
| Fat | 25.7 | 37.1 |
| Protein | 19.2 | 17.8 |
| Lactose | 25.5 | 22.1 |
| Ash | 3.8 | 3.6 |
| Iron (ppm) | 103.0 | 101.0 |

The high iron content is probably due to the use of iron pans and scrapers.



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Legal requirements state that khoa contains a minimum of 20 per cent milk fat. Bureau of Indian Standards has laid down the following specifications for khoa: Moisture per cent by weight (maximum) – 28.0; Fat per cent by weight (on dry basis) (minimum) – 26.0.

Khoa is classified in 3 major types depending upon the specific uses. They are *pindi; dhap and danedar* with the following compositions:-

**Table 7.8 – Types of khoa**

| Type | Fat Per Cent | Total Solids Per Cent | Specific Sweets Prepared |
|---|---|---|---|
| Pindi | 21–26 | 67–69 | Burfi, peda |
| Dhap | 20–23 | 56–63 | Gulabjamun, pantooa |
| Danedar | 20–25 | 60–65 | Kalakand |

Milk of high acidity produces a granular *khoa* known as *danedar*. *Khoa* has a uniform whitish colour with just a tinge of brown, a slightly oily or granular texture, and a rich nutty flavor which is associated with a mildly cooked and sweet taste due to the high concentration of lactose.

Buffalo milk is preferred for *khoa* making because it yields a whiter product with a soft, loose body and a smooth granular texture which makes it suitable for the preparation of high-grade *khoa* sweets. A minimum of 4 per cent fat for cow milk and 5 per cent fat for buffalo milk is necessary to obtain a desirable body and texture in *khoa*. Lower levels of fat result in undesirable hard body and coarse texture.

The traditional trade usually pays for milk on the basis of the yield of *khoa*. Cow milk usually yields 18 per cent of *khoa*. The yield from buffalo milk is usually 20 per cent.

**About 1 million tons of *khoa* is produced annually in India.** (HS&SL estimates) Much of it is purchased by manufacturers of sweets. Purchase of khoa by household consumers is less than



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10 per cent of the total market. (HS&SL estimates)

**Khoa and khoa-based sweets market is estimated to be growing at about 10 per cent per annum.** (HS&SL estimates)

Organized sector has no presence in manufacture or marketing of khoa in India. Organized sector does not even have any significant presence in manufacture of sweets from khoa. Some cooperatives have started marketing one or two sweets made from khoa but have met with limited success.

## 7.7. Condensed milk / liquid dairy whiteners

**The market for dairy whiteners-creamers and condensed milk is estimated to be about 290 tons in 2009. The segment is growing at the rate of about 8 per cent per annum.** (HS&SL estimates)

Nestle India (Everyday), Britannia and GCMMF's Amul are the key players in this segment. Sapan, Vijaya, Mohan, Parag and other regional players too have entered the fray with their dairy whiteners and most are available in pouches and tetrapacks. Amul has nearly 45 per cent share of the market followed by Nestle at 23 per cent. Britannia is the No. 3 player.

## 7.8. Milk powders

Milk powders are mainly of two types -- whole and skimmed milk powder. Whole milk powder contains fat, as distinguished from skimmed milk powder produced by removing the fat from milk solids. The penetration of these products in milk-abundant regions is driven by convenience and the non-perishable nature (longer shelf life) of the product.

Much of milk powder that is sold in India is sold by dairies to other dairies for reconstitution of milk during lean season. **Volume of milk powders sold in retail is small.**

Major brands of skimmed milk are Sagar (GCMMF) and Nandini (Karnataka Milk Federation). Amul Full Cream milk powder is a whole milk powder brand. Amul's infant milk food brand Amulspray has reported a growth of 20 per cent during 2008-09.

Amul markets a dairy whitener under the brand name of Amulya, which is a sweetened partially skimmed milk powder with 2 per cent fat. Amul has reported a growth of 12 per cent for Amulya dairy whitener in 2008-09.

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# 8. Prices

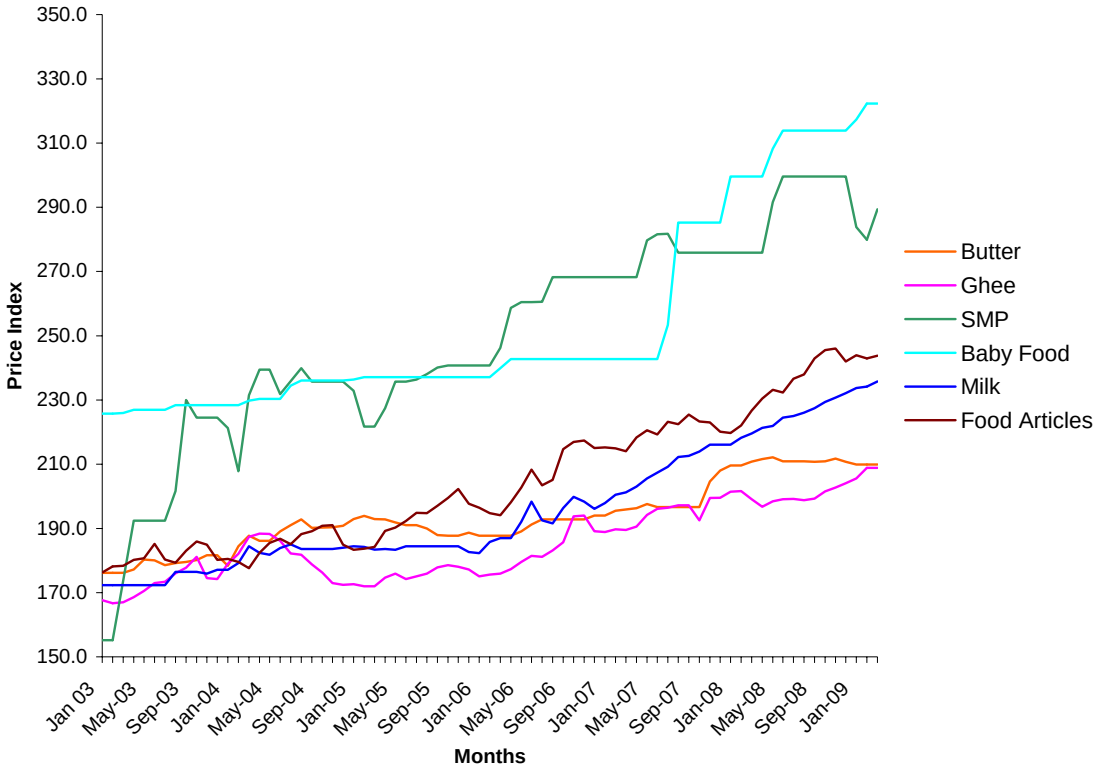
## 8.1. Milk prices –wholesale price index

Price index is an indicator of the average price movement over time of a fixed basket of goods and services. Office of the Economic Adviser to Government of India, Ministry of Commerce and Industry is responsible for collecting data and calculating Wholesale Price Index (WPI), which is a weekly measure of wholesale price movement for the economy.

The concept of wholesale price adopted for calculation of WPI represents the quoted price of bulk transaction generally at primary stage. The price pertaining to bulk transaction of agricultural commodities may be farm harvest prices, or prices at the village *mandi* /market of the Agricultural Marketing Produce Committee/ procurement prices, support prices. For manufactured goods the wholesale prices are administered prices, ex- factory gate/ ex-mill, ex-mine level. Ex- factory prices exclude rebate if any, other taxes and levies are excluded though excise duty is currently included.

The Office of the Economic Adviser has introduced with effect from 1st April 2000, the revised series of the Index of Wholesale Prices in India (Base 1993-94=100) in replacement of the earlier WPI series (Base 1981-82=100)

**Chart 8.1 – Movement of WPI for milk, butter, ghee and food articles**



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During the six year period from January 2003 to January 2009, WPI for butter increased at the rate of 3.53 per cent per annum, for ghee it increased at 3.74 per cent per annum, for skimmed milk powder it increased at 12.19 per cent, for baby food at 5.83 per cent, for milk at 4.63 per cent per annum and for food articles at 4.50 per cent per annum.

**Table 8.1 – WPI for milk, butter, ghee, skimmed milk powder, baby food and food articles**

| Month | Wholesale Price Index | | | | | |
|---|---|---|---|---|---|---|
| | Butter | Ghee | SMP | Baby Food | Milk | Food Articles |
| Jan-03 | 176.2 | 167.6 | 155.2 | 225.7 | 172.3 | 176.3 |
| Apr-03 | 177.2 | 168.6 | 192.4 | 227.0 | 172.3 | 180.2 |
| Jul-03 | 178.5 | 173.4 | 192.4 | 227.0 | 172.3 | 180.3 |
| Oct-03 | 180.1 | 181.2 | 224.5 | 228.4 | 176.5 | 185.9 |
| Jan-04 | 178.3 | 179.0 | 221.2 | 228.4 | 177.1 | 180.5 |
| Apr-04 | 186.1 | 188.4 | 239.4 | 230.3 | 182.4 | 182.4 |
| Jul-04 | 191.0 | 182.2 | 235.9 | 234.5 | 185.0 | 185.1 |
| Oct-04 | 190.3 | 176.3 | 235.7 | 236.1 | 183.6 | 190.8 |
| Jan-05 | 192.9 | 172.6 | 232.9 | 236.3 | 184.4 | 183.3 |
| Apr-05 | 192.8 | 174.7 | 227.4 | 237.1 | 183.6 | 189.2 |
| Jul-05 | 191.0 | 175.1 | 236.3 | 237.1 | 184.4 | 194.9 |
| Oct-05 | 187.7 | 178.5 | 240.8 | 237.1 | 184.4 | 199.5 |
| Jan-06 | 187.7 | 175.1 | 240.8 | 237.1 | 182.3 | 196.5 |
| Apr-06 | 187.7 | 177.3 | 258.7 | 242.7 | 187.0 | 198.1 |
| Jul-06 | 192.8 | 181.2 | 260.6 | 242.7 | 192.5 | 203.4 |
| Oct-06 | 192.8 | 193.7 | 268.3 | 242.7 | 199.8 | 216.9 |
| Jan-07 | 194.0 | 188.9 | 268.3 | 242.7 | 197.9 | 215.2 |
| Apr-07 | 196.3 | 190.5 | 268.3 | 242.7 | 203.0 | 218.3 |
| Jul-07 | 196.6 | 196.5 | 281.8 | 253.3 | 209.2 | 223.2 |
| Oct-07 | 196.6 | 192.5 | 275.9 | 285.2 | 213.9 | 223.3 |
| Jan-08 | 209.6 | 201.4 | 275.9 | 299.6 | 216.1 | 219.7 |
| Apr-08 | 211.6 | 196.7 | 275.9 | 299.6 | 221.3 | 230.4 |
| Jul-08 | 210.9 | 199.2 | 299.6 | 313.9 | 225.0 | 236.6 |
| Oct-08 | 210.9 | 201.5 | 299.6 | 313.9 | 229.4 | 245.5 |
| Jan-09 | 209.9 | 205.6 | 283.8 | 317.3 | 233.7 | 243.9 |
| Mar-09 | 209.9 | 208.8 | 289.4 | 322.3 | 235.8 | 243.8 |

Source: Office of the Economic Adviser, Govt. of India

Milk prices have been rising through 2006, 2007 and 2008. During 2006, milk prices kept pace with food articles. During 2007, while prices of food articles rose by only 2.09 per cent, milk prices increased by 9.20 per cent. During 2008, milk prices rose by 8.14 per cent while prices of food articles increased by 11.02 per cent.

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**Table 8.2 – Annual rate of change in WPI**

| Year | Percentage change in Wholesale Price Index | | | | | |
|---|---|---|---|---|---|---|
| | Butter | Ghee | SMP | Baby Food | Milk | Food Articles |
| 2003 | 1.19 | 6.80 | 42.53 | 1.20 | 2.79 | 2.38 |
| 2004 | 8.19 | -3.58 | 5.29 | 3.46 | 4.12 | 1.55 |
| 2005 | -2.70 | 1.45 | 3.39 | 0.34 | -1.14 | 7.20 |
| 2006 | 3.36 | 7.88 | 11.42 | 2.36 | 8.56 | 9.52 |
| 2007 | 8.04 | 6.62 | 2.83 | 23.44 | 9.20 | 2.09 |
| 2008 | 0.14 | 2.09 | 2.86 | 5.91 | 8.14 | 11.02 |
| Compunded Average over Jan2003-Jan2009 | 3.53 | 3.74 | 12.19 | 5.83 | 4.63 | 4.50 |

Viewed over a five year period, milk, butter and ghee prices have by and large kept in pace with the prices of food articles. This indicates that notwithstanding minor ups and downs, demand and supply of milk, butter and ghee have been balanced over these five years. **Prices of dairy products have risen in line with inflation and not due to any fundamental imbalances.**

## 8.2. Purchase price of milk from farmers

Cooperative district level dairy unions as well as private dairies purchase milk from dairy farmers at villages. Strictly speaking, village level cooperative society purchases milk from farmers and sells it to district level cooperative dairy or to private dairy company. The price paid to farmers is based on a complex arrangement based on SNF (solids-not-fat) and fat content of the milk.

Dairies classify milk into two categories – cow milk and “mix” milk. Buffalo milk is considered as mix milk. The following pricing method is followed by dairies in Jaipur, Rajasthan and is indicative of the system followed by dairies across the country.

Mix milk should have SNF content of 9 per cent. No deduction is made if SNF content is up to 8.6 per cent. If SNF content is in the range of 8.3-8.6 per cent, milk price is reduced by Rs. 0.30 per litre. If SNF content is less than 8.3 per cent but equal to or more than 8.1 per cent, the additional deduction on account of lower SNF content is Rs. 0.50 per 0.1 per cent difference in actual SNF content and 8.3 per cent. Buffalo milk with SNF less than 8.1 per cent is classified as sub-standard milk and the farmer receives only Rs. 4 per litre for the milk. Price before deduction on account of SNF quality is calculated using the price of fat. In June 2009, price of fat being paid in Rajasthan was Rs. 320 per kg.

For example, if a farmer brings buffalo milk with fat content of 6 per cent, the price for his milk will be Rs. 19.20 per litre, if SNF is in the range of 8.6 to 9 per cent. If SNF is 8.3 per cent, he will receive Rs. 18.30 per litre. If SNF is 8.1 per cent, he will receive only Rs. 17.30 per litre.

Similarly, a farmer who brings in milk with fat content of 8 per cent and SNF content in the range of 8.6 to 9 per cent will receive a price of Rs. 25.60 per litre.

All prices are at the collection point of village cooperative society located in the village. Dairy farmer receives payment within 12 hours for the milk delivered by him. Milk with fat content higher than 5.2 per cent is considered as mix milk irrespective of the animal that it might have

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come from.

The following Price List of Mix Milk from Jaipur District Cooperative Union indicates the price paid for mix milk in the month of June-July 2009.

**Chart 8.2 - Price List of mix milk**

JAIPUR ZILA DUGDH UTPADAK SAHKARI SANGH LTD., JAIPUR

Proposed Mix Rate Chart | Effective Date | 11-Jun-09

| RATE | 320 Rs./Kg.Fat | | SNF (Fixed) | 0 | | | | |
|---|---|---|---|---|---|---|---|---|
| Sangh PD | 0 | | DCS PD | 0 | | | | |
| FAT % | Rate | Producer Price | CLR | ---- | FAT % | Rate | Producer Price | CLR |
| 3 | 9.6 | 9.6 | 30 | ---- | 6.6 | 21.12 | 21.12 | 27 |
| 3.1 | 9.92 | 9.92 | 30 | ---- | 6.7 | 21.44 | 21.44 | 27 |
| 3.2 | 10.24 | 10.24 | 30 | ---- | 6.8 | 21.76 | 21.76 | 27 |
| 3.3 | 10.56 | 10.56 | 30 | ---- | 6.9 | 22.08 | 22.08 | 27 |
| 3.4 | 10.88 | 10.88 | 29 | ---- | 7 | 22.4 | 22.4 | 27 |
| 3.5 | 11.2 | 11.2 | 29 | ---- | 7.1 | 22.72 | 22.72 | 26 |
| 3.6 | 11.52 | 11.52 | 29 | ---- | 7.2 | 23.04 | 23.04 | 26 |
| 3.7 | 11.84 | 11.84 | 29 | ---- | 7.3 | 23.36 | 23.36 | 26 |
| 3.8 | 12.16 | 12.16 | 29 | ---- | 7.4 | 23.68 | 23.68 | 26 |
| 3.9 | 12.48 | 12.48 | 29 | ---- | 7.5 | 24 | 24 | 26 |
| 4 | 12.8 | 12.8 | 29 | ---- | 7.6 | 24.32 | 24.32 | 26 |
| 4.1 | 13.12 | 13.12 | 29 | ---- | 7.7 | 24.64 | 24.64 | 26 |
| 4.2 | 13.44 | 13.44 | 29 | ---- | 7.8 | 24.96 | 24.96 | 26 |
| 4.3 | 13.76 | 13.76 | 29 | ---- | 7.9 | 25.28 | 25.28 | 26 |
| 4.4 | 14.08 | 14.08 | 29 | ---- | 8 | 25.6 | 25.6 | 26 |
| 4.5 | 14.4 | 14.4 | 29 | ---- | 8.1 | 25.92 | 25.92 | 26 |
| 4.6 | 14.72 | 14.72 | 28 | ---- | 8.2 | 26.24 | 26.24 | 26 |
| 4.7 | 15.04 | 15.04 | 28 | ---- | 8.3 | 26.56 | 26.56 | 26 |
| 4.8 | 15.36 | 15.36 | 28 | ---- | 8.4 | 26.88 | 26.88 | 25 |
| 4.9 | 15.68 | 15.68 | 28 | ---- | 8.5 | 27.2 | 27.2 | 25 |
| 5 | 16 | 16 | 28 | ---- | 8.6 | 27.52 | 27.52 | 25 |
| 5.1 | 16.32 | 16.32 | 28 | ---- | 8.7 | 27.84 | 27.84 | 25 |
| 5.2 | 16.64 | 16.64 | 28 | ---- | 8.8 | 28.16 | 28.16 | 25 |
| 5.3 | 16.96 | 16.96 | 28 | ---- | 8.9 | 28.48 | 28.48 | 25 |
| 5.4 | 17.28 | 17.28 | 28 | ---- | 9 | 28.8 | 28.8 | 25 |
| 5.5 | 17.6 | 17.6 | 28 | ---- | 9.1 | 29.12 | 29.12 | 25 |
| 5.6 | 17.92 | 17.92 | 28 | ---- | 9.2 | 29.44 | 29.44 | 25 |
| 5.7 | 18.24 | 18.24 | 28 | ---- | 9.3 | 29.76 | 29.76 | 25 |
| 5.8 | 18.56 | 18.56 | 28 | ---- | 9.4 | 30.08 | 30.08 | 25 |
| 5.9 | 18.88 | 18.88 | 27 | ---- | 9.5 | 30.4 | 30.4 | 25 |
| 6 | 19.2 | 19.2 | 27 | ---- | 9.6 | 30.72 | 30.72 | 24 |
| 6.1 | 19.52 | 19.52 | 27 | ---- | 9.7 | 31.04 | 31.04 | 24 |
| 6.2 | 19.84 | 19.84 | 27 | ---- | 9.8 | 31.36 | 31.36 | 24 |
| 6.3 | 20.16 | 20.16 | 27 | ---- | 9.9 | 31.68 | 31.68 | 24 |
| 6.4 | 20.48 | 20.48 | 27 | ---- | 10 | 32 | 32 | 24 |
| 6.5 | 20.8 | 20.8 | 27 | ---- | | | | |

Manager(FOP)

In case of cow milk, the standard SNF content is 8.3 to 8.5 per cent. If SNF content is less than 8.3 per cent but equal to or more than 8.1 per cent, the deduction on account of lower SNF content is Rs. 0.20 per 0.1 per cent difference in actual SNF content and 8.3 per cent. If SNF is lower than 8.1 per cent but equal to or more than 7.8 per cent, the additional deduction on account of lower SNF content is Rs. 0.30 per 0.1 per cent difference in actual SNF content and 8.1 per cent. If SNF content in cow milk is lower than 7.8 per cent, milk is classified as sub-standard and a fixed payment of Rs. 4 / litre is paid to the farmer.

Price before deduction on account of SNF quality is calculated using the price of fat. In May



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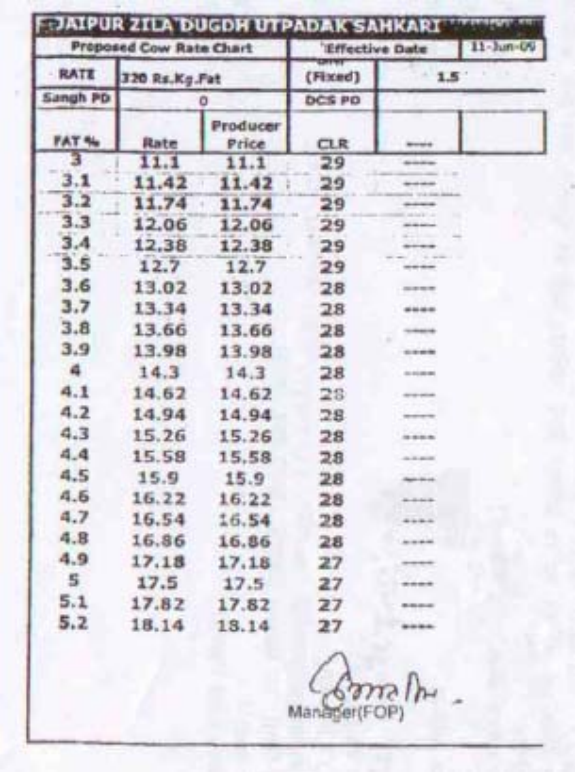
2008, price of fat being paid in Rajasthan for cow milk is Rs. 320 per kg fat + Rs. 1.50 / litre. Taking the fat rate into account, a price list is circulated for cow milk. An illustrative price list of Jaipur District Cooperative Union for cow milk is shown below.

**Chart 8.3 – Price List of cow milk**



JAIPUR ZILA DUGDH UTPADAK SAHKARI

| Proposed Cow Rate Chart | | | Effective Date | | 11-Jun-09 |
|---|---|---|---|---|---|
| RATE | 320 Rs./Kg.Fat | | (Fixed) | 1.5 | |
| Sangh PD | 0 | | DCS PD | | |
| FAT % | Rate | Producer Price | CLR | ---- | |
| 3 | 11.1 | 11.1 | 29 | ---- | |
| 3.1 | 11.42 | 11.42 | 29 | ---- | |
| 3.2 | 11.74 | 11.74 | 29 | ---- | |
| 3.3 | 12.06 | 12.06 | 29 | ---- | |
| 3.4 | 12.38 | 12.38 | 29 | ---- | |
| 3.5 | 12.7 | 12.7 | 29 | ---- | |
| 3.6 | 13.02 | 13.02 | 28 | ---- | |
| 3.7 | 13.34 | 13.34 | 28 | ---- | |
| 3.8 | 13.66 | 13.66 | 28 | ---- | |
| 3.9 | 13.98 | 13.98 | 28 | ---- | |
| 4 | 14.3 | 14.3 | 28 | ---- | |
| 4.1 | 14.62 | 14.62 | 28 | ---- | |
| 4.2 | 14.94 | 14.94 | 28 | ---- | |
| 4.3 | 15.26 | 15.26 | 28 | ---- | |
| 4.4 | 15.58 | 15.58 | 28 | ---- | |
| 4.5 | 15.9 | 15.9 | 28 | ---- | |
| 4.6 | 16.22 | 16.22 | 28 | ---- | |
| 4.7 | 16.54 | 16.54 | 28 | ---- | |
| 4.8 | 16.86 | 16.86 | 28 | ---- | |
| 4.9 | 17.18 | 17.18 | 27 | ---- | |
| 5 | 17.5 | 17.5 | 27 | ---- | |
| 5.1 | 17.82 | 17.82 | 27 | ---- | |
| 5.2 | 18.14 | 18.14 | 27 | ---- | |

Manager(FOP)

As an example, let us consider a farmer who brings cow milk with fat content of 4 per cent and SNF content of 8.4 per cent. He will receive a price of Rs. 14.30 per litre for the milk. If SNF for the milk is found to be 8.1 per cent, a deduction of Rs. 0.40 per litre will be made, bringing his price to Rs. 13.90 per litre. If SNF drops to 7.9 per cent, he will receive only Rs. 13.30 per litre.

In past two years, the price of fat used by dairies has increased considerably. It was not too long ago when most dairies used to purchase using the basis of Rs. 200 per kg of fat. Currently (July 2009), most states have price in the range of Rs. 320 per kg fat.

During April 2008, the purchase price of milk from farmers at Jaipur was based on Rs. 280 per kg fat. The sharp increase of Rs. 40 per kg fat (about 14.3 per cent) in about 15 months is significantly higher than the price rise indicated by Wholesale Price Index for milk in the last section.

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## 8.3. Ghee prices

**Table 8.3 – Ghee prices from January 2004 to June 2009**

| Wholesale Ghee Prices | | |
|---|---|---|
| Month | Uttar Pradesh | Maharashtra |
| January-04 | 13,421 | 16,000 |
| February-04 | 14,133 | 16,000 |
| March-04 | 13,799 | 16,000 |
| April-04 | 13,748 | 16,000 |
| May-04 | 13,701 | 16,000 |
| June-04 | 13,952 | 15,128 |
| July-04 | 13,550 | 15,000 |
| August-04 | 13,280 | n.a. |
| September-04 | 13,698 | 12,250 |
| October-04 | 13,312 | 15,000 |
| November-04 | 13,238 | 15,000 |
| December-04 | 13,450 | n.a. |
| January-05 | 13,250 | 16,000 |
| February-05 | 13,248 | 16,000 |
| March-05 | 12,927 | 16,000 |
| April-05 | 13,318 | 16,000 |
| May-05 | 12,609 | 16,196 |
| June-05 | 12,744 | 15,565 |
| July-05 | 12,202 | 15,263 |
| August-05 | 13,498 | 15,250 |
| September-05 | 12,377 | 15,250 |
| October-05 | 11,762 | 15,250 |
| November-05 | 12,527 | 15,056 |
| December-05 | 12,477 | 15,205 |
| January-06 | 12,397 | 14,656 |
| February-06 | 12,510 | 14,500 |
| March-06 | 12,649 | 14,500 |
| April-06 | 12,774 | 14,500 |
| May-06 | 12,828 | n.a. |
| June-06 | 13,085 | n.a. |
| July-06 | 12,342 | n.a. |
| August-06 | 12,504 | n.a. |
| September-06 | 13,010 | n.a. |
| October-06 | 13,594 | n.a. |
| November-06 | 13,711 | n.a. |
| December-06 | 13,429 | n.a. |
| January-07 | 13,264 | n.a. |
| February-07 | 12,575 | n.a. |
| March-07 | 12,662 | n.a. |
| April-07 | 12,848 | n.a. |
| May-07 | 12,903 | n.a. |
| June-07 | 13,114 | n.a. |
| July-07 | 13,209 | n.a. |
| August-07 | 13,206 | n.a. |
| September-07 | 13,253 | n.a. |
| October-07 | 13,450 | n.a. |
| November-07 | 13,326 | n.a. |
| December-07 | 13,186 | n.a. |

(Table 8.3 Ghee prices continued on next page)

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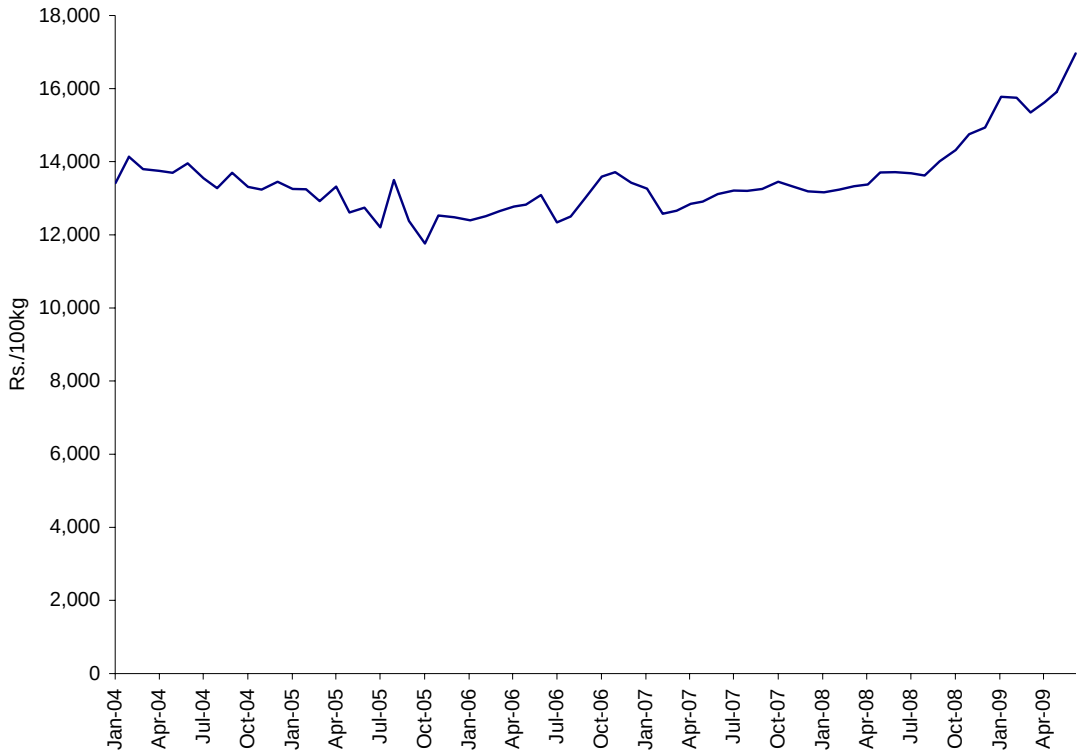
**Table 8.3 – Ghee prices from January 2004 to June 2009 (Continued)**

| Wholesale Ghee Prices | | |
|---|---|---|
| **Month** | **Uttar Pradesh** | **Maharashtra** |
| January-08 | 13,164 | n.a. |
| February-08 | 13,234 | n.a. |
| March-08 | 13,326 | n.a. |
| April-08 | 13,374 | n.a. |
| May-08 | 13,704 | n.a. |
| June-08 | 13,712 | n.a. |
| July-08 | 13,682 | n.a. |
| August-08 | 13,625 | 15,554 |
| September-08 | 14,008 | 15,750 |
| October-08 | 14,317 | 15,750 |
| November-08 | 14,754 | 15,920 |
| December-08 | 14,931 | 17,000 |
| January-09 | 15,773 | 17,667 |
| February-09 | 15,750 | 17,000 |
| March-09 | 15,345 | 16,636 |
| April-09 | 15,630 | 17,000 |
| May-09 | 15,903 | n.a. |
| June-09 | 16,964 | 17,090 |
| All prices are in Rs. / 100kg n.a. - Not Available | | |
| Source: http://agmarknet.nic.in/ and HS&SL | | |

**Chart 8.4 – Ghee Prices through the years**

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## 8.4. SMP prices

Skimmed Milk Powder (SMP) is traded in bulk by dairies in India. It is used by dairies for reconstitution of milk and by manufacturers of milk-based products.

In summer, milk output falls to nearly half the levels of the 'flush' winter months. The surplus milk procured during 'flush' is converted into powder, which is reconstituted to cover the liquid milk shortfall in the 'lean' season. Delhi's Mother Dairy alone consumes an estimated 20,000 tons of skimmed milk powder annually or 55 tons daily. That translates into 600,000 litres per day milk or roughly 30 per cent of the 2.0-2.2 million litres a day Mother Dairy sells in Delhi. The proportion of reconstituted milk to total throughout rises to 50 per cent during summer.

Some *chhanna* sweets manufacturers are also reported to be using SMP for improving quality and for increasing production during lean season. SMP is also exported from India.

SMP prices have been rising during the past five years.

**Table 8.4 – Skimmed Milk Powder Prices**

| Year | Rs. / kg |
|---|---|
| 2001-02 | 62.41 |
| 2002-03 | 66.05 |
| 2003-04 | 88.34 |
| 2004-05 | 80.61 |
| 2005-06 | 91.61 |
| 2006-07 | 111.93 |
| 2007-08 | 125-140 |
| 2008-09 | 100-130 |
| Source: Hindu Business Line, 22 Jan 2007 and other new spaper reports | |

Government of India had banned export of SMP from February 2007 to 1 October 2007. This led to a slight fall in prices during these months. With the lifting of the ban, the prices once again increased.

During April 2008, Government of India withdrew a few benefits that dairy exporters used to receive. Simultaneously, the government also reduced import duty under Tariff Rate Quota (TRQ) to 5 per cent from 15 per cent. Under TRQ, cooperative sector dairies may import a total of 10,000 tons of SMP at a reduced duty, while private dairies have to pay 60 per cent duty. These two measures are unlikely to have a significant effect on SMP prices.

During May 2008, domestic SMP prices were ruling at about Rs. 130-135 per kg.

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## 8.5. Retail prices of milk & milk products

The following are retail prices of some milk products and liquid milk in Bhopal, a city located in central India.

**Table 8.5 - Retail price of milk products and packed liquid milk**

| Product | Pack Size | Price | |
|---|---|---|---|
| | | Rs. / pack | |
| | | 24-Jul-09 | 27-May-08 |
| Amul Butter | 500g | 92.00 | 87.00 |
| Britannia Milkman Butter | 500g | 92.00 | 87.00 |
| Amul ghee | 1000ml | 220.00 | 185.00 |
| Amul Mozzarella Cheese | 200g | 50.00 | 47.00 |
| Amul Cheese cubes | 200g | 60.00 | 54.00 |
| Amul Cheese cubes | 500g | 132.00 | n.a. |
| Amul Cheese spread | 200g | 47.00 | 36.00 |
| Britannia Cheese | 400g | 130.00 | 100.00 |
| Britannia Cheese Slices | 200g | 85.00 | 73.00 |
| Amul Cheese Slices | 100g | 40.00 | n.a. |
| Amul Dahi (curd) | 400g | 13.00 | 13.00 |
| Amulya Dairy Whitener | 500g | 101.00 | n.a. |
| Sanchi standard milk | 500ml | 12.00 | 11.00 |
| Sanchi full-fat milk | 500ml | 13.00 | 12.00 |
| Sanchi toned milk | 500ml | 11.00 | 10.00 |
| Amul Homogenized Double Toned Milk in Tetra Pak | 1000ml | 33.00 | n.a. |
| Source: Retail shops at Bhopal (MP), India; n.a. - Not Available | | | |

The above prices are only indicative. There may be differences in prices across cities and also across brands.

Compared to previous year, prices of almost all products have risen by about 5-10 per cent. In case of ghee the price rise is about 19 per cent, while for butter the price rise is about 6 per cent. Price rise at retail level are broadly in line with the trend indicated at wholesale level as discussed in section 8.1.

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# 9. Dairy exports & imports overview

## 9.1. Dairy exports historical data

Traditionally, India had been an importer of dairy products till Operation Flood began showing results. Indian dairy infrastructure was built using milk powder and butter oil received as aid from Europe and other countries through seventies and eighties.

The trend for imports continued till 1993, when, for the first time, exports exceeded imports. Between 1993 and 1999 imports and exports kept edging each other out, and since 2001, India has been a net exporter of dairy products. Post 2003, exports have grown at an astonishing rate while imports have dipped. However, India's share in global dairy trade is 0.3 and 0.4 percent for exports and imports, respectively, which is almost negligible. The main reason for this is that bulk of the milk in India is consumed in liquid form by the producer households. Also, with increasing income levels in urban centres, the demand for processed dairy products has gone up leaving lesser surpluses for export.

Exports of dairy products have been erratic – rising in one year and falling in another, even though the overall trend during the past ten years has been of growth.

**Table 9.1 – Indian dairy exports from 1995-96 to 2008-09**

| Year | Quantity | Value |
|---|---|---|
| | Tons | Rs. million |
| 1995-96 | 4,712 | 326 |
| 1996-97 | 2,018 | 154 |
| 1997-98 | 2,378 | 134 |
| 1998-99 | 2,568 | 137 |
| 1999-00 | 6,134 | 372 |
| 2000-01 | 11,069 | 839 |
| 2001-02 | 24,774 | 1,825 |
| 2002-03 | 21,440 | 1,536 |
| 2003-04 | 8,918 | 871 |
| 2004-05 | 42,160 | 3,587 |
| 2005-06 | 75,551 | 6,767 |
| 2006-07 | 45,372 | 4,346 |
| 2007-08 | 69,415 | 8,666 |
| 2008-09* | 75,541 | 10,772 |
| * Annualized figures calculated from Apr-Dec. 2008 data | | |
| Source: APEDA, Ministry of Commerce, Govt. of India | | |

The above figures for dairy exports do not include exports of lactose and casein.

Domestic political compulsions are forcing Government of India to put brakes on dairy exports from time to time. In April 2008, government withdrew some facilities and benefits earlier given to dairy exporters. In February 2007, government had banned export of all types of milk powder (skimmed, low fat, whole milk but not including casein). The ban was lifted on 1 October 2007.

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The ban effective from February to September 2007 led to a dip in dairy exports during the months.

From middle of 2008 onwards, the fall in international prices of dairy products especially milk powders led to negative environment for exports. However, this has not reduced the dairy exports from India.

**Chart 9.1 – Exports of dairy products from 1995-96 to 2008-09**

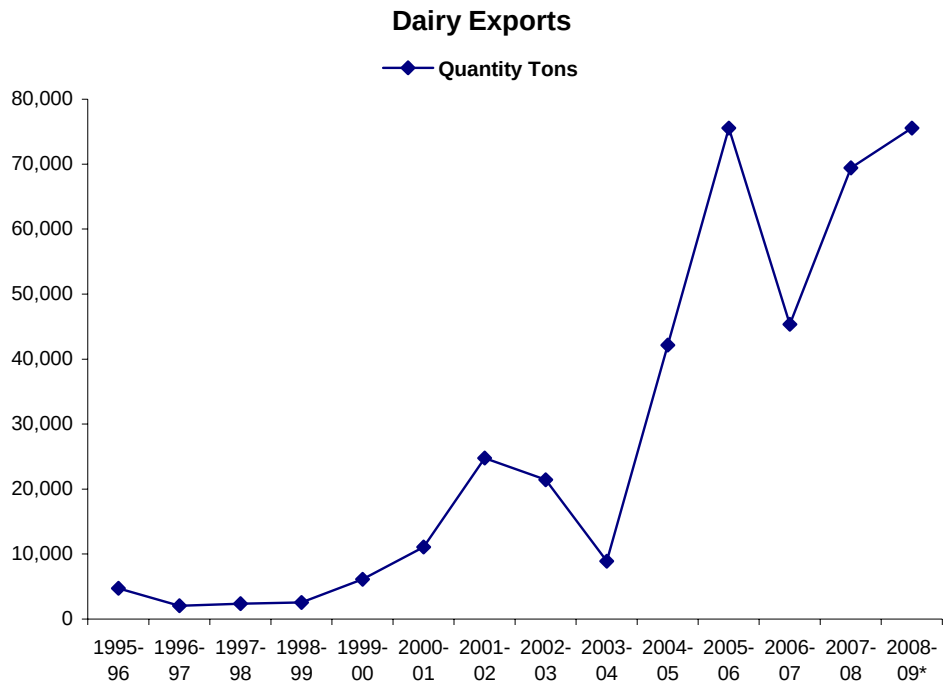


**Table 9.2 – Share of various products in dairy products export during 2007-08 and 2008-09**

| HS Code | Commodity | Per Cent of Total Dairy Exports | | | |
|---|---|---|---|---|---|
| | | Quantity | | Value | |
| | | 2007-08 | Apr-Dec.08 | 2007-08 | Apr-Dec.08 |
| 401 | MILK & CREAM NOT CONCENTRATED NOR CONTNG ADDED SUGAR | 10.67 | 8.89 | 2.17 | 1.92 |
| 402 | MLK & CRM CNCNTD/CONTNG SUGR/SWETNG MATR | 59.76 | 57.73 | 67.43 | 59.49 |
| 403 | BUTTR MLK,CRDLD MLK & CRM,YOGRT,KPHIR & OTHR FRMNTD ACDFD MLK & CRM | 4.72 | 0.32 | 4.97 | 1.39 |
| 404 | WHEY & PRDCTS CONSTNG OF NTRL MLK CNSTITNTW/N CONTAINING ADDED SGR OR SWEETENG MATTR | 8.51 | 2.84 | 6.54 | 1.87 |
| 405 | BUTTER AND OTHR FATS & OILS DRVD FROM MLK;DAIRY SPREADS | 13.69 | 24.12 | 15.32 | 25.93 |
| 406 | CHEESE AND CURD | 2.66 | 4.10 | 3.57 | 4.94 |
| Source: Ministry of Commerce and HS&SL; Total Dairy exports excludes casein and lactose | | | | | |

Exports of various dairy products during four financial years of 2004-08 and 9 months of



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2008-09 (latest period for which data has been published till the date of this report) were as follows:

**Table 9.3 – Indian dairy exports 2004-05 to April-December 2008**

| | | 2004-05 | | 2005-06 | | 2006-07 | | 2007-08 | | Apr-Dec 2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | HS Code | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE |
| | | Tons | Rs.'000 | Tons | Rs.'000 | Tons | Rs.'000 | Tons | Rs.'000 | Tons | Rs.'000 |
| **Milk & Crm Concentrated** | | | | | | | | | | | **0402** |
| **Milk & Cream in powder, granules or other solid forms contining fat not exceeding 1.5 % by wt.** | | | | | | | | | | | **040210** |
| Skimmed milk | 04021010 | 26,563 | 2,053,535 | 40,463 | 3,557,946 | 26,045 | 2,686,635 | 32,050 | 4,507,050 | 22,498 | 3,537,330 |
| Milk food for babies | 04021020 | 1,542 | 111,863 | 391 | 47,101 | 755 | 85,121 | 1,011 | 175,040 | 435 | 83,275 |
| Other Milk Powder | 04021090 | 6,136 | 504,912 | 6,480 | 579,405 | 2,859 | 296,918 | 5,455 | 736,997 | 3,581 | 560,016 |
| **Milk & Cream in powder, granules / other solid forms not containing sugar containing fat exceeding 1.5% by wt.** | | | | | | | | | | | **040221** |
| Milk & Crm powder, grnls | 04022100 | 557 | 46,791 | 2,279 | 233,994 | 897 | 87,386 | 604 | 103,702 | 1,231 | 215,789 |
| **Milk & Cream in powder, granules / other solid forms containing sugar containing fat exceeding 1.5% by wt.** | | | | | | | | | | | **040229** |
| Whole Milk | 04022910 | 1,688 | 146,053 | 10,038 | 873,660 | 1,344 | 124,087 | 1,724 | 236,873 | 3,842 | 545,538 |
| Milk for babies | 04022920 | 222 | 29,569 | 511 | 53,428 | 168 | 19,398 | 102 | 13,871 | 171 | 24,878 |
| Others (e.g. Milk Cream) | 04022990 | 2,189 | 315,993 | 1,906 | 223,687 | 828 | 115,660 | 278 | 34,019 | 479 | 127,184 |
| **Other Milk or Cream not containing sweetening matter** | | | | | | | | | | | **040291** |
| Condensed Milk | 04029110 | 142 | 33,201 | 6 | 495 | 38 | 1,085 | 9 | 1,111 | 3 | 715 |
| Others | 04029190 | 79 | 7,969 | 15 | 1,241 | | 0 | 10 | 593 | 61 | 3,876 |
| **Other Milk or Cream containing sweetening matter** | | | | | | | | | | | **040299** |
| Whole Milk | 04029910 | 17 | 1,399 | 86 | 7,747 | 178 | 12,493 | 2 | 296 | 69 | 15,581 |
| Condensed Milk | 04029920 | 2 | 287 | 20 | 1,539 | 2 | 196 | 5 | 522 | 16 | 1,470 |
| Other milk cream | 04029990 | 271 | 41,340 | 303 | 34,299 | 71 | 7,962 | 233 | 32,994 | 320 | 39,410 |
| **Butter Milk, Curdled Milk & cream, yogurt, kphir & other fermented acidifed milk & cream** | | | | | | | | | | | **0403** |
| Yogurt | 04031000 | 0 | 0 | 2 | 66 | 0 | 0 | 0 | 23 | 13 | 95,314 |
| **Other (Butter, curdled milk, cream, kphir etc.)** | | | | | | | | | | | **040390** |
| Butter milk | 04039010 | 2 | 209 | 7 | 840 | 7 | 894 | 9 | 1,467 | 10 | 1,047 |
| Others | 04039090 | 96 | 11,387 | 150 | 9,993 | 627 | 47,266 | 3,266 | 429,084 | 157 | 16,300 |
| **Whey & Products consisting of natural milk constituents** | | | | | | | | | | | **0404** |
| Whey Concentrated | 04041010 | 1,268 | 59,045 | 1,775 | 116,355 | 889 | 74,208 | 509 | 64,026 | 111 | 7,643 |
| Whey Dry | 04041020 | 178 | 6,859 | 58 | 2,674 | 869 | 77,694 | 3,785 | 341,114 | 1,346 | 130,229 |
| Whey other | 04041090 | 58 | 3,817 | 121 | 10,842 | 301 | 25,853 | 105 | 7,538 | 62 | 3,127 |
| Other than whey | 04049000 | 218 | 16,404 | 140 | 35,635 | 0 | 0 | 1,505 | 153,685 | 93 | 10,309 |
| **Butter and other fats derived from milk, Dairy Spreads** | | | | | | | | | | | **0405** |
| Butter | 04051000 | 965 | 87,708 | 3,211 | 297,704 | 510 | 56,097 | 4,492 | 576,011 | 7,612 | 1,076,924 |
| Dairy Spreads | 04052000 | 4 | 587 | 1 | 128 | 12 | 1,472 | 2 | 151 | 1 | 181 |
| Butter Oil | 04059010 | 249 | 23,601 | 745 | 67,808 | 38 | 4,017 | 873 | 129,702 | 3,021 | 526,716 |
| Melted butter (ghee) | 04059020 | 1,990 | 288,651 | 3,367 | 437,564 | 3,098 | 404,786 | 3,702 | 552,673 | 2,944 | 466,265 |
| Others | 04059090 | 444 | 40,478 | 94 | 11,991 | 53 | 3,569 | 437 | 69,129 | 89 | 24,480 |
| **Cheese & Curd** | | | | | | | | | | | **0406** |
| Fresh Cheese | 04061000 | 129 | 13,026 | 369 | 37,329 | 459 | 49,100 | ` | 65,278 | 540 | 65,197 |
| Grated / Powdered ch. | 04062000 | 12 | 348 | | 0 | 10 | 2,947 | 13 | 1,920 | 0 | 177 |
| Processed ch. not gr. | 04063000 | 51 | 5,681 | 72 | 7,945 | 123 | 16,372 | 978 | 192,284 | 1,128 | 207,964 |
| Other cheese | 04069000 | 111 | 12,935 | 586 | 57,958 | 282 | 37,894 | 302 | 49,305 | 650 | 124,751 |
| **Casein, Caseinates and other casein derivatives; Casein Glues** | | | | | | | | | | | **3501** |
| Casein, casein derivatives; Casein Glues | 35011000 | 8,447 | 2,010,875 | 10,768 | 2,797,522 | 8,096 | 1,982,329 | 14,700 | 5,042,800 | 6,716 | 2,721,408 |
| Caseinates, other casein drvts & casein glues | 35019000 | 1,345 | 322,708 | 135 | 21,223 | 347 | 73,659 | 506 | 86,310 | 65 | 11,428 |
| **Other sugar in chemically pure form including lactose** | | | | | | | | | | | **1702** |
| Lactose & Lactose Syrup contng 99% or more of | 170211 | 1,117 | 15,342 | 343 | 7,779 | 350 | 15,580 | 2,986 | 152,266 | 1,856 | 81,280 |
| Lactose & Lactose Syrup contng <99% of lacts | 170219 | 31 | 885 | 3,340 | 48,868 | 121 | 7,280 | 223 | 12,461 | 233 | 11,932 |
| **TOTAL** | | **56,122** | **6,213,457** | **87,781** | **9,584,768** | **49,375** | **6,317,957** | **79,875** | **13,770,295** | **59,351** | **10,737,734** |

Source: APEDA, Ministry of Commerce, Govt. of India and DGCIS, Kolkata



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**Table 9.4 – Indian dairy exports 2004-05 to Apr-Dec. 2008 in USD**

| Product | HS Code | 2004-05 | 2005-06 | 2006-07 | 2007-08 | Apr-Dec08 |
|---|---|---|---|---|---|---|
| | | VALUE | VALUE | VALUE | VALUE | VALUE |
| | | USD '000 | USD '000 | USD '000 | USD '000 | USD '000 |
| Skimmed milk | 04021010 | 45,704 | 80,363 | 59,327 | 112,001 | 79,164 |
| Milk food for babies | 04021020 | 2,490 | 1,064 | 1,880 | 4,350 | 1,864 |
| Other Milk Pow der | 04021090 | 11,237 | 13,087 | 6,557 | 18,315 | 12,533 |
| Milk & Crm pow der, grnls | 04022100 | 1,041 | 5,285 | 1,930 | 2,577 | 4,829 |
| Whole Milk | 04022910 | 3,251 | 19,733 | 2,740 | 5,886 | 12,209 |
| Milk for babies | 04022920 | 658 | 1,207 | 428 | 345 | 557 |
| Others (e.g. Milk Cream) | 04022990 | 7,033 | 5,052 | 2,554 | 845 | 2,846 |
| Condensed Milk | 04029110 | 739 | 11 | 24 | 28 | 16 |
| Others | 04029190 | 177 | 28 | 0 | 15 | 87 |
| Whole Milk | 04029910 | 31 | 175 | 276 | 7 | 349 |
| Condensed Milk | 04029920 | 6 | 35 | 4 | 13 | 33 |
| Other milk cream w . sugar | 04029990 | 920 | 775 | 176 | 820 | 882 |
| Yogurt | 04031000 | 0 | 1 | 0 | 1 | 2,133 |
| Butter milk | 04039010 | 5 | 19 | 20 | 36 | 23 |
| Others | 04039090 | 253 | 226 | 1,044 | 10,663 | 365 |
| Whey Concentrated | 04041010 | 1,314 | 2,628 | 1,639 | 1,591 | 171 |
| Whey Dry | 04041020 | 153 | 60 | 1,716 | 8,477 | 2,914 |
| Whey other | 04041090 | 85 | 245 | 571 | 187 | 70 |
| Other than w hey conting nat. milk | 04049000 | 365 | 805 | 0 | 3,819 | 231 |
| Butter | 04051000 | 1,952 | 6,724 | 1,239 | 14,314 | 24,101 |
| Dairy Spreads | 04052000 | 13 | 3 | 33 | 4 | 4 |
| Butter Oil | 04059010 | 525 | 1,532 | 89 | 3,223 | 11,788 |
| Melted butter (ghee) | 04059020 | 6,424 | 9,883 | 8,939 | 13,734 | 10,435 |
| Others | 04059090 | 901 | 271 | 79 | 1,718 | 548 |
| Fresh Cheese | 04061000 | 290 | 843 | 1,084 | 1,622 | 1,459 |
| Grated / Pow dered cheese | 04062000 | 8 | 0 | 65 | 48 | 4 |
| Procssd cheese not grated or pow | 04063000 | 126 | 179 | 362 | 4,778 | 4,654 |
| Other cheese | 04069000 | 288 | 1,309 | 837 | 1,225 | 2,792 |
| Casein, casein derivatives; Glues | 35011000 | 44,754 | 63,187 | 43,775 | 125,315 | 60,904 |
| Caseinates, other casein drvts & gl | 35019000 | 7,182 | 479 | 1,627 | 2,145 | 256 |
| Lactose & Syrup contng >=99% lac | 170211 | 341 | 176 | 344 | 3,784 | 1,819 |
| Lactose & Syrup contng <99% of la | 170219 | 20 | 1,104 | 161 | 310 | 267 |
| **TOTAL** | | **138,287** | **216,490** | **139,516** | **342,196** | **240,305** |
| | | | | | | |
| **RBI Reference Rate** | **1 USD =** | | | | | |
| 2004-05 | 44.9315 | | | | | |
| 2005-06 | 44.2735 | | | | | |
| 2006-07 | 45.2849 | | | | | |
| 2007-08 | 40.241 | | | | | |
| Apr-Dec 2008 | 44.6837 | | | | | |
| Calculated by HS&SL based on APEDA, DGCIS & RBI data | | | | | | |



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**Table 9.5 – Indian dairy exports 2004-05 to Apr.-Dec. 2008 in EUR**

| Product | HS Code | 2004-05 | 2005-06 | 2006-07 | 2007-08 | Apr-Dec08 |
|---|---|---|---|---|---|---|
| | | VALUE | VALUE | VALUE | VALUE | VALUE |
| | | EUR '000 | EUR '000 | EUR '000 | EUR '000 | EUR '000 |
| Skimmed milk | 04021010 | 36,337 | 65,995 | 46,233 | 79,084 | 54,270 |
| Milk food for babies | 04021020 | 1,979 | 874 | 1,465 | 3,071 | 1,278 |
| Other Milk Pow der | 04021090 | 8,934 | 10,747 | 5,109 | 12,932 | 8,592 |
| Milk & Crm pow der, grnls | 04022100 | 828 | 4,340 | 1,504 | 1,820 | 3,311 |
| Whole Milk | 04022910 | 2,584 | 16,205 | 2,135 | 4,156 | 8,370 |
| Milk for babies | 04022920 | 523 | 991 | 334 | 243 | 382 |
| Others (e.g. Milk Cream) | 04022990 | 5,592 | 4,149 | 1,990 | 597 | 1,951 |
| Condensed Milk | 04029110 | 587 | 9 | 19 | 19 | 11 |
| Others | 04029190 | 141 | 23 | 0 | 10 | 59 |
| Whole Milk | 04029910 | 25 | 144 | 215 | 5 | 239 |
| Condensed Milk | 04029920 | 5 | 29 | 3 | 9 | 23 |
| Other milk cream w . sugar | 04029990 | 732 | 636 | 137 | 579 | 605 |
| Yogurt | 04031000 | 0 | 1 | 0 | 0 | 1,462 |
| Butter milk | 04039010 | 4 | 16 | 15 | 26 | 16 |
| Others | 04039090 | 201 | 185 | 813 | 7,529 | 250 |
| Whey Concentrated | 04041010 | 1,045 | 2,158 | 1,277 | 1,123 | 117 |
| Whey Dry | 04041020 | 121 | 50 | 1,337 | 5,985 | 1,998 |
| Whey other | 04041090 | 68 | 201 | 445 | 132 | 48 |
| Other than w hey conting nat. milk | 04049000 | 290 | 661 | 0 | 2,697 | 158 |
| Butter | 04051000 | 1,552 | 5,522 | 965 | 10,107 | 16,522 |
| Dairy Spreads | 04052000 | 10 | 2 | 25 | 3 | 3 |
| Butter Oil | 04059010 | 418 | 1,258 | 69 | 2,276 | 8,081 |
| Melted butter (ghee) | 04059020 | 5,108 | 8,116 | 6,966 | 9,698 | 7,153 |
| Others | 04059090 | 716 | 222 | 61 | 1,213 | 376 |
| Fresh Cheese | 04061000 | 230 | 692 | 845 | 1,145 | 1,000 |
| Grated / Pow dered cheese | 04062000 | 6 | 0 | 51 | 34 | 3 |
| Procssd cheese not grated or pow | 04063000 | 101 | 147 | 282 | 3,374 | 3,191 |
| Other cheese | 04069000 | 229 | 1,075 | 652 | 865 | 1,914 |
| Casein, casein derivatives; Glues | 35011000 | 35,583 | 51,890 | 34,113 | 88,485 | 41,752 |
| Caseinates, other casein drvts & gl | 35019000 | 5,710 | 394 | 1,268 | 1,514 | 175 |
| Lactose & Syrup contng >=99% lac | 170211 | 271 | 144 | 268 | 2,672 | 1,247 |
| Lactose & Syrup contng <99% of la | 170219 | 16 | 906 | 125 | 219 | 183 |
| **TOTAL** | | **109,947** | **177,784** | **108,722** | **241,624** | **164,739** |
| **RBI Reference Rate** | **1 EURO =** | | | | | |
| 2004-05 | 56.5130 | | | | | |
| 2005-06 | 53.9124 | | | | | |
| 2006-07 | 58.1110 | | | | | |
| 2007-08 | 56.9906 | | | | | |
| April-December 2008 | 65.1802 | | | | | |
| Calculated by HS&SL based on APEDA, DGCIS & RBI data | | | | | | |

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During the period 2004-05 to Apr-Dec.08, average realizations from dairy exports were as follows:

**Table 9.6 – Average realization in Rs./kg from exports from 2004-05 to Apr-Dec. 2008**

| Commodity | HS Code | 2004-05 | 2005-06 | 2006-07 | 2007-08 | Apr-Dec 08 |
|---|---|---|---|---|---|---|
| | | Average Realization | | | | |
| | | Rs./kg | Rs./kg | Rs./kg | Rs./kg | Rs./kg |
| Skimmed milk (fat <1.5%) | 04021010 | 77.31 | 87.93 | 103.15 | 140.63 | 157.23 |
| Milk food for babies | 04021020 | 72.53 | 120.35 | 112.71 | 173.21 | 191.52 |
| Other Milk Powder | 04021090 | 82.29 | 89.42 | 103.85 | 135.12 | 156.40 |
| Milk & Cream in powder, granules | 04022100 | 83.94 | 102.70 | 97.37 | 171.73 | 175.30 |
| Milk for babies | 04022920 | 132.93 | 104.64 | 115.66 | 135.70 | 145.71 |
| Others (e.g. milk cream) | 04022990 | 144.36 | 117.35 | 139.73 | 122.56 | 265.54 |
| Whole Milk | 04029910 | 82.28 | 90.59 | 70.22 | 137.67 | 227.36 |
| Condensed Milk | 04029920 | 186.41 | 78.14 | 113.75 | 95.43 | 93.04 |
| Other milk cream contain sugar | 04029990 | 152.45 | 113.24 | 112.42 | 141.45 | 123.18 |
| Butter milk | 04039010 | 126.72 | 127.49 | 136.18 | 160.15 | 101.36 |
| Curdled Milk and cream (acidified) | 04039090 | 118.47 | 66.42 | 75.43 | 131.38 | 104.09 |
| Whey Concentrated | 04041010 | 46.55 | 65.55 | 83.51 | 125.79 | 69.15 |
| Whey Dry | 04041020 | 38.45 | 45.87 | 89.41 | 90.12 | 96.77 |
| Whey other | 04041090 | 66.27 | 89.54 | 85.84 | 72.13 | 50.66 |
| Other than whey Natural Milk Products | 04049000 | 75.29 | 254.75 | - | 102.08 | 110.28 |
| Butter | 04051000 | 90.92 | 92.72 | 109.97 | 128.24 | 141.47 |
| Dairy Spreads | 04052000 | 152.37 | 169.17 | 125.47 | 73.30 | 194.62 |
| Butter Oil | 04059010 | 94.65 | 91.00 | 107.03 | 148.59 | 174.36 |
| Melted butter (ghee) | 04059020 | 145.08 | 129.94 | 130.66 | 149.31 | 158.39 |
| Fresh Cheese | 04061000 | 101.30 | 101.04 | 107.02 | 119.43 | 120.75 |
| Processed cheese not grated or powder | 04063000 | 111.98 | 110.79 | 133.18 | 196.63 | 184.31 |
| Casein, casein deriv.; Casein Glues | 35011000 | 238.06 | 259.80 | 244.85 | 343.04 | 405.22 |
| Caseinates, other casein drvts | 35019000 | 239.98 | 157.28 | 212.08 | 170.48 | 175.60 |
| Lactose & Syrup contng 99% lacts | 170211 | 13.73 | 22.65 | 44.47 | 51.00 | 43.79 |
| Lactose & Lact. Syrup contng <99% lacts | 170219 | 28.33 | 14.63 | 60.17 | 55.87 | 51.14 |
| Source: HS&SL based on data from APEDA, Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | |

**Table 9.7 – Average realization in USD/kg from exports from 2004-05 to Apr-Dec. 2008**

| Commodity | HS Code | 2004-05 | 2005-06 | 2006-07 | 2007-08 | Apr-Dec 08 |
|---|---|---|---|---|---|---|
| | | Average Realization | | | | |
| | | USD/kg | USD/kg | USD/kg | USD/kg | USD/kg |
| Skimmed milk (fat <1.5%) | 04021010 | 1.72 | 1.99 | 2.28 | 3.49 | 3.52 |
| Other Milk Powder | 04021090 | 1.83 | 2.02 | 2.29 | 3.36 | 3.50 |
| Milk & Cream in powder, granules | 04022100 | 1.87 | 2.32 | 2.15 | 4.27 | 3.92 |
| Whole Milk | 04029910 | 1.83 | 2.05 | 1.55 | 3.42 | 5.09 |
| Whey Dry | 04041020 | 0.86 | 1.04 | 1.97 | 2.24 | 2.17 |
| Butter | 04051000 | 2.02 | 2.09 | 2.43 | 3.19 | 3.17 |
| Butter Oil | 04059010 | 2.11 | 2.06 | 2.36 | 3.69 | 3.90 |
| Melted butter (ghee) | 04059020 | 3.23 | 2.93 | 2.89 | 3.71 | 3.54 |
| Casein, casein deriv.; Casein Glues | 35011000 | 5.30 | 5.87 | 5.41 | 8.52 | 9.07 |
| Lactose & Syrup contng 99% lacts | 170211 | 0.31 | 0.51 | 0.98 | 1.27 | 0.98 |
| Source: HS&SL based on data from APEDA, Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | |

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## 9.2. Dairy imports historical data

**Table 9.8 – Dairy imports from 2005-06 to April-Dec. 2008**

| | | 2005-06 | | 2006-07 | | 2007-08 | | Apr-Dec 2008 | |
|---|---|---|---|---|---|---|---|---|---|
| | HS Code | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE |
| | | Tons | Rs.'000 | Tons | Rs.'000 | Tons | Rs.'000 | Tons | Rs.'000 |
| **Milk & Cream Not Concentrated Nor containing added sugar** | | | | | | | | | **0401** |
| Fat not exceeding 1% | 04011000 | 0 | 0 | 0 | 0 | | 0 | 30 | 600 |
| Fat exceeding 1% but<=6% | 04012000 | 0 | 0 | 0 | 0 | | 0 | 606 | 8,870 |
| Fat exceeding 6% | 04013000 | 2 | 189 | 18 | 2,030 | 39 | 5,131 | 14 | 2,534 |
| **Milk & Crm Concentrated** | | | | | | | | | **0402** |
| **Milk & Cream in powder, granules or other solid forms contining fat not exceeding 1.5 % by wt.** | | | | | | | | | **040210** |
| Skimmed milk | 04021010 | 68 | 1,052 | | 0 | 210 | 26,768 | 65 | 11,453 |
| Milk food for babies | 04021020 | 95 | 8,334 | 42 | 3,507 | 40 | 2,830 | 91 | 6,142 |
| Other Milk Powder | 04021090 | 81 | 11,601 | 156 | 23,109 | 154 | 29,600 | 150 | 39,972 |
| **Milk & Cream in powder, granules / other solid forms not containing sugar containing fat > 1.5% by wt.** | | | | | | | | | **040221** |
| Milk & Crm powder, grnls | 04022100 | | 0 | 10 | 1,655 | 0 | 0 | 0 | 0 |
| **Milk & Cream in powder, granules / other solid forms containing sugar containing fat >1.5% by wt.** | | | | | | | | | **040229** |
| Whole Milk | 04022910 | 26 | 4,005 | 10 | 3,008 | | 0 | 16 | 2,866 |
| Milk for babies | 04022920 | 61 | 4,804 | 0 | 23 | | 0 | 112 | 8,559 |
| Others (e.g. Milk Cream) | 04022990 | 2 | 2,063 | 73 | 10,343 | 144 | 21,600 | 261 | 43,935 |
| **Other Milk or Cream not containing sweetening matter** | | | | | | | | | **040291** |
| Condensed Milk | 04029110 | 0 | 88 | 1 | 177 | 0 | 3 | 6 | 1,532 |
| Others | 04029190 | 5 | 934 | 6 | 1,739 | 29 | 5,566 | 1 | 97 |
| **Other Milk or Cream containing sweetening matter** | | | | | | | | | **040299** |
| Whole Milk | 04029910 | | | | | | | | |
| Condensed Milk | 04029920 | 1 | 198 | 2 | 409 | 0 | 27 | 0 | 95 |
| Other milk cream w. sugar | 04029990 | 296 | 30,055 | 413 | 37,868 | 221 | 19,782 | 117 | 7,438 |
| **Butter Milk, Curdled Milk & cream, yogurt, kphir & other fermented acidifed milk & cream** | | | | | | | | | **0403** |
| Yogurt | 04031000 | 60 | 3,728 | 116 | 8,215 | 123 | 11,095 | 145 | 13,948 |
| **Other (Butter, curdled milk, cream, kphir etc.)** | | | | | | | | | **040390** |
| Butter milk | 04039010 | 1 | 158 | 2 | 140 | 9 | 853 | 26 | 3,217 |
| Others | 04039090 | 3 | 378 | 22 | 1,391 | 11 | 1,516 | 2 | 246 |
| **Whey & Products consisting of natural milk constituents** | | | | | | | | | **0404** |
| Whey Concentrated | 04041010 | 531 | 41,040 | 660 | 73,917 | 453 | 97,098 | 253 | 87,793 |
| Whey Dry | 04041020 | 373 | 31,494 | 1,435 | 98,769 | 266 | 30,180 | 459 | 19,063 |
| Whey other | 04041090 | 1 | 283 | 35 | 7,756 | 194 | 19,885 | 8 | 1,775 |
| Other than whey | 04049000 | 33 | 1,601 | 86 | 14,954 | 90 | 17,633 | 122 | 30,986 |
| **Butter and other fats derived from milk, Dairy Spreads** | | | | | | | | | **0405** |
| Butter | 04051000 | 31 | 3,978 | 17 | 2,989 | 35 | 7,331 | 82 | 13,425 |
| Dairy Spreads | 04052000 | 0 | 80 | | 0 | 0 | 0 | 0 | 0 |
| Butter Oil | 04059010 | | 0 | 7,964 | 561,500 | 0 | 0 | 0 | 0 |
| Melted butter (ghee) | 04059020 | 841 | 75,023 | 861 | 74,474 | 859 | 76,811 | 375 | 39,387 |
| Others | 04059090 | 9 | 761 | 56 | 1,459 | 79 | 2,962 | 3 | 363 |
| **Cheese & Curd** | | | | | | | | | **0406** |
| Fresh Cheese | 04061000 | 116 | 18,187 | 148 | 37,247 | 168 | 47,843 | 119 | 43,510 |
| Grated / Powdered cheese | 04062000 | 3 | 627 | 22 | 7,228 | 29 | 10,531 | 38 | 15,184 |
| Processed cheese not grated or powder | 04063000 | 109 | 24,205 | 107 | 21,896 | 177 | 39,407 | 234 | 54,910 |
| Blue Veined Cheese | 04064000 | 0 | 7 | 1 | 320 | 2 | 389 | 4 | 1,776 |
| Other cheese | 04069000 | 377 | 80,784 | 272 | 65,438 | 382 | 94,728 | 164 | 43,047 |
| **Casein, Caseinates and other casein derivatives; Casein Glues** | | | | | | | | | **3501** |
| Casein, casein derivatives; Casein Glues | 35011000 | 40 | 9,223 | 125 | 33,467 | 97 | 35,765 | 56 | 25,228 |
| Caseinates, other casein drvts & casein glues | 35019000 | 100 | 20,130 | 90 | 19,261 | 52 | 9,150 | 52 | 12,233 |
| **Other sugar in chemically pure form including lactose** | | | | | | | | | **1702** |
| Lactose & Lactose Syrup contng 99% or more of lacts | 170211 | 7,201 | 316,067 | 8,508 | 478,196 | 6,694 | 784,331 | 6,502 | 545,612 |
| Lactose & Lactose Syrup contng <99% of lacts | 170219 | 2,263 | 92,037 | 2,854 | 155,499 | 2,259 | 244,990 | 2,024 | 166,399 |
| **TOTAL** | | **12,728** | **783,114** | **24,114** | **1,747,984** | **12,818** | **1,643,805** | **12,138** | **1,252,195** |

Source: Ministry of Commerce, Govt. of India



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Indian dairy imports are generally not significant though in some years there are large imports. For example in 2006-07, the country imported 7,964 tons of butter oil, which pushed up the dairy imports during that year.

## 9.3. Dairy exports trends

Some observations about dairy exports data (given above) for the period from 2004 to Apr.-Dec. 2008 are as follows:

- Increasing dairy exports even when global economic conditions have turned adverse indicate that Indian dairy products have earned goodwill in the minds of consumers. It appears that Indian products have been able to make a niche in the global market.

- Skimmed milk powder (SMP) exports were about 47 per cent in quantity terms and 33 per cent in value terms of total dairy exports in 2004-05. During April-December 2008, the corresponding figure was about 38 per cent in quantity terms and 33 per cent in value terms. It seems that the share of other products in the dairy export basket has increased.

- If one takes into account all types of milk powders – all falling under HS code 0402 - (in other words, excluding casein, lactose, whey powders etc.), about 70 per cent (in quantity terms) and about 53 per cent (in value terms) of India's dairy exports (excluding fresh milk but including casein and lactose) were milk powders in 2004-05. The corresponding figures for first nine months of 2008-09 were about 55 per cent in quantity terms and 48 per cent in value terms. It indicates that **powders as a category have been losing importance**.

- India's non-powder exports (dairy products excluding milk powders falling under HS code 0402) were 17,225 tons, 25,714 tons, 16,479 tons and 38,653 tons in 2004-05, 2005-06, 2006-07 and 2007-08 respectively. During 9 months of April-December 2008, non-powder exports touched 27,115 tons.

- While powders have been losing importance in dairy exports basket, **fats have been growing**. In 2004-05, export of dairy fats was only 6.51 per cent of dairy exports (excluding fresh milk but including casein and lactose) in quantity terms and 7.1 per cent in value terms. In April-December 2008, the corresponding figures were 23.03 per cent in quantity terms and 19.51 per cent in value terms. In absolute terms, dairy fat exports increased from 3,651 tons in 2004-05 to 9,505 tons in 2007-08 and 13,667 tons in April-December 2008.

- The noticeable fact about rise in dairy fats exports is **increasing export of butter**. In 2004-05 butter exports were only 965 tons, which increased to 7,612 tons during April-December 2008.

- **Ghee (clarified butter) exports have also been rising** albeit not at the fast rate of butter. Ghee exports, which were 1990 tons in 2004-05, increased to 3,367 tons in the next year. In 2007-08, ghee exports were 3,702 tons. In nine months of 2008-09, ghee exports had touched 2,944 tons.

- The sharp growth in dairy fat exports is also reflected in butter oil exports that have increased from 249 tons in 2004-05 to 3,021 tons during the first nine months of 2008-09.

- Export of whey products (under HS code 0404) was only 1,722 tons in 2004-05. It



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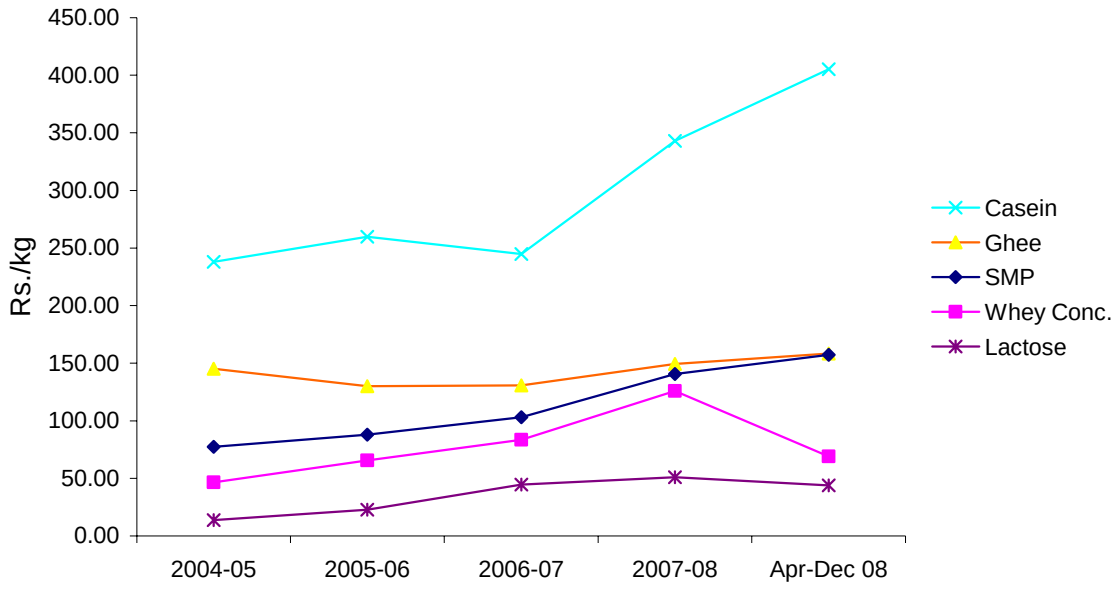
increased to 2,094 and 2,059 tons in 2005-06 and 2006-07 respectively. Surprisingly, in 2007-08, whey exports zoomed to 5,904 tons. It is not unlikely that some unscrupulous exporters were shipping SMP as whey powder to circumvent the ban on export of SMP during that year. In April-December 2008, whey products seem to have fallen back on their historical range with a figure of 1,611 tons.

- In case of lactose (under HS code 1702) India is a net importer with imports far exceeding exports. Year-wise figures are as follows –- 2005-06 exports 3,684 tons imports 9,464 tons; 2006-07 exports 471 tons imports 11,362 tons; 2007-08 exports 3,209 tons imports 8,953 tons; April-December 2008 exports 2,090 tons imports 8,526 tons.

- Casein exports appear to be stagnating. In 2004-05, India exported 9,792 tons of casein products (HS Code 3501). In nine months of 2008-09, the exports were 6,781 tons, which on an annualized basis turns out to be about 9,000 tons. Year 2007-08 was a boom year for casein manufacturers when exports zoomed to 15,206 tons, but this was not sustained and exports have fallen to the historical range of 9000-10000 tons in the next year.

- Average export realizations of casein (35011000), ghee (04059020), skimmed milk powder (04021010), whey concentrate (04041010) and lactose (170211) have moved as shown in the chart below.

**Chart 9.2 – Average export realizations of key dairy products**




- Ghee average export realization had fallen to a small extent in the past but in recent past a correction has taken place. In case of whey concentrate, there has been a marked drop in 2008. Casein prices have zoomed while lactose seems to have reached a plateau.

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# 10. Dairy exports country-wise statistics

## 10.1. Milk & cream concentrated HS code 0402

**Table 10.1 – Exports of Skimmed Milk Powder fat < 1.5 per cent HS Code 04021010**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| ALGERIA | 2,537 | 238,647 | 4,798 | 420,333 | 1,772 | 177,255 | 3,340 | 510,163 | 2,071 | 455,586 |
| U.A.E. | 2,321 | 204,230 | 2,590 | 200,045 | 2,379 | 241,466 | 2,592 | 357,812 | 2,391 | 361,700 |
| THAILAND | 261 | 18,117 | 1,074 | 120,950 | 1,697 | 156,759 | 2,224 | 295,911 | 1,779 | 348,777 |
| PHILIPPINES | 427 | 35,115 | 232 | 21,328 | 771 | 110,089 | 1,567 | 232,723 | 2,183 | 317,913 |
| SAUDI ARABIA | 1,007 | 86,738 | 888 | 86,890 | 895 | 92,331 | 811 | 114,008 | 2,087 | 298,365 |
| EGYPT | 2,119 | 167,557 | 4,879 | 398,128 | 4,764 | 493,418 | 2,319 | 327,564 | 1,550 | 256,920 |
| BANGALADESH | 9,507 | 585,608 | 5,830 | 493,306 | 3,062 | 303,393 | 6,238 | 833,381 | 1,949 | 244,892 |
| IRAQ | 0 | 0 | 0 | 0 | 0 | 0 | 670 | 103,756 | 1,715 | 241,379 |
| CHINA | 260 | 22,105 | 2,063 | 188,067 | 357 | 45,938 | 1,724 | 238,849 | 816 | 108,264 |
| SEYCHELLES | 0 | 0 | 12 | 1,471 | 0 | 0 | 731 | 99,278 | 605 | 85,475 |
| NEPAL | 735 | 70,804 | 1,246 | 107,898 | 542 | 62,863 | 900 | 108,867 | 476 | 62,123 |
| REP | 205 | 16,419 | 832 | 72,334 | 742 | 103,659 | 913 | 131,325 | 467 | 61,281 |
| NETHERLANDS | 311 | 25,248 | 86 | 7,228 | 101 | 10,189 | 0 | 0 | 0 | 60,954 |
| REPU | 242 | 20,502 | 3,866 | 365,601 | 1,356 | 136,818 | 997 | 132,828 | 373 | 59,364 |
| SUDAN | 32 | 2,551 | 101 | 9,578 | 204 | 19,496 | 207 | 27,692 | 428 | 57,650 |
| JAPAN | 150 | 12,682 | 355 | 30,241 | 151 | 17,053 | 0 | 0 | 399 | 52,829 |
| SRI LANKA | 495 | 43,660 | 851 | 75,852 | 468 | 49,093 | 479 | 60,417 | 347 | 51,085 |
| QATAR | 16 | 1,335 | 0 | 0 | 0 | 0 | 82 | 11,863 | 199 | 40,103 |
| DJIBOUTI | 24 | 2,171 | 17 | 1,574 | 34 | 3,309 | 49 | 7,649 | 278 | 39,958 |
| AFGHANISTAN | 183 | 15,164 | 936 | 88,247 | 711 | 75,419 | 800 | 110,767 | 306 | 38,619 |
| NIGERIA | 0 | 0 | 200 | 18,407 | 0 | 0 | 64 | 8,819 | 221 | 28,285 |
| JORDAN | 459 | 39,183 | 439 | 38,177 | 200 | 21,264 | 342 | 52,439 | 178 | 26,531 |
| MADAGASCAR | 0 | 0 | 0 | 0 | 0 | 0 | 357 | 49,284 | 203 | 25,173 |
| MOROCCO | 578 | 49,856 | 1,240 | 119,422 | 1,078 | 99,364 | 1,396 | 176,294 | 94 | 22,237 |
| MAYNMAR | 438 | 35,551 | 531 | 39,036 | 0 | 0 | 1,166 | 178,817 | 113 | 16,817 |
| SOUTH AFRICA | 25 | 1,943 | 0 | 0 | 16 | 1,585 | 0 | 0 | 123 | 15,941 |
| BAHRAIN | 56 | 4,872 | 220 | 19,728 | 15 | 123 | 0 | 0 | 102 | 14,104 |
| HONG KONG | 2 | 54 | 64 | 5,541 | 0 | 0 | 187 | 31,448 | 69 | 13,698 |
| MAURITIUS | 0 | 0 | 0 | 0 | 104 | 10,439 | 0 | 0 | 84 | 13,498 |
| CONGO | 0 | 0 | 15 | 1,306 | 16 | 1,598 | 32 | 5,177 | 89 | 13,009 |
| GABON | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 14,945 | 140 | 12,319 |
| TANZANIA | 64 | 5,654 | 96 | 8,083 | 64 | 7,100 | 32 | 4,299 | 96 | 12,249 |
| OMAN | 504 | 44,285 | 547 | 48,346 | 195 | 19,456 | 323 | 46,065 | 79 | 12,038 |
| GEORGIA | 0 | 0 | 0 | 0 | 0 | 0 | 107 | 14,886 | 75 | 9,977 |
| MAURITANIA | 0 | 0 | 64 | 5,486 | 0 | 0 | 0 | 0 | 71 | 9,749 |
| UNSPECIFIED | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 8,693 |
| TUNISIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 6,841 |
| TURKEY | 75 | 6,062 | 532 | 45,016 | 75 | 7,307 | 102 | 15,311 | 50 | 6,555 |
| KUWAIT | 65 | 6,153 | 0 | 0 | 51 | 5,231 | 0 | 0 | 39 | 5,405 |
| KOREA REPUBLIC | 65 | 5,296 | 59 | 4,709 | 22 | 2,351 | 23 | 3,062 | 40 | 4,927 |
| GUINEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,548 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,363 |
| PAKISTAN | 603 | 46,026 | 2,001 | 178,515 | 1,244 | 117,929 | 546 | 107,434 | 26 | 3,164 |

(Table 10.1 – Exports of Skimmed Milk Powder continued on next page)

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**Table 10.1 – Exports of Skimmed Milk Powder fat < 1.5 per cent HS Code 04021010 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| CAMEROON | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1,069 | 20 | 2,735 |
| LIBYAN | 85 | 6,740 | 17 | 1,612 | 25 | 2,469 | 234 | 32,579 | 1 | 2,294 |
| BHUTAN | 298 | 30,100 | 35 | 4,842 | 0 | 0 | 0 | 0 | 3 | 744 |
| GERMANY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 |
| MALAYSIA | 489 | 42,227 | 187 | 17,465 | 0 | 0 | 0 | 5 | 1 | 41 |
| ETHIOPIA | 45 | 3,730 | 74 | 6,759 | 20 | 1,594 | 0 | 0 | 0 | 6 |
| IRELAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SURINAME | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 16,158 | 0 | 0 |
| BENIN | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 15,644 | 0 | 0 |
| LEBANON | 170 | 15,289 | 510 | 45,367 | 271 | 25,469 | 51 | 9,052 | 0 | 0 |
| INDONESIA | 136 | 9,583 | 0 | 0 | 0 | 6 | 51 | 7,473 | 0 | 0 |
| AZERBAIJAN | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,683 | 0 | 0 |
| IRAN | 100 | 7,446 | 464 | 40,716 | 446 | 39,044 | 34 | 3,660 | 0 | 0 |
| MALAWI | 0 | 0 | 1 | 95 | 0 | 0 | 16 | 2,649 | 0 | 0 |
| CANADA | 0 | 0 | 117 | 12,345 | 31 | 3,239 | 10 | 1,540 | 0 | 0 |
| SENEGAL | 0 | 0 | 34 | 3,106 | 0 | 0 | 2 | 187 | 0 | 0 |
| NEWZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 176 | 0 | 0 |
| U.K. | 17 | 1,575 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| MALAGASAY REP | 575 | 50,131 | 922 | 78,594 | 624 | 59,032 | 0 | 0 | 0 | 0 |
| SINGAPORE | 588 | 45,902 | 560 | 52,186 | 577 | 52,083 | 0 | 0 | 0 | 0 |
| SPAIN | 0 | 0 | 570 | 49,556 | 315 | 33,281 | 0 | 0 | 0 | 0 |
| CHILE | 0 | 0 | 0 | 0 | 243 | 22,660 | 0 | 0 | 0 | 0 |
| HAITI | 0 | 0 | 0 | 0 | 64 | 12,846 | 0 | 0 | 0 | 0 |
| CHINESE TAIPEI | 75 | 8,816 | 96 | 8,232 | 50 | 12,342 | 0 | 0 | 0 | 0 |
| OTHER COUNTRY | 0 | 0 | 0 | 0 | 100 | 9,999 | 0 | 0 | 0 | 0 |
| KENYA | 0 | 0 | 0 | 0 | 67 | 6,970 | 0 | 0 | 0 | 0 |
| RWANDA | 16 | 1,344 | 0 | 0 | 50 | 4,652 | 0 | 0 | 0 | 0 |
| ALBANIA | 0 | 0 | 0 | 0 | 34 | 3,954 | 0 | 0 | 0 | 0 |
| FRANCE | 70 | 5,074 | 0 | 0 | 30 | 3,236 | 0 | 0 | 0 | 0 |
| TURKMENISTAN | 0 | 0 | 0 | 0 | 14 | 1,429 | 0 | 0 | 0 | 0 |
| ITALY | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 |
| BOTSWANA | 0 | 14 | 31 | 410 | 0 | 0 | 0 | 0 | 0 | 0 |
| CHAD | 0 | 0 | 30 | 2,444 | 0 | 0 | 0 | 0 | 0 | 0 |
| GHANA | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GREECE | 50 | 4,064 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ICELAND | 0 | 0 | 16 | 1,373 | 0 | 0 | 0 | 0 | 0 | 0 |
| IVORY COAST | 26 | 2,023 | 15 | 1,238 | 0 | 0 | 0 | 0 | 0 | 0 |
| KAZAKISTAN | 0 | 0 | 32 | 3,181 | 0 | 0 | 0 | 0 | 0 | 0 |
| KOREA DEM. REP. | 0 | 0 | 51 | 4,247 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALI | 0 | 0 | 15 | 1,238 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOZAMBIQUE | 0 | 0 | 5 | 397 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANTI | 0 | 0 | 1 | 102 | 0 | 0 | 0 | 0 | 0 | 0 |
| POLAND | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| PORTUGAL | 30 | 1,947 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.S.A. | 15 | 2,747 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UGANDA | 14 | 1,150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VIETNAM | 0 | 0 | 17 | 1,575 | 0 | 0 | 0 | 0 | 0 | 0 |
| ZIMBABWE | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **26,563** | **2,053,535** | **40,463** | **3,557,946** | **26,045** | **2,686,635** | **32,050** | **4,507,050** | **22,498** | **3,537,330** |

Source: APEDA and DGCIS, Kolkata



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Major importers of SMP from India are Algeria, U.A.E., Thailand, Philippines, Saudi Arabia, Egypt, Bangladesh, Iraq and China.

Saudi Arabia, Thailand, Iraq, Philippines and China have recorded good growth during the past years. A comparison of the exports during April-December 2008 with 2004-05 (given in brackets) is interesting – Saudi Arabia 2,087 tons (1,007 tons); Thailand 1,779 tons (261 tons); Iraq 1,715 tons (0 tons); Philippines 2,183 tons (427 tons); and China 816 tons (260 tons).

Iraq started importing SMP from India in 2007-08 and has risen quickly to be the 8th largest importer of Indian SMP. Saudi Arabia was a stable market for Indian SMP hovering in the range of 800-1000 tons till 2007-08. In 2008-09, Saudi Arabia has suddenly increased her purchase of SMP from India jumping up to 2,087 tons in the first nine months of the financial year. Philippines is another country that has increased the buying of Indian SMP in the past few years. In 2005-06 Philippines had imported only 232 tons of SMP from India. But after that the rise has been sharp every year.

Other countries that seem to be showing potential are Sudan, Congo, Qatar, Djibouti and Nigeria.

U.A.E. is a mature and stagnant market for Indian SMP. Exports to U.A.E have been almost constant during the past five years.

Notwithstanding a stable market like U.A.E., generally speaking one cannot miss the erratic nature of SMP exports. Exports to a large number of countries fluctuate without any clear pattern. For example, China bought 260 tons in 2004-05, increased it to 2,063 tons in 2005-06 and fell back to 357 tons in 2006-07 before rising to 1,724 tons in 2007-08.

Bangladesh is noticeable in the above data as a country that has recorded the highest fall. Bangladesh had purchased 9,507 tons in 2004-05. The figure for the first nine months of 2008-09 was only 1,949 tons.

SMP is a bulk commodity. Indian SMP seems to be selling as a commodity based on the price advantage that India may offer from time to time with no other advantage or brand loyalty attached.

Government of India had imposed a ban on SMP exports during the period February-October 2007. This caused the exports of SMP for the year 2006-2007 to fall to 26,045 tons from 40,463 tons during the previous year.

International prices of SMP had dropped from around USD 5,000 in July-August 2007 to about USD 3,200 per ton in June 2008. This fall in international prices is not reflected in average export realization of SMP, that have been increasing every year – 2004-05 – Rs. 77.31 / kg; 2005-06 – Rs. 87.93 / kg; 2006-07 – Rs. 103.15 / kg; 2007-08 – Rs. 140.63 / kg; Apr-Dec. 2008 – Rs. 157.23 / kg.

International SMP prices were running low for the first few months of the year 2009. There has been some revival in international prices during middle of the year. Due to the revival in prices an increase in exports is expected during the latter half of 2009.

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**Table 10.2 – Exports of Milk food for babies HS Code 04021020**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| BANGALADESH | 1,173 | 78,702 | 0 | 0 | 150 | 15,245 | 726 | 135,889 | 289 | 55,579 |
| NEPAL | 93 | 9,750 | 206 | 26,565 | 232 | 31,866 | 224 | 31,505 | 113 | 22,522 |
| SAUDI ARABIA | 38 | 2,674 | 32 | 2,466 | 5 | 393 | 7 | 1,261 | 13 | 2,431 |
| QATAR | 0 | 95 | 0 | 43 | 0 | 37 | 0 | 0 | 15 | 1,848 |
| U K | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 452 |
| U.S.A. | 0 | 0 | 1 | 64 | 1 | 66 | 1 | 125 | 1 | 232 |
| SINGAPORE | 0 | 0 | 12 | 2,227 | 0 | 0 | 0 | 0 | 0 | 83 |
| CANADA | 0 | 0 | 0 | 40 | 8 | 970 | 0 | 0 | 1 | 80 |
| YAMEN ARAB REPU | 0 | 0 | 0 | 0 | 102 | 9,316 | 0 | 0 | 0 | 48 |
| SRI LANKA | 95 | 9,269 | 89 | 9,530 | 21 | 3,140 | 34 | 4,758 | 0 | 0 |
| RUSSIA | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1,418 | 0 | 0 |
| MALDIVES | 0 | 0 | 2 | 371 | 0 | 0 | 0 | 33 | 0 | 0 |
| BAHRAIN | 1 | 39 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 |
| AUSTRALIA | 3 | 226 | 3 | 214 | 0 | 0 | 0 | 11 | 0 | 0 |
| UNSPECIFIED | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| NIGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| U.A.E. | 39 | 3,334 | 8 | 1,467 | 63 | 6,411 | 0 | 0 | 0 | 0 |
| PAKISTAN | 0 | 0 | 0 | 0 | 56 | 5,475 | 0 | 0 | 0 | 0 |
| THAILAND | 0 | 0 | 0 | 0 | 48 | 4,876 | 0 | 0 | 0 | 0 |
| BHUTAN | 0 | 0 | 0 | 0 | 40 | 4,150 | 0 | 0 | 0 | 0 |
| TURKMENISTAN | 0 | 0 | 0 | 0 | 28 | 3,090 | 0 | 0 | 0 | 0 |
| OMAN | 0 | 0 | 4 | 563 | 1 | 84 | 0 | 0 | 0 | 0 |
| PHILIPPINES | 0 | 0 | 6 | 1,125 | 0 | 3 | 0 | 0 | 0 | 0 |
| AFGHANISTAN | 64 | 5,954 | 25 | 1,840 | 0 | 0 | 0 | 0 | 0 | 0 |
| GERMANY | 27 | 1,617 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| HONG KONG | 0 | 0 | 2 | 441 | 0 | 0 | 0 | 0 | 0 | 0 |
| KUWAIT | 10 | 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| NEWZEALAND | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| SWITZERLAND | 0 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| TANZANIA | 0 | 1 | 1 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1,542** | **111,863** | **391** | **47,101** | **755** | **85,121** | **1,011** | **175,040** | **435** | **83,275** |

Source: APEDA and DGCIS, Kolkata

Bangladesh and Nepal are major importers of milk food for babies. The volumes are small compared to the quantity of SMP exported.

Though there might be some fluctuation in the year-to-year figures, by and large the exports of milk food for babies are likely to remain around or less than 1000 tons.


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**Table 10.3 – Exports of Other Milk Powder HS Code 04021090**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| EGYPT | 162 | 12,718 | 0 | 0 | 350 | 35,503 | 1,469 | 198,777 | 827 | 111,989 |
| BANGALADESH | 4,384 | 354,032 | 1,408 | 112,866 | 1,172 | 127,514 | 1,686 | 230,616 | 793 | 111,149 |
| ALGERIA | 288 | 22,975 | 1,413 | 139,755 | 0 | 0 | 0 | 0 | 116 | 67,725 |
| IRAQ | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 19,605 | 432 | 64,477 |
| U.A.E. | 158 | 14,562 | 182 | 15,523 | 340 | 34,870 | 416 | 56,383 | 299 | 45,253 |
| NEPAL | 274 | 26,827 | 336 | 32,452 | 298 | 34,585 | 274 | 37,953 | 245 | 39,846 |
| PAKISTAN | 33 | 2,813 | 569 | 48,810 | 271 | 24,645 | 3 | 462 | 175 | 23,838 |
| OTHER COUNTRY | 0 | 0 | 8 | 624 | 0 | 0 | 107 | 15,325 | 72 | 9,493 |
| CAMEROON | 0 | 0 | 2 | 215 | 6 | 720 | 0 | 5 | 48 | 7,652 |
| COTE D' IVOIRE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 7,652 |
| SYRIAN ARAB REP | 0 | 0 | 123 | 10,590 | 50 | 4,938 | 250 | 31,564 | 50 | 7,056 |
| AFGHANISTAN | 52 | 4,773 | 204 | 18,180 | 74 | 7,245 | 94 | 13,664 | 53 | 6,980 |
| SEYCHELLES | 3 | 524 | 0 | 0 | 0 | 0 | 32 | 3,913 | 43 | 5,742 |
| SRI LANKA | 13 | 1,371 | 94 | 8,268 | 61 | 5,159 | 86 | 8,584 | 40 | 5,574 |
| U.S.A. | 14 | 427 | 3 | 493 | 2 | 172 | 18 | 2,326 | 37 | 5,563 |
| QATAR | 15 | 1,360 | 0 | 0 | 0 | 0 | 25 | 3,445 | 30 | 5,071 |
| PHILIPPINES | 51 | 4,110 | 30 | 3,125 | 1 | 46 | 42 | 5,364 | 31 | 4,375 |
| SINGAPORE | 15 | 896 | 237 | 20,217 | 10 | 418 | 17 | 2,517 | 27 | 3,692 |
| JORDAN | 17 | 1,166 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 3,571 |
| GEORGIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 30 | 3,448 |
| SAUDI ARABIA | 77 | 6,870 | 67 | 6,366 | 27 | 2,343 | 27 | 3,451 | 25 | 3,181 |
| NIGERIA | 0 | 0 | 0 | 0 | 26 | 4,228 | 26 | 3,957 | 15 | 2,902 |
| BHUTAN | 0 | 0 | 198 | 17,603 | 0 | 0 | 20 | 1,890 | 28 | 2,556 |
| BRUNEI | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 1,432 | 40 | 2,436 |
| GABON | 0 | 0 | 17 | 1,473 | 0 | 0 | 0 | 0 | 15 | 2,391 |
| LIBYA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 62 | 1 | 2,293 |
| MADAGASCAR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 2,089 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 908 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 499 |
| SLOVENIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 223 |
| HONG KONG | 0 | 0 | 3 | 277 | 0 | 0 | 0 | 2 | 1 | 166 |
| MOZAMBIQUE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 1 | 151 |
| MALAYSIA | 0 | 19 | 0 | 0 | 0 | 0 | 2 | 133 | 0 | 23 |
| U K | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| MACAO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| GHANA | 1 | 2 | 0 | 0 | 5 | 342 | 0 | 2 | 0 | 12 |
| IRAN | 22 | 1,834 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 |
| CHINA P RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| YEMEN ARAB REP | 208 | 19,770 | 553 | 51,101 | 0 | 33 | 300 | 43,224 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 168 | 22,644 | 0 | 0 |
| TURKEY | 200 | 15,565 | 0 | 0 | 0 | 0 | 104 | 13,412 | 0 | 0 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,612 | 0 | 0 |
| TANZANIA | 31 | 2,420 | 80 | 6,947 | 0 | 0 | 33 | 3,486 | 0 | 0 |
| SUDAN | 0 | 0 | 200 | 18,430 | 0 | 0 | 17 | 2,425 | 0 | 0 |
| KUWAIT | 0 | 0 | 7 | 571 | 0 | 0 | 17 | 2,371 | 0 | 0 |
| GUINEA | 0 | 2 | 0 | 0 | 1 | 55 | 15 | 2,151 | 0 | 0 |
| AZERBAIJAN | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 2,027 | 0 | 0 |
| AUSTRALIA | 50 | 3,891 | 0 | 0 | 0 | 0 | 1 | 68 | 0 | 0 |

(Table 10.3 – Exports of Other Milk Powder continued on next page)



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**Table 10.3 – Exports of Other Milk Powder HS Code 04021090 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| LEBANON | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 0 |
| ZIMBABWE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 |
| GERMANY | 0 | 0 | 0 | 0 | 5 | 539 | 0 | 18 | 0 | 0 |
| CANADA | 0 | 44 | 1 | 96 | 21 | 370 | 0 | 6 | 0 | 0 |
| TOGO | 0 | 0 | 10 | 575 | 0 | 0 | 0 | 5 | 0 | 0 |
| MAYNMAR | 0 | 1 | 210 | 18,715 | 89 | 8,293 | 0 | 0 | 0 | 0 |
| SOUTH AFRICA | 0 | 0 | 18 | 2,474 | 11 | 1,733 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 0 | 17 | 1,540 | 18 | 1,544 | 0 | 0 | 0 | 0 |
| COCOS (KEELING | 0 | 0 | 0 | 0 | 15 | 1,445 | 0 | 0 | 0 | 0 |
| OMAN | 32 | 2,921 | 16 | 1,451 | 6 | 101 | 0 | 0 | 0 | 0 |
| SWITZERLAND | 0 | 0 | 0 | 1 | 1 | 70 | 0 | 0 | 0 | 0 |
| MALDIVES | 0 | 0 | 8 | 816 | 0 | 5 | 0 | 0 | 0 | 0 |
| SPAIN | 20 | 1,853 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUSTRIA | 0 | 0 | 1 | 70 | 0 | 0 | 0 | 0 | 0 | 0 |
| BOTSWANA | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CONGO | 0 | 0 | 10 | 530 | 0 | 0 | 0 | 0 | 0 | 0 |
| ETHIOPIA | 1 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FRANCE | 0 | 0 | 82 | 7,450 | 0 | 0 | 0 | 0 | 0 | 0 |
| JAPAN | 0 | 0 | 101 | 8,748 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALAWI | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAURITANIA | 0 | 0 | 16 | 1,183 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOROCCO | 0 | 0 | 119 | 10,112 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAPUA NEW GUINE | 1 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RUSSIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SIERRA LEONE | 0 | 0 | 15 | 1,474 | 0 | 0 | 0 | 0 | 0 | 0 |
| THAILAND | 15 | 1,061 | 122 | 10,264 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **6,136** | **504,912** | **6,480** | **579,405** | **2,859** | **296,918** | **5,455** | **736,997** | **3,581** | **560,016** |

Source: APEDA and DGCIS, Kolkata

In the year 2007-08, Egypt and Bangladesh together accounted for more than 57 per cent of the exports of other milk powder from India. During April-December 2008, the two countries retained their dominant position with about 45 per cent of other milk powder exports from India. Bangladesh has been steadily reducing milk powder exports from India (as seen in case of SMP also). In 2004-05, Bangladesh had purchased 4,384 tons of other milk powder as against 1,686 tons in 2007-08 and only 793 tons in April-December 2008.

Algeria and Iraq have started buying other milk powder from India. Iraq started purchasing in 2007-08 opening with 141 tons increasing to 432 tons during April-Dec 2008. Algeria has started in April-December 2008 after a gap of two years.

Other countries which started importing other milk powder from India during April-Dec 2008 are Cote D' Ivoire, Cameroon, Jordan, Madagascar, Georgia, Korea Republic, Kenya etc. Simultaneously, some major purchasers of past years like Yemen, Indonesia and Turkey did not purchase during April-Dec 2008.

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**Table 10.4 – Exports of Milk Powder Fat >1.5% HS Code 04022100**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 30 | 2,874 | 756 | 67,894 | 522 | 49,020 | 120 | 20,595 | 619 | 106,223 |
| MAYNMAR | 0 | 0 | 12 | 1,349 | 0 | 0 | 31 | 2,486 | 90 | 16,452 |
| OMAN | 229 | 20,859 | 630 | 60,540 | 134 | 13,696 | 360 | 64,747 | 88 | 13,877 |
| QATAR | 0 | 0 | 15 | 1,442 | 0 | 0 | 15 | 2,637 | 69 | 11,224 |
| SRI LANKA | 1 | 161 | 17 | 1,410 | 0 | 0 | 75 | 12,904 | 60 | 10,445 |
| NIGERIA | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 48 | 8,336 |
| AFGHANISTAN | 10 | 1,796 | 26 | 2,459 | 0 | 0 | 0 | 0 | 38 | 6,449 |
| BENIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 6,194 |
| KUWAIT | 0 | 0 | 1 | 98 | 0 | 0 | 0 | 0 | 34 | 5,957 |
| SINGAPORE | 26 | 2,150 | 4 | 363 | 10 | 907 | 0 | 59 | 43 | 5,822 |
| DJIBOUTI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 4,839 |
| SEYCHELLES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 3,259 |
| SOMALIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 3,255 |
| BAHRAIN | 31 | 2,561 | 14 | 1,193 | 29 | 3,036 | 0 | 0 | 17 | 2,993 |
| LIBYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,975 |
| SOUTH AFRICA | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,718 |
| ALGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,713 |
| SIERRA LEONE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1,129 |
| GUINEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 683 |
| NEPAL | 41 | 3,555 | 128 | 10,394 | 20 | 1,071 | 1 | 108 | 2 | 225 |
| CANADA | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 31 | 1 | 21 |
| HONG KONG | 0 | 0 | 0 | 0 | 5 | 340 | 1 | 124 | 0 | 0 |
| AUSTRALIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| JAPAN | 0 | 0 | 0 | 0 | 150 | 16,651 | 0 | 0 | 0 | 0 |
| SAUDI ARABIA | 0 | 0 | 293 | 30,615 | 25 | 2,482 | 0 | 0 | 0 | 0 |
| U.S.A. | 1 | 162 | 0 | 0 | 0 | 52 | 0 | 0 | 0 | 0 |
| ITALY | 0 | 17 | 0 | 11 | 0 | 37 | 0 | 0 | 0 | 0 |
| BRUNEI | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 |
| OTHER COUNTRY | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| NEWZEALAND | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| TANZANIA | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| BANGALADESH | 100 | 5,395 | 23 | 2,719 | 0 | 0 | 0 | 0 | 0 | 0 |
| EGYPT | 45 | 3,715 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FIJI | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| FRANCE | 0 | 0 | 7 | 1,512 | 0 | 0 | 0 | 0 | 0 | 0 |
| IRAN | 0 | 0 | 56 | 11,813 | 0 | 0 | 0 | 0 | 0 | 0 |
| KENYA | 2 | 187 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LEBANON | 0 | 0 | 16 | 1,641 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 0 | 163 | 17,086 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOROCCO | 0 | 0 | 41 | 8,696 | 0 | 0 | 0 | 0 | 0 | 0 |
| PHILIPPINES | 42 | 3,330 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| THAILAND | 0 | 0 | 47 | 9,956 | 0 | 0 | 0 | 0 | 0 | 0 |
| TURKEY | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VIETNAM | 0 | 0 | 30 | 2,774 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **557** | **46,791** | **2,279** | **233,994** | **897** | **87,386** | **604** | **103,702** | **1,231** | **215,789** |

Source: APEDA and DGCIS, Kolkata

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Milk Powder with fat>1.5% exports have more than doubled up during 2008-09, albeit on a small base. U.A.E. is the main buyer of this from India. In 2007-08, U.A.E. had purchased only 120 tons as against 756 tons in 2005-06. It seems that U.A.E. has reached the level of 2005-06 in 2008-09. At the same time, Oman seems to be slipping with volumes dipping. In 2007-08, Oman bought 360 tons, while in the nine months of 2008-09 the volumes were only 88 tons.

During April-December 2008, the category has found new export destinations - Nigeria, Afghanistan, Benin, Kuwait, Djibouti, Seychelles, Somalia, Bahrain etc.

**Table 10.5 – Exports of Whole Milk Powder Fat >1.5% HS Code 04022910; from 2005-06 to Apr.-Dec. 2008**

| Country | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U ARAB EMTS | 1,379 | 123,219 | 323 | 28,803 | 342 | 49,906 | 801 | 115,665 |
| COTE D' IVOIRE | 0 | 0 | 0 | 0 | | | 500 | 72,477 |
| OMAN | 557 | 51,742 | 82 | 7,420 | 114 | 17,851 | 423 | 61,095 |
| JAPAN | 770 | 75,184 | | | | | 400 | 50,375 |
| IRAQ | 0 | 0 | 0 | 0 | | | 359 | 49,802 |
| SRI LANKA DSR | 17 | 1,525 | 54 | 5,622 | 139 | 22,848 | 340 | 44,160 |
| EGYPT A RP | 1,755 | 155,424 | 35 | 3,217 | 225 | 32,313 | 157 | 24,919 |
| NIGERIA | 0 | 0 | 0 | 0 | 50 | 6,799 | 152 | 18,692 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 3 | 101 | 14,115 |
| SAUDI ARAB | 17 | 1,665 | 100 | 8,425 | | | 82 | 13,090 |
| NEPAL | 285 | 28,562 | 177 | 15,008 | 160 | 10,972 | 82 | 12,581 |
| SYRIA | 766 | 66,221 | | | | | 50 | 8,584 |
| CAMEROON | 0 | 0 | 0 | 0 | | | 50 | 8,394 |
| DOMINIC REP | 0 | 0 | 0 | 0 | | | 50 | 8,394 |
| ALGERIA | 32 | 3,034 | 173 | 15,278 | | | 50 | 8,250 |
| INDONESIA | | | 17 | 1,654 | 67 | 8,983 | 50 | 8,107 |
| CONGO P REP | 0 | 0 | 0 | 0 | | | 40 | 6,488 |
| TANZANIA REP | 4 | 740 | | | 16 | 2,413 | 31 | 4,687 |
| BAHARAIN IS | 86 | 7,896 | | | | | 40 | 3,952 |
| QATAR | 2 | 282 | | | 48 | 7,354 | 25 | 3,770 |
| TOGO | 0 | 0 | 0 | 0 | | | 25 | 3,736 |
| SINGAPORE | 307 | 27,607 | | | | | 18 | 2,177 |
| BRUNEI | | | 1 | 53 | | | 14 | 1,910 |
| AUSTRALIA | 0 | 0 | 0 | 0 | | | 1 | 76 |
| MALDIVES | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 42 |
| KOREA RP | 62 | 4,847 | | | 240 | 33,681 | | |
| PHILIPPINES | 77 | 6,293 | | | 98 | 13,401 | | |
| ETHIOPIA | 0 | 0 | 0 | 0 | 85 | 11,035 | | |
| BANGLADESH PR | 1,511 | 110,544 | 225 | 25,002 | 50 | 7,036 | | |
| DJIBOUTI | 0 | 0 | 0 | 0 | 28 | 4,704 | | |
| AFGHANISTAN TIS | 277 | 24,654 | | | 34 | 4,456 | | |
| THAILAND | 0 | 0 | 0 | 0 | 14 | 2,432 | | |
| SEYCHELLES | 0 | 0 | 0 | 0 | 15 | 683 | | |
| CHINA P RP | 17 | 1,544 | | | 0 | 0 | 0 | 0 |
| DENMARK | 68 | 6,349 | | | 0 | 0 | 0 | 0 |
| HONG KONG | 4 | 368 | | | 0 | 0 | 0 | 0 |

(Table 10.5 – Exports of Whole Milk Powder continued on next page)



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**Table 10.5 – Exports of Whole Milk Powder Fat >1.5% HS Code 04022910; from 2005-06 to Apr.-Dec. 2008 (Continued)**

| Country | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| IRAN | 68 | 5,758 | | | 0 | 0 | 0 | 0 |
| JORDAN | 222 | 21,644 | | | 0 | 0 | 0 | 0 |
| KENYA | 6 | 733 | | | 0 | 0 | 0 | 0 |
| LIBYA | 100 | 8,521 | | | 0 | 0 | 0 | 0 |
| MOROCCO | | | 53 | 4,342 | 0 | 0 | 0 | 0 |
| NETHERLAND | 247 | 20,741 | | | 0 | 0 | 0 | 0 |
| NETHERLANDANTIL | | | 1 | 36 | 0 | 0 | 0 | 0 |
| PAKISTAN IR | 1,248 | 104,728 | 102 | 9,155 | 0 | 0 | 0 | 0 |
| REUNION | | | 1 | 73 | 0 | 0 | 0 | 0 |
| SUDAN | 58 | 4,682 | | | 0 | 0 | 0 | 0 |
| TURKEY | 81 | 7,963 | | | 0 | 0 | 0 | 0 |
| TURKMENISTAN | 14 | 1,192 | | | 0 | 0 | 0 | 0 |
| **Total** | **10,038** | **873,662** | **1,344** | **124,088** | **1,724** | **236,874** | **3,842** | **545,538** |
| Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | |

**Table 10.6 – Exports of Milk for Babies Fat >1.5% HS Code 04022920**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| NEPAL | 154 | 19,335 | 72 | 7,318 | 84 | 10,581 | 75 | 11,516 | 85 | 14,741 |
| AFGHANISTAN | 0 | 0 | 70 | 6,569 | 47 | 4,622 | 20 | 1,956 | 52 | 6,199 |
| SRI LANKA | 0 | 0 | 126 | 16,425 | 0 | 0 | 0 | 23 | 15 | 2,559 |
| SIERRA LEONE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 496 |
| U.K. | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 212 | 5 | 375 |
| SINGAPORE | 0 | 0 | 28 | 2,092 | 1 | 94 | 1 | 164 | 3 | 299 |
| GUINEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 209 |
| BHUTAN | 68 | 10,209 | 0 | 0 | 24 | 2,858 | 0 | 0 | 0 | 0 |
| BANGALADESH | 0 | 0 | 22 | 2,691 | 10 | 1,146 | 0 | 0 | 0 | 0 |
| MAURITANIA | 0 | 0 | 0 | 0 | 1 | 90 | 0 | 0 | 0 | 0 |
| SAUDI ARABIA | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| BOTSWANA | 0 | 0 | 1 | 61 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| EGYPT | 0 | 0 | 100 | 9,437 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALDIVES | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| NIGERIA | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| QATAR | 0 | 0 | 15 | 1,515 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.A.E. | 0 | 0 | 76 | 7,282 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **222** | **29,569** | **511** | **53,428** | **168** | **19,398** | **102** | **13,871** | **171** | **24,878** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

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**Table 10.7 – Exports of Other Milk Powder Fat >1.5% HS Code 04022990**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| IRAQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 23,593 |
| SOUTH AFRICA | 0 | 0 | 0 | 0 | 58 | 6,918 | 30 | 5,039 | 110 | 20,969 |
| SINGAPORE | 0 | 0 | 23 | 3,643 | 1 | 135 | 0 | 0 | 6 | 19,095 |
| NEPAL | 212 | 20,424 | 331 | 29,626 | 293 | 28,602 | 241 | 27,913 | 127 | 17,359 |
| MOROCCO | 0 | 0 | 104 | 11,421 | 0 | 0 | 0 | 0 | 60 | 8,231 |
| U.A.E. | 133 | 11,373 | 44 | 4,066 | 1 | 297 | 0 | 0 | 33 | 8,121 |
| EGYPT | 0 | 0 | 0 | 0 | 32 | 3,562 | 0 | 0 | 2 | 6,087 |
| GEORGIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 4,346 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,621 |
| NIGERIA | 0 | 0 | 0 | 0 | 0 | 23 | 3 | 458 | 8 | 3,481 |
| DJIBOUTI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 3,148 |
| GUINEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 2,777 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,487 |
| AFGHANISTAN | 25 | 1,154 | 50 | 4,516 | 0 | 0 | 0 | 0 | 15 | 1,727 |
| KENYA | 0 | 0 | 0 | 0 | 1 | 209 | 0 | 0 | 4 | 941 |
| ISRAEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 419 |
| HONG KONG | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 319 |
| U.S.A. | 766 | 201,428 | 225 | 57,007 | 144 | 36,824 | 1 | 100 | 0 | 262 |
| BELGIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 92 |
| NETHERLAND ANTI | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 55 |
| SAUDI ARABIA | 1 | 177 | 126 | 10,898 | 4 | 805 | 2 | 171 | 0 | 47 |
| TOGO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| PHILIPPINES | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 |
| NETHERLANDS | 0 | 0 | 0 | 0 | 0 | 17 | 2 | 184 | 0 | 0 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 69 | 0 | 0 |
| JAPAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 |
| BAHRAIN | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 17 | 0 | 0 |
| MALAYSIA | 101 | 8,439 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 |
| GAMBIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| CHINESE TAIPEI | 0 | 0 | 75 | 6,780 | 75 | 17,423 | 0 | 0 | 0 | 0 |
| ALGERIA | 49 | 4,254 | 145 | 17,549 | 81 | 8,103 | 0 | 0 | 0 | 0 |
| PAKISTAN | 0 | 0 | 125 | 10,064 | 60 | 5,601 | 0 | 0 | 0 | 0 |
| BANGALADESH | 873 | 66,135 | 186 | 16,587 | 28 | 2,965 | 0 | 0 | 0 | 0 |
| SRI LANKA | 0 | 0 | 0 | 0 | 16 | 1,551 | 0 | 0 | 0 | 0 |
| KUWAIT | 0 | 0 | 0 | 0 | 8 | 1,023 | 0 | 0 | 0 | 0 |
| ITALY | 0 | 0 | 0 | 0 | 4 | 390 | 0 | 0 | 0 | 0 |
| OMAN | 28 | 2,498 | 3 | 331 | 15 | 331 | 0 | 0 | 0 | 0 |
| AUSTRALIA | 0 | 0 | 0 | 0 | 3 | 279 | 0 | 0 | 0 | 0 |
| CANADA | 0 | 0 | 0 | 3 | 1 | 207 | 0 | 0 | 0 | 0 |
| LEBANON | 0 | 0 | 0 | 0 | 1 | 157 | 0 | 0 | 0 | 0 |
| QATAR | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 0 |
| KIRGHIZIA | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| BHUTAN | 0 | 0 | 75 | 13,605 | 0 | 0 | 0 | 0 | 0 | 0 |
| BRUNEI | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| CONGO | 0 | 0 | 8 | 1,375 | 0 | 0 | 0 | 0 | 0 | 0 |
| GABON | 0 | 0 | 14 | 2,907 | 0 | 0 | 0 | 0 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IRAN | 0 | 0 | 156 | 13,082 | 0 | 0 | 0 | 0 | 0 | 0 |

(Table 10.7 – Exports of Other Milk Powder continued on next page)

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**Table 10.7 – Exports of Other Milk Powder Fat >1.5% HS Code 04022990 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| MALAGASAY REP | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALAWI | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALDIVES | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAYNMAR | 0 | 0 | 150 | 12,641 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOZAMBIQUE | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REUNION | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| RWANDA | 0 | 0 | 14 | 2,869 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.K. | 0 | 0 | 1 | 229 | 0 | 0 | 0 | 0 | 0 | 0 |
| UGANDA | 1 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REPU | 0 | 0 | 52 | 4,454 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **2,189** | **315,993** | **1,906** | **223,687** | **828** | **115,660** | **278** | **34,019** | **479** | **127,184** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

April-December 2008 has witnessed a high growth rate in this category reversing the trend of decreasing exports in this category from 2004-05 to 2007-08.

The rise can be attributed to increase in volumes by South Africa and starting of exports to Morocco, Iraq, U.A.E., Georgia, Taiwan, Djibouti, and Guinea.

**Table 10.8 – Exports of Whole Milk Powder containing sweetening matter HS Code 04029910**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| SRI LANKA DSR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 12036 |
| NEPAL | 10 | 884 | 60 | 6,002 | 139 | 9,153 | 0 | 0 | 22.33 | 3262 |
| SAUDI ARABIA | 0 | 0 | 8 | 536 | 9 | 244 | 2 | 286 | 1.2 | 283 |
| MALAYSIA | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 8 | 0 | 0 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 0 | 0.05 | 2 | 0 | 0 |
| OMAN | 0 | 0 | 0 | 0 | 16 | 1,580 | 0 | 0 | 0 | 0 |
| DJIBOUTI | 0 | 0 | 0 | 0 | 14 | 1,497 | 0 | 0 | 0 | 0 |
| NETHERLANDS | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| TANZANIA | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| SINGAPORE | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.A.E. | 7 | 515 | 15 | 958 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.K. | 0 | 0 | 1 | 95 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.S.A. | 0 | 0 | 2 | 132 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **17** | **1,399** | **86** | **7,747** | **178** | **12,493** | **2** | **296** | **69** | **15,581** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

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**Table 10.9 – Exports of condensed milk HS Code 04029920**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 13.3 | 3.6 | 291.0 | 5.5 | 530.0 |
| MAURITIUS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 472.0 |
| SRI LANKA | 0.0 | 0.0 | 1.0 | 63.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 439.0 |
| BRUNEI | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 20.0 |
| GUINEA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 |
| U.S.A. | 0.1 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 151.0 | 0.0 | 0.0 |
| QATAR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 77.0 | 0.0 | 0.0 |
| SIERRA LEONE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 |
| NEPAL | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 166.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HONG KONG | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 16.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| MOZAMBIQUE | 0.0 | 0.0 | 0.7 | 71.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NIGERIA | 0.0 | 0.0 | 18.0 | 1,404.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| OMAN | 1.0 | 228.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| U.K. | 0.4 | 52.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **1.5** | **287.1** | **19.7** | **1,539.4** | **1.7** | **195.7** | **5.5** | **522.0** | **15.8** | **1,470.0** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

Condensed milk is a minor segment in Indian basket of dairy exports. Although volumes are small, in April-December 2008 exports reached a level comparable to 2005-06.

**Table 10.10 – Exports of other milk or cream containing sweetening matter HS Code 04029990**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| NEPAL | 7 | 687 | 8 | 827 | 51 | 6,113 | 78 | 11,354 | 99 | 12,634 |
| SAUDI ARABIA | 0 | 0 | 4 | 379 | 12 | 666 | 0 | 0 | 65 | 7,249 |
| BURKINA FASO | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 657 | 72 | 6,368 |
| U.A.E. | 23 | 4,765 | 14 | 1,846 | 0 | 43 | 48 | 5,320 | 26 | 4,063 |
| PAKISTAN | 0 | 0 | 25 | 1,887 | 0 | 0 | 0 | 0 | 28 | 3,565 |
| EQUTL GUINEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 2,631 |
| BHUTAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1,149 |
| SINGAPORE | 120 | 26,979 | 36 | 7,557 | 5 | 793 | 1 | 97 | 5 | 1,070 |
| CANADA | 0 | 66 | 117 | 11,815 | 0 | 0 | 0 | 0 | 2 | 276 |
| OMAN | 7 | 1,528 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 142 |
| JAPAN | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 64 | 1 | 70 |
| AUSTRALIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 64 |
| SRI LANKA | 5 | 647 | 3 | 311 | 0 | 0 | 0 | 0 | 0 | 50 |
| MALAYSIA | 0 | 0 | 5 | 369 | 0 | 0 | 0 | 107 | 1 | 41 |
| MEXICO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| HONG KONG | 15 | 1,349 | 2 | 397 | 0 | 0 | 0 | 9 | 0 | 8 |
| ZAMBIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| IRAQ | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 14,696 | 0 | 0 |
| QATAR | 0 | 0 | 0 | 0 | 1 | 225 | 4 | 577 | 0 | 0 |
| NETHERLANDANTIL | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 55 | 0 | 0 |
| BAHRAIN | 2 | 352 | 2 | 305 | 0 | 0 | 0 | 25 | 0 | 0 |

(Table 10.10 – Exports of Other Milk or Cream containing sweetening matter continued on next page)



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**Table 10.10 – Exports of Other Milk or Cream containing sweetening matter HS Code 04029990 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| MADAGASCAR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 |
| NIGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| PHILIPPINES | 3 | 727 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| FRANCE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| TANZANIA | 1 | 300 | 0 | 0 | 1 | 58 | 0 | 0 | 0 | 0 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 |
| SOUTH AFRICA | 0 | 0 | 22 | 1,456 | 0 | 16 | 0 | 0 | 0 | 0 |
| MALAGASAY REP | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| AFGHANISTAN | 1 | 181 | 25 | 2,271 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALGERIA | 0 | 0 | 32 | 2,867 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANGOLA | 0 | 0 | 6 | 1,369 | 0 | 0 | 0 | 0 | 0 | 0 |
| BENIN | 0 | 0 | 2 | 430 | 0 | 0 | 0 | 0 | 0 | 0 |
| BOTSWANA | 2 | 346 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CAMBODIA | 2 | 379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CHINA | 80 | 2,112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GERMANY | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| GHANA | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KUWAIT | 3 | 676 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALDIVES | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NEWZEALAND | 0 | 0 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 0 |
| REUNION | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SWITZERLAND | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.K. | 0 | 14 | 1 | 81 | 0 | 0 | 0 | 0 | 0 | 0 |
| UGANDA | 2 | 159 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **271** | **41,340** | **303** | **34,299** | **71** | **7,962** | **233** | **32,994** | **320** | **39,410** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

In overall terms the category of milk/cream containing sweetening matter is small. Export volumes in the category have been fluctuating. The first nine months of 2008-09 have however shown a positive trend. Saudi Arabia and Burkina Faso have started buying from India. Nepal, a consistent buyer in this category, has increased volumes. On the other hand, Iraq which was the largest importer in 2007-08 has not purchased during April-December 2008.


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## 10.2. Butter Milk, Curdled Milk etc. HS code 0403

**Table 10.11 – Exports of yogurt HS Code 04031000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| ALGERIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 38,321 |
| THAILAND | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28,717 |
| MOROCCO | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9,514 |
| FINLAND | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7,556 |
| TURKEY | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6,607 |
| ALBANIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 2,303 |
| GABON | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2,292 |
| SINGAPORE | 0.0 | 0.0 | 1.6 | 66.2 | 0.0 | 0.0 | 0.1 | 13.0 | 0.1 | 4 |
| SRI LANKA DSR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0 |
| **Total** | **0.0** | **0.0** | **1.6** | **66.2** | **0.0** | **0.0** | **0.1** | **23.0** | **12.9** | **95,314** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

Yogurt exports have surprisingly shown some activity during April-December 2008. One hopes that the purchase by Algeria and others is the beginning of a trend and is not a freak incident. For all Apr-Dec. 2008 figures, the value seems very high compared to the insignificantly small quantity. It appears some specialized high-value dairy products (like probiotics) are being exported and are being classified as yogurt.

**Table 10.12 – Exports of butter milk HS Code 04039010**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 0.0 | 0.0 | 1.2 | 127.4 | 4.4 | 655.9 | 6.1 | 939.0 | 5.1 | 690.0 |
| SINGAPORE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 46.0 | 1.5 | 199.0 |
| U.S.A. | 0.0 | 0.0 | 0.9 | 75.9 | 1.2 | 121.7 | 0.8 | 226.0 | 0.3 | 61.0 |
| OMAN | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 48.0 |
| BAHRAIN | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 28.5 | 0.2 | 23.0 | 0.1 | 18.0 |
| AUSTRALIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 15.0 |
| PHILIPPINES | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 126.0 | 0.0 | 8.0 |
| NEPAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| MALDIVES | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 3.0 |
| BRUNEI | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 0.1 | 8.0 | 0.0 | 1.0 |
| CANADA | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 33.0 | 0.3 | 49.0 | 0.0 | 0.0 |
| YEMEN REPUBLC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 20.0 | 0.0 | 0.0 |
| HONG KONG | 0.2 | 63.2 | 0.0 | 2.5 | 0.5 | 50.5 | 0.1 | 15.0 | 0.0 | 0.0 |
| CHINA P REP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 15.0 | 0.0 | 0.0 |
| JAPAN | 1.5 | 145.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NIGERIA | 0.0 | 0.0 | 4.0 | 556.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SRI LANKA | 0.0 | 0.0 | 0.5 | 77.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TAIWAN | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **1.7** | **209.1** | **6.6** | **839.7** | **6.6** | **893.5** | **9.2** | **1,467.0** | **10.3** | **1,047.0** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

This category has been observing some growth but the volumes are too small to read a trend.

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**Table 10.13 – Exports of other curdled milk products HS Code 04039090**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 16 | 1,957 | 10 | 1,034 | 58 | 5,076 | 173 | 22,993 | 32 | 4,048 |
| SEYCHELLES | 0 | 0 | 0 | 0 | 21 | 3,196 | 0 | 0 | 20 | 2,935 |
| SAUDI ARABIA | 0 | 0 | 0 | 0 | 2 | 118 | 0 | 0 | 22 | 2,178 |
| HONG KONG | 0 | 0 | 0 | 0 | 7 | 1,151 | 9 | 1,191 | 17 | 2,059 |
| U.S.A. | 21 | 3,260 | 2 | 811 | 176 | 12,173 | 157 | 13,177 | 28 | 1,682 |
| CANADA | 0 | 8 | 0 | 0 | 243 | 14,866 | 261 | 21,361 | 20 | 1,137 |
| SINGAPORE | 2 | 307 | 7 | 434 | 26 | 1,967 | 13 | 1,404 | 3 | 387 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 333 |
| SPAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 333 |
| NEPAL | 37 | 3,823 | 1 | 139 | 0 | 12 | 0 | 0 | 4 | 314 |
| QATAR | 0 | 0 | 1 | 149 | 0 | 0 | 8 | 161 | 3 | 250 |
| NEWZEALAND | 0 | 0 | 0 | 0 | 9 | 544 | 0 | 2 | 2 | 214 |
| OMAN | 1 | 237 | 7 | 762 | 10 | 985 | 187 | 26,454 | 2 | 171 |
| KUWAIT | 1 | 301 | 21 | 703 | 4 | 326 | 5 | 719 | 1 | 124 |
| BAHRAIN | 0 | 27 | 4 | 483 | 5 | 537 | 1 | 63 | 1 | 65 |
| AUSTRALIA | 0 | 12 | 20 | 1,311 | 42 | 4,352 | 49 | 3,927 | 0 | 63 |
| NETHERLANDANTIL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| MALDIVES | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 2 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 0 | 0 | 775 | 98,530 | 0 | 0 |
| TURKEY | 0 | 0 | 0 | 0 | 0 | 0 | 391 | 58,389 | 0 | 0 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 0 | 0 | 303 | 45,736 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 201 | 30,811 | 0 | 0 |
| SRI LANKA | 2 | 66 | 16 | 1,360 | 3 | 390 | 199 | 30,250 | 0 | 0 |
| PHILIPPINES | 0 | 0 | 0 | 0 | 0 | 0 | 209 | 29,360 | 0 | 0 |
| PAKISTAN | 9 | 110 | 1 | 125 | 0 | 0 | 162 | 20,460 | 0 | 0 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 9,022 | 0 | 0 |
| AFGHANISTAN | 7 | 1,148 | 0 | 0 | 0 | 0 | 50 | 7,253 | 0 | 0 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2,844 | 0 | 0 |
| SUDAN | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2,507 | 0 | 0 |
| U.K. | 0 | 88 | 0 | 0 | 18 | 911 | 6 | 1,199 | 0 | 0 |
| GREECE | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1,081 | 0 | 0 |
| DENMARK | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 152 | 0 | 0 |
| KOREA REPUBLIC | 0 | 0 | 0 | 0 | 2 | 433 | 0 | 35 | 0 | 0 |
| HONDURAS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| OTHER COUNTRY | 0 | 0 | 0 | 0 | 2 | 221 | 0 | 0 | 0 | 0 |
| FRANCE | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| CAMBODIA | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CHINA | 0 | 0 | 61 | 2,682 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **96** | **11,387** | **150** | **9,993** | **627** | **47,266** | **3,266** | **429,084** | **157** | **16,300** |

Source: APEDA and DGCIS, Kolkata

This category experienced a sudden spurt during 2007-08 with volumes increasing to five times the previous year and value increasing to nine times. However, the momentum does not seem to have been sustained during the first nine months of 2008-09. Surprisingly major buyers of 2007-08 have not purchased any quantity during the subsequent year.

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## 10.3. Whey products HS code 0404

China is a major buyer of whey products from India. Other Asian countries like Japan, Korea, Singapore, Thailand, Myanmar and Philippines appear in the whey export statistics in one year and disappear in the next year. West Asian countries like Kuwait and Saudi Arabia appear on the scene rarely and that too with small volumes. The same can be said about Egypt though Egypt buys larger quantities compared to her Asian neighbors.

**Table 10.14 – Exports of whey concentrated HS Code 04041010**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| EGYPT A RP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 75.0 | 4,503.0 |
| CHINA | 727.2 | 36,380.4 | 1,370.0 | 89,650.8 | 757.0 | 62,635.1 | 497.0 | 63,324.0 | 31.9 | 2,909.0 |
| AUSTRALIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 178.0 | 0.8 | 91.0 |
| U.S.A. | 0.0 | 0.0 | 75.0 | 3,073.8 | 31.0 | 2,043.9 | 1.7 | 116.0 | 0.7 | 79.0 |
| MAURITIUS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 54.0 |
| ITALY | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 7.0 |
| NEPAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 12.4 | 7.8 | 408.0 | 0.0 | 0.0 |
| MAYNMAR | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 5,547.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| KOREA REPUBLIC | 368.0 | 14,720.9 | 0.0 | 0.0 | 50.0 | 3,969.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| CANADA | 48.0 | 2,195.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CHINESE TAIPEI | 25.2 | 1,068.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| IRAN | 0.0 | 0.0 | 16.0 | 988.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| JAPAN | 0.0 | 0.0 | 256.0 | 19,356.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| KENYA | 50.0 | 2,246.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PHILIPPINES | 25.0 | 1,205.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| REUNION | 0.1 | 2.5 | 0.1 | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SINGAPORE | 25.0 | 1,226.6 | 10.0 | 297.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SYRIAN ARAB REP | 0.0 | 0.0 | 48.0 | 2,981.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **1,268.4** | **59,045.2** | **1,775.1** | **116,355.3** | **888.6** | **74,207.9** | **509.0** | **64,026.0** | **110.5** | **7,643.0** |

Source: APEDA and DGCIS, Kolkata



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**Table 10.15 – Exports of whey dry, blocks & powdered HS Code 04041020**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| CHINA P RP | 0 | 0 | 0 | 0 | 388 | 42,234 | 2,867 | 273,116 | 1,199 | 118,520 |
| VIETNAM SOC REP | | | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 5,182 |
| KUWAIT | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 3,403 | 26 | 2,730 |
| SINGAPORE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1,906 |
| SAUDI ARAB | 0 | 0 | 0 | 0 | 14 | 464 | 25 | 1,648 | 37 | 1,296 |
| BANGLADESH PR | 50 | 881 | 5 | 882 | 0 | 0 | 50 | 2,136 | 13 | 595 |
| KOREA RP | 0 | 0 | 0 | 0 | 117 | 9,357 | 245 | 18,833 | 0 | 0 |
| SYRIA | 0 | 0 | 0 | 0 | 50 | 4,072 | 140 | 10,383 | 0 | 0 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 9,405 | 0 | 0 |
| MYANMAR | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 7,034 | 0 | 0 |
| PHILIPPINES | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 5,754 | 0 | 0 |
| IRAN | 0 | 14 | 0 | 0 | 0 | 0 | 50 | 4,929 | 0 | 0 |
| JAPAN | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 2,030 | 0 | 0 |
| KOREA DP RP | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1,846 | 0 | 0 |
| NEPAL | 0 | 0 | 0 | 22 | 0 | 0 | 9 | 585 | 0 | 0 |
| DENMARK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 |
| EGYPT A RP | 100 | 2,809 | 50 | 1,640 | 200 | 14,369 | 0 | 0 | 0 | 0 |
| AFGHANISTAN TIS | 0 | 0 | 0 | 0 | 75 | 4,499 | 0 | 0 | 0 | 0 |
| MOZAMBIQUE | 0 | 0 | 0 | 0 | 15 | 1,898 | 0 | 0 | 0 | 0 |
| U ARAB EMTS | 0 | 0 | 0 | 0 | 8 | 750 | 0 | 0 | 0 | 0 |
| OMAN | 0 | 0 | 0 | 0 | 2 | 51 | 0 | 0 | 0 | 0 |
| FRANCE | 15 | 2,552 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GEORGIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GERMANY | 6 | 222 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KENYA | 0 | 0 | 3 | 130 | 0 | 0 | 0 | 0 | 0 | 0 |
| LATVIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NETHERLAND | 5 | 328 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SRI LANKA DSR | 2 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **178** | **6,859** | **58** | **2,674** | **869** | **77,694** | **3,785** | **341,114** | **1,346** | **130,229** |

Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata

China has emerged as the most important buyer of dry whey from India. The jump in volumes in 2007-08 is only on account of China. However, it seems that the year 2008-09 will close at significantly lower volumes.

Vietnam has appeared first time in Indian whey export statistics with 50 tons during April-December 2008. This may be a high potential country for Indian whey products.

Korea, Syria, Thailand, Myanmar, Philippines and Iran were major buyers during 2007-08. However, in the first nine months of 2008-09, these countries have not bought Indian dry whey. In a similar manner, we notice that Egypt, Afghanistan and Mozambique bought during 2006-07, but have abstained from buying thereafter. This erratic pattern indicates an unstable market.

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**Table 10.16 – Exports of other whey products HS Code 04041090**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 2,218 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 2,136 | 10 | 832 |
| GERMANY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| NEPAL | 8 | 982 | 3 | 163 | 1 | 35 | 0 | 0 | 1 | 24 |
| U S A | 21 | 1,594 | 1 | 104 | 0 | 0 | 4 | 551 | 0 | 20 |
| SINGAPORE | 0 | 35 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 3 |
| CHINA P RP | 0 | 0 | 0 | 0 | 300 | 25,797 | 50 | 4,833 | 0 | 0 |
| AUSTRALIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| AFGHANISTAN TIS | 0 | 0 | 60 | 5,411 | 0 | 0 | 0 | 0 | 0 | 0 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KENYA | 2 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KUWAIT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAKISTAN IR | 0 | 0 | 16 | 1,469 | 0 | 0 | 0 | 0 | 0 | 0 |
| QATAR | 0 | 0 | 1 | 133 | 0 | 0 | 0 | 0 | 0 | 0 |
| REUNION | 0 | 5 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| SRI LANKA DSR | 1 | 77 | 32 | 2,877 | 0 | 0 | 0 | 0 | 0 | 0 |
| TAIWAN | 25 | 1,057 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TANZANIA REP | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| U ARAB EMTS | 0 | 0 | 8 | 676 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **58** | **3,817** | **121** | **10,842** | **301** | **25,853** | **105** | **7,538** | **62** | **3,127** |

Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata

**Table 10.17 – Exports of products other than whey consisting of natural milk constituents HS Code 04049000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| NEPAL | 9 | 1,553 | 0 | 17 | 0 | 0 | 11 | 920 | 15 | 3,464 |
| U.S.A. | 10 | 1,305 | 136 | 35,018 | 0 | 0 | 68 | 5,104 | 40 | 2,842 |
| U.A.E. | 8 | 798 | 1 | 69 | 0 | 0 | 0 | 0 | 31 | 2,167 |
| SPAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1,767 |
| QATAR | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 63 |
| CANADA | 0 | 38 | 1 | 216 | 0 | 0 | 1 | 100 | 0 | 6 |
| CHINA P REP | 0 | 0 | 0 | 0 | 0 | 0 | 1,175 | 120,500 | 0 | 0 |
| EGYPT | 100 | 2,691 | 0 | 0 | 0 | 0 | 195 | 19,849 | 0 | 0 |
| MYANMAR | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 6,405 | 0 | 0 |
| NEW ZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 706 | 0 | 0 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 87 | 0 | 0 |
| CAMEROON | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 |
| GERMANY | 31 | 7,326 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KOREA REPUBLIC | 50 | 1,760 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KUWAIT | 1 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALAYSIA | 1 | 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SINGAPORE | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SRI LANKA | 6 | 503 | 2 | 315 | 0 | 0 | 0 | 0 | 0 | 0 |
| CONGO | 1 | 48 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 |
| **Total** | **218** | **16,404** | **140** | **35,635** | **0** | **0** | **1,505** | **153,685** | **93** | **10,309** |

Source: APEDA and DGCIS, Kolkata

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## 10.4. Butter, other fats & oils derived from milk HS code 0405

**Table 10.18 – Exports of butter HS Code 04051000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 7 | 1,338 | 945 | 123,274 | 3,914 | 538,981 |
| MOROCCO | 476 | 43,869 | 2,519 | 229,029 | 0 | 0 | 1,268 | 171,234 | 707 | 107,947 |
| ALGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 358 | 48,386 | 632 | 87,549 |
| SYRIA | 0 | 0 | 0 | 0 | 0 | 0 | 388 | 48,977 | 534 | 75,442 |
| SAUDI ARAB | 0 | 0 | 0 | 0 | 0 | 0 | 152 | 18,861 | 437 | 61,433 |
| U ARAB EMTS | 106 | 10,213 | 193 | 19,508 | 186 | 19,919 | 285 | 32,812 | 397 | 55,973 |
| TURKEY | 0 | 0 | 16 | 1,519 | 0 | 0 | 101 | 13,472 | 102 | 27,123 |
| NEPAL | 73 | 7,155 | 104 | 11,120 | 103 | 11,278 | 93 | 10,987 | 122 | 18,757 |
| HONG KONG | 0 | 23 | 33 | 4,171 | 15 | 2,312 | 88 | 11,056 | 129 | 16,962 |
| MALAYSIA | 0 | 0 | 0 | 12 | 2 | 80 | 5 | 812 | 107 | 16,162 |
| KUWAIT | 25 | 2,605 | 23 | 2,327 | 23 | 2,445 | 69 | 8,442 | 100 | 13,893 |
| QATAR | 0 | 0 | 6 | 569 | 2 | 216 | 41 | 4,674 | 83 | 11,077 |
| OMAN | 21 | 2,174 | 55 | 5,193 | 28 | 2,851 | 104 | 12,987 | 70 | 10,178 |
| U S A | 50 | 4,872 | 50 | 5,378 | 98 | 10,848 | 81 | 7,794 | 88 | 9,771 |
| BAHARAIN IS | 2 | 157 | 7 | 742 | 11 | 1,145 | 43 | 4,885 | 33 | 4,336 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 26 | 4,177 |
| SINGAPORE | 12 | 1,311 | 6 | 662 | 10 | 1,101 | 26 | 3,076 | 34 | 3,519 |
| TUNISIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,418 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2,310 |
| LIBYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2,182 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 694 | 4 | 2,134 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1,715 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3,006 | 8 | 966 |
| LEBANON | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 2,715 | 5 | 735 |
| UGANDA | | | | | | | 0 | 9 | 1 | 86 |
| NEW ZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| GAMBIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| JAPAN | 87 | 4,756 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| MALDIVES | 0 | 0 | 13 | 1,251 | 0 | 0 | 0 | 1 | 0 | 1 |
| IRAN | 22 | 2,063 | 102 | 8,491 | 0 | 0 | 227 | 24,651 | 0 | 0 |
| YEMEN REPUBLC | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 13,512 | 0 | 0 |
| NIGERIA | 0 | 0 | 0 | 0 | 1 | 140 | 43 | 6,538 | 0 | 0 |
| PHILIPPINES | 64 | 5,867 | 0 | 0 | 0 | 0 | 16 | 1,840 | 0 | 0 |
| SOUTH AFRICA | 0 | 0 | 0 | 0 | 8 | 526 | 3 | 356 | 0 | 0 |
| AUSTRALIA | 0 | 4 | 6 | 623 | 12 | 1,124 | 3 | 312 | 0 | 0 |
| CANADA | 0 | 0 | . | 281 | 1 | 62 | 1 | 277 | 0 | 0 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 199 | 0 | 0 |
| ISRAEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 0 | 0 |
| NETHERLAND | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 48 | 0 | 0 |
| SRI LANKA DSR | 15 | 1,557 | 76 | 6,695 | 0 | 0 | 0 | 28 | 0 | 0 |
| NETHERLAND A. | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 26 | 0 | 0 |
| ST PIERRE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 |
| GHANA | 1 | 54 | 1 | 29 | 0 | 0 | 0 | 2 | 0 | 0 |
| COTE D' IVOIRE | 0 | 0 | 0 | 0 | 3 | 507 | 0 | 0 | 0 | 0 |
| UNSPECIFIED | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 |
| PAKISTAN IR | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 |

(Table 10.18 – Exports of butter continued on next page)



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**Table 10.18 – Exports of butter HS Code 04051000 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| RWANDA | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| ST KITT N A | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| BELGIUM | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 |
| BHUTAN | 6 | 694 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOZAMBIQUE | 4 | 334 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 |
| SWEDEN | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 |
| SPAIN | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 |
| **Total** | **965** | **87,708** | **3,211** | **297,704** | **510** | **56,097** | **4,492** | **576,011** | **7,612** | **1,076,924** |
| Source: Department of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | | | |

Indian butter seems to be gaining popularity in North Africa and West Asia. During the first nine months of 2008-09, three North African countries - Egypt, Morocco and Algeria - accounted for 69 per cent, while three West Asian countries – Syria, Saudi Arabia and U.A.E. – took up about 18 per cent of Indian butter exports.

Interesting part about Indian butter exports is that till 2006-07, Africa had not tasted butter from India. Exports started during 2007-08 and have picked up quickly thereafter.

The success of Indian butter in Africa and West Asia should be seen in the context that this success has been achieved during the period when international butter prices have been falling and there has been hardening of domestic prices of butter in India. Average export realization of Indian butter has been rising every year – 2004-05 – Rs. 90.92/kg; 2005-06 – Rs. 92.72/kg; 2006-07 - Rs. 109.97/kg; 2007-08 - Rs. 128.24/kg; Apr-Dec 2008 - Rs. 141.47/kg. Increasing realizations while simultaneously pushing volumes speaks well for Indian butter in international markets.

**Table 10.19 – Exports of dairy spreads HS Code 04052000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U S A | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 121.00 |
| MALDIVES | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 38.00 |
| FRANCE | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 7.00 |
| SINGAPORE | 0.00 | 0.00 | 0.00 | 0.00 | 3.70 | 444.50 | 1.55 | 100.00 | 0.09 | 4.00 |
| DENMARK | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 4.00 |
| NEPAL | 1.10 | 121.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 4.00 |
| MALAYSIA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 16.00 | 0.02 | 2.00 |
| UKRAINE | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 1.00 |
| CANADA | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 5.00 | 0.30 | 35.00 | 0.00 | 0.00 |
| AUSTRALIA | 0.00 | 0.00 | 0.00 | 0.00 | 8.00 | 1,022.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| BHUTAN | 2.00 | 391.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| HONG KONG | 0.15 | 2.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| KUWAIT | 0.00 | 0.00 | 0.05 | 4.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SPAIN | 0.00 | 0.00 | 0.01 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TANZANIA | 0.60 | 70.97 | 0.70 | 122.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Total** | **3.85** | **586.61** | **0.76** | **127.72** | **11.73** | **1,471.76** | **2.06** | **151.00** | **0.93** | **181.00** |
| Source: APEDA and DGCIS, Kolkata | | | | | | | | | | |

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**Table 10.20 – Exports of butter oil HS Code 04059010**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| PHILIPPINES | 0.0 | 0.0 | 84.0 | 5,453.7 | 0.0 | 0.0 | 66.6 | 10,549.0 | 649.1 | 112,175.0 |
| THAILAND | 0.0 | 0.0 | 16.0 | 1,660.8 | 16.0 | 2,160.1 | 113.0 | 16,679.0 | 548.1 | 104,862.0 |
| SAUDI ARABIA | 25.1 | 1,626.6 | 0.8 | 85.5 | 0.0 | 0.0 | 187.2 | 27,856.0 | 403.3 | 65,271.0 |
| VIETNAM SOC REP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.4 | 3,756.0 | 329.3 | 52,850.0 |
| NIGERIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 188.2 | 31,643.0 |
| U.A.E. | 74.6 | 11,712.8 | 85.0 | 11,972.1 | 0.0 | 0.1 | 33.3 | 5,243.0 | 190.1 | 30,416.0 |
| PANAMA REPUBLIC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 53.9 | 8,274.0 | 154.4 | 29,754.0 |
| SURINAME | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.4 | 12,322.0 | 78.9 | 14,646.0 |
| MADAGASCAR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 65.3 | 10,478.0 | 83.3 | 13,857.0 |
| BANGLADESH PR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 2,605.0 | 67.6 | 11,158.0 |
| SINGAPORE | 1.7 | 141.4 | 2.6 | 319.0 | 4.8 | 310.8 | 1.2 | 194.0 | 62.4 | 11,017.0 |
| EGYPT A RP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.1 | 10,761.0 |
| CANADA | 37.0 | 1,944.9 | 188.0 | 19,368.6 | 0.0 | 0.0 | 0.0 | 0.0 | 51.5 | 9,639.0 |
| ALGERIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 47.7 | 5,722.0 | 53.9 | 8,430.0 |
| GERMANY | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5,127.0 |
| LIBYA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.5 | 4,237.0 |
| KOREA REPUBLIC | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 | 3,222.0 |
| SYRIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 129.4 | 19,023.0 | 16.7 | 2,604.0 |
| TAIWAN | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.7 | 2,549.0 |
| MAURITANIA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 1,858.0 |
| ISRAEL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 556.0 |
| AUSTRALIA | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 62.1 | 0.0 | 0.0 | 0.7 | 84.0 |
| POLAND | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.0 | 4,092.0 | 0.0 | 0.0 |
| GUYANA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 2,637.0 | 0.0 | 0.0 |
| U.S.A. | 66.0 | 3,751.6 | 0.2 | 17.6 | 0.0 | 0.0 | 2.1 | 272.0 | 0.0 | 0.0 |
| LEBANON | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 1,440.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| MALAYSIA | 0.2 | 12.0 | 0.1 | 10.3 | 0.6 | 25.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| U.K. | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| NEPAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| BAHRAIN | 0.4 | 49.9 | 0.3 | 31.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HONG KONG | 0.0 | 0.0 | 0.5 | 27.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HUNGRY | 0.4 | 111.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| INDONESIA | 0.0 | 0.0 | 16.0 | 1,602.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| IRAN | 44.0 | 4,229.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| JAPAN | 0.0 | 0.0 | 1.8 | 302.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SRI LANKA | 0.0 | 0.0 | 129.0 | 7,037.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TANZANIA | 0.1 | 20.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| YAMEN ARAB REPU | 0.0 | 0.0 | 221.0 | 19,919.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **249.4** | **23,601.0** | **745.1** | **67,807.8** | **37.5** | **4,017.1** | **872.9** | **129,702.0** | **3,020.9** | **526,716.0** |

Source: APEDA and DGCIS, Kolkata

Butter oil needs to be differentiated from melted butter (ghee). While the latter is sold primarily to countries having a large population of person of Indian origin, the former is sold as an ingredient for manufacturing reconstituted milk and dairy products.

Butter oil sales have jumped up during 2008-09, while ghee sales are in the same range as in previous year.

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**Table 10.21 – Exports of melted butter (ghee) HS Code 04059020**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 1,087 | 167,410 | 1,063 | 160,813 | 1,343 | 203,673 | 1,681 | 275,491 | 1,217 | 208,698 |
| KUWAIT | 185 | 27,579 | 237 | 38,451 | 170 | 25,828 | 198 | 30,463 | 327 | 55,704 |
| AUSTRALIA | 30 | 3,886 | 121 | 13,989 | 165 | 23,454 | 213 | 25,541 | 274 | 37,669 |
| SINGAPORE | 105 | 10,256 | 115 | 11,395 | 150 | 18,254 | 171 | 23,161 | 206 | 28,568 |
| OMAN | 98 | 14,444 | 54 | 7,986 | 109 | 16,555 | 124 | 18,972 | 126 | 21,676 |
| U.S.A. | 185 | 28,085 | 1,237 | 141,173 | 205 | 23,601 | 258 | 35,246 | 128 | 20,429 |
| BAHRAIN | 94 | 13,091 | 55 | 7,975 | 72 | 11,669 | 140 | 19,731 | 94 | 15,912 |
| SAUDI ARABIA | 41 | 3,988 | 83 | 8,237 | 89 | 8,607 | 113 | 13,061 | 104 | 15,715 |
| EGYPT | 0 | 0 | 0 | 0 | 0 | 0 | 205 | 28,329 | 95 | 14,142 |
| QATAR | 10 | 1,383 | 13 | 1,928 | 34 | 3,906 | 144 | 18,558 | 40 | 8,184 |
| MAURITIUS | 0 | 0 | 21 | 2,899 | 28 | 4,283 | 20 | 3,127 | 29 | 4,608 |
| SEYCHELLES | 17 | 2,172 | 40 | 4,821 | 53 | 5,586 | 55 | 7,501 | 46 | 4,467 |
| NEWZEALAND | 0 | 0 | 0 | 11 | 17 | 2,494 | 18 | 2,821 | 26 | 3,700 |
| THAILAND | 41 | 4,648 | 40 | 3,561 | 11 | 1,553 | 17 | 2,661 | 18 | 3,156 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3,075 |
| LIBYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 2,969 |
| HONG KONG | 18 | 2,173 | 21 | 2,316 | 33 | 5,325 | 59 | 8,051 | 19 | 2,924 |
| UNSPECIFIED | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,620 |
| PHILIPPINES | 34 | 5,406 | 47 | 6,396 | 25 | 6,160 | 35 | 5,501 | 9 | 1,608 |
| MALAYSIA | 12 | 609 | 18 | 2,392 | 43 | 3,832 | 86 | 11,864 | 9 | 1,552 |
| NIGERIA | 0 | 0 | 1 | 70 | 7 | 685 | 4 | 525 | 19 | 1,399 |
| CANADA | 2 | 161 | 26 | 2,669 | 38 | 3,715 | 19 | 2,337 | 5 | 935 |
| CHINA | 0 | 0 | 0 | 40 | 2 | 333 | 8 | 1,160 | 5 | 901 |
| NEPAL | 11 | 1,036 | 1 | 54 | 4 | 619 | 4 | 514 | 2 | 848 |
| U.K. | 4 | 395 | 0 | 42 | 0 | 21 | 2 | 186 | 5 | 695 |
| GREECE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 311 | 3 | 598 |
| SRI LANKA | 1 | 124 | 13 | 626 | 380 | 20,324 | 5 | 377 | 3 | 464 |
| BRUNEI | 0 | 0 | 0 | 13 | 1 | 72 | 3 | 296 | 2 | 436 |
| JAPAN | 7 | 1,018 | 2 | 234 | 6 | 1,073 | 12 | 1,843 | 2 | 401 |
| MALDIVES | 1 | 61 | 1 | 160 | 1 | 130 | 1 | 203 | 3 | 333 |
| INDONESIA | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 290 |
| GAMBIA | 1 | 53 | 0 | 34 | 1 | 125 | 1 | 234 | 1 | 212 |
| ISRAEL | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 372 | 1 | 165 |
| SLOVENIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 156 |
| TANZANIA | 0 | 57 | 1 | 143 | 1 | 56 | 1 | 173 | 2 | 154 |
| RUSSIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 0 | 125 |
| BOTSWANA | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 294 | 1 | 117 |
| TRINIDAD AND TO | 0 | 0 | 16 | 2,569 | 33 | 5,488 | 30 | 4,850 | 1 | 115 |
| BELGIUM | 0 | 0 | 0 | 0 | 1 | 73 | 0 | 0 | 1 | 112 |
| KOREA REPUBLIC | 1 | 74 | 4 | 259 | 1 | 107 | 1 | 121 | 0 | 85 |
| NETHERLAND ANTI | 0 | 0 | 0 | 0 | 0 | 59 | 0 | 0 | 0 | 69 |
| BENIN | 0 | 0 | 0 | 27 | 2 | 247 | 2 | 227 | 1 | 67 |
| LIBERIA | 0 | 0 | 0 | 35 | 0 | 57 | 1 | 80 | 0 | 67 |
| SUDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| CONGO P REP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| ALGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 24 |
| CYPRUS | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 19 |

(Table 10.21 – Exports of melted butter (ghee) continued on next page)



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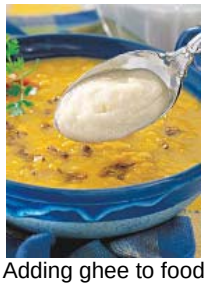
**Table 10.21 – Exports of melted butter (ghee) HS Code 04059020 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| SOUTH AFRICA | 0 | 13 | 6 | 522 | 0 | 89 | 3 | 516 | 0 | 16 |
| GHANA | 1 | 98 | 0 | 14 | 0 | 25 | 0 | 68 | 0 | 5 |
| CHILE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| NAMIBIA | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| BHUTAN | 0 | 0 | 18 | 2,535 | 68 | 6,291 | 40 | 4,712 | 0 | 0 |
| SYRIAN ARAB REP | 0 | 49 | 0 | 0 | 0 | 0 | 16 | 2,611 | 0 | 0 |
| MOZAMBIQUE | 0 | 5 | 0 | 0 | 0 | 0 | 2 | 125 | 0 | 0 |
| FRANCE | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 67 | 0 | 0 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 0 | 0 |
| REUNION | 1 | 71 | 0 | 0 | 0 | 8 | 1 | 43 | 0 | 0 |
| GUYANA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 43 | 0 | 0 |
| NETHERLANDS | 0 | 12 | 1 | 80 | 0 | 0 | 0 | 37 | 0 | 0 |
| MACAO | 0 | 0 | 1 | 175 | 2 | 295 | 0 | 29 | 0 | 0 |
| GERMANY | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 26 | 0 | 0 |
| CAMEROON | 0 | 0 | 1 | 71 | 0 | 0 | 0 | 24 | 0 | 0 |
| COTE D' IVOIRE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 |
| PERU | 0 | 53 | 0 | 13 | 0 | 19 | 0 | 18 | 0 | 0 |
| VIETNAM | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 6 | 0 | 0 |
| IRELAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| TOGO | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 0 |
| CAMBODIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| MALAWI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| NORWAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| SIERRA LEONE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| REPU | 0 | 0 | 105 | 11,727 | 0 | 0 | 0 | 2 | 0 | 0 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| ITALY | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 |
| ZAMBIA | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| BANGALADESH | 0 | 0 | 4 | 962 | 0 | 7 | 0 | 0 | 0 | 0 |
| UGANDA | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| AUSTRIA | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CHINESE TAIPEI | 1 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GEORGIA | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IRAN | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALAGASAY REP | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 |
| ST. KITTS NEVIS | 0 | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| TURKEY | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1,990** | **288,651** | **3,367** | **437,564** | **3,098** | **404,786** | **3,702** | **552,673** | **2,944** | **466,265** |

Source: APEDA and DGCIS, Kolkata



Adding ghee to food



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## 10.5. Cheese HS code 0406

**Table 10.22 – Exports of fresh cheese HS Code 04061000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U.A.E. | 52 | 4,962 | 168 | 16,390 | 231 | 23,422 | 231 | 28,982 | 131 | 15,235 |
| SINGAPORE | 26 | 2,679 | 62 | 6,552 | 75 | 7,438 | 76 | 8,117 | 107 | 12,070 |
| QATAR | 0 | 0 | 16 | 1,469 | 7 | 741 | 43 | 4,228 | 65 | 7,102 |
| AUSTRALIA | 0 | 0 | 8 | 865 | 33 | 3,488 | 36 | 5,045 | 60 | 6,895 |
| NEPAL | 21 | 2,289 | 30 | 3,601 | 35 | 5,410 | 32 | 5,481 | 41 | 6,056 |
| KUWAIT | 10 | 819 | 29 | 2,804 | 22 | 2,233 | 27 | 2,989 | 40 | 4,770 |
| OMAN | 16 | 1,604 | 30 | 2,997 | 24 | 2,784 | 49 | 4,541 | 41 | 4,640 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 3,570 |
| BAHRAIN | 0 | 0 | 18 | 1,785 | 14 | 1,431 | 27 | 2,665 | 16 | 1,728 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1,375 |
| JAPAN | 0 | 0 | 0 | 0 | 11 | 1,224 | 0 | 0 | 8 | 902 |
| HONG KONG | 1 | 84 | 0 | 14 | 3 | 404 | 3 | 330 | 4 | 497 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 150 |
| NEW ZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 147 |
| U.S.A. | 1 | 55 | 0 | 85 | 0 | 39 | 1 | 146 | 0 | 30 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 30 |
| MOROCCO | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2,624 | 0 | 0 |
| ITALY | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 | 0 | 0 |
| TANZANIA | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 24 | 0 | 0 |
| Unspecified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 |
| SRI LANKA | 1 | 239 | 1 | 93 | 3 | 457 | 0 | 15 | 0 | 0 |
| CANADA | 0 | 0 | 6 | 656 | 0 | 23 | 0 | 12 | 0 | 0 |
| FRANCE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| MALAYSIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| FIJI | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| LEBANON | 2 | 295 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **129** | **13,026** | **369** | **37,329** | **459** | **49,100** | **547** | **65,278** | **540** | **65,197** |

Source: APEDA and DGCIS, Kolkata




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**Table 10.23 – Exports of processed cheese HS Code 04063000**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 633 | 124,870 |
| SYRIA | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 11,091 | 123 | 23,357 |
| U.A.E. | 21 | 1,860 | 23 | 2,938 | 54 | 7,358 | 58 | 9,120 | 89 | 16,448 |
| SAUDI ARAB | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 5,501 | 59 | 11,475 |
| BAHARAIN IS | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 3,270 | 46 | 8,887 |
| MOROCCO | 0 | 0 | 0 | 0 | 0 | 0 | 427 | 68,169 | 41 | 7,642 |
| U.S.A. | 7 | 956 | 10 | 1,417 | 24 | 3,661 | 49 | 4,280 | 51 | 4,532 |
| TUNISIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 2,975 |
| SINGAPORE | 1 | 110 | 1 | 224 | 5 | 740 | 1 | 238 | 22 | 1,865 |
| HONG KONG | 0 | 0 | 11 | 1,585 | 25 | 3,131 | 14 | 1,782 | 14 | 1,770 |
| SRI LANKA | 1 | 80 | 0 | 0 | 8 | 1,171 | 27 | 3,986 | 12 | 1,716 |
| QATAR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1,551 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 11 | 686 |
| NEW ZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 168 |
| MACAO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| CHINA P RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| ALGERIA | 0 | 0 | 0 | 0 | 0 | 0 | 185 | 69,927 | 0 | 0 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 8,655 | 0 | 0 |
| LEBANON | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 5,461 | 0 | 0 |
| AUSTRALIA | 0 | 0 | 4 | 461 | 1 | 33 | 4 | 571 | 0 | 0 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 229 | 0 | 0 |
| JAPAN | 7 | 732 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| CANADA | 0 | 0 | 0 | 0 | 1 | 154 | 0 | 0 | 0 | 0 |
| NEPAL | 0 | 0 | 16 | 302 | 6 | 122 | 0 | 0 | 0 | 0 |
| FRANCE | 7 | 1,682 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GERMANY | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALDIVES | 0 | 0 | 8 | 1,018 | 0 | 0 | 0 | 0 | 0 | 0 |
| U.K. | 7 | 252 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **51** | **5,681** | **72** | **7,945** | **123** | **16,372** | **978** | **192,284** | **1,128** | **207,964** |

Source: APEDA and DGCIS, Kolkata


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**Table 10.24 – Exports of other cheese HS Code 04069000 from 2005-06 to Apr.-Dec. 2008**

| Country | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 289 | 52,823 |
| BAHARAIN IS | | 0 | 9 | 1,443 | 115 | 19,249 | 133 | 27,420 |
| U ARAB EMTS | 3 | 460 | 12 | 1,013 | 14 | 2,462 | 46 | 10,420 |
| OMAN | 0 | 0 | 0 | 0 | 25 | 3,976 | 38 | 7,422 |
| LEBANON | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 7,157 |
| TAIWAN | 0 | 0 | 0 | 0 | 13 | 1,918 | 25 | 4,005 |
| QATAR | 5 | 970 | 8 | 973 | 9 | 1,636 | 17 | 3,671 |
| JAPAN | 9 | 1,036 | 21 | 2,102 | 16 | 1,795 | 22 | 3,037 |
| SINGAPORE | 4 | 357 | 22 | 4,075 | 9 | 1,763 | 11 | 2,631 |
| CHINA P RP | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 2,372 |
| BANGLADESH PR | 32 | 4,800 | 26 | 3,716 | 51 | 7,798 | 8 | 1,680 |
| AUSTRALIA | 10 | 1,478 | 0 | 0 | 0 | 0 | 1 | 760 |
| THAILAND | | 0 | 0 | 2 | 0 | 0 | 0 | 652 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 460 |
| NEPAL | 39 | 3,024 | 2 | 121 | 0 | 31 | 1 | 148 |
| HONG KONG | 1 | 135 | 2 | 316 | 1 | 226 | 0 | 35 |
| NEW ZEALAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| GUYANA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| MALDIVES | 2 | 191 | 4 | 441 | 3 | 362 | 0 | 10 |
| TANZANIA REP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| ITALY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| U K | | 0 | 3 | 166 | 0 | 0 | 0 | 6 |
| SAUDI ARAB | | 0 | 3 | 403 | 20 | 3,552 | 0 | 0 |
| U S A | 21 | 2,349 | 3 | 329 | 10 | 1,961 | 0 | 0 |
| PHILIPPINES | 0 | 37 | 0 | 0 | 11 | 1,645 | 0 | 0 |
| SRI LANKA DSR | 43 | 7,360 | 88 | 13,353 | 5 | 890 | 0 | 0 |
| KAZAKHSTAN | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 |
| MALAYSIA | 1 | 96 | 0 | 12 | 0 | 6 | 0 | 0 |
| GHANA | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| CANADA | 5 | 559 | 0 | 16 | 0 | 0 | 0 | 0 |
| FRANCE | 194 | 9,822 | 0 | 0 | 0 | 0 | 0 | 0 |
| GERMANY | 15 | 811 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOROCCO | 201 | 24,343 | 80 | 9,403 | 0 | 0 | 0 | 0 |
| NETHERLAND | 2 | 98 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOGO | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| UNSPECIFIED | | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| **Total** | **586** | **57,958** | **282** | **37,894** | **302** | **49,305** | **650** | **124,750** |

Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata

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## 10.6.Casein, caseinates and derivates HS code 3501

**Table 10.25 – Exports of casein, casein derivatives HS Code 350110**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U S A | 6,077 | 1,451,852 | 9,843 | 2,595,578 | 4,647 | 1,139,734 | 9,480 | 3,235,826 | 4,427 | 1,791,466 |
| GERMANY | 1,532 | 375,983 | 625 | 150,370 | 1,889 | 439,665 | 2,299 | 751,902 | 577 | 189,378 |
| PHILIPPINES | 0 | 7 | | | 322 | 91,444 | 153 | 63,483 | 357 | 177,222 |
| KOREA RP | 25 | 885 | 0 | 0 | 71 | 5,415 | 494 | 198,336 | 357 | 156,666 |
| EGYPT A RP | 50 | 5,719 | 0 | 0 | 17 | 5,265 | 39 | 13,172 | 161 | 74,302 |
| SINGAPORE | 25 | 6,457 | 0 | 0 | 0 | 0 | 11 | 3,309 | 141 | 59,622 |
| ITALY | 0 | 0 | 3 | 1,306 | 0 | 0 | 238 | 82,470 | 137 | 50,176 |
| SAUDI ARAB | 0 | 0 | 8 | 2,279 | 12 | 3,076 | 171 | 67,436 | 95 | 45,882 |
| FRANCE | 592 | 141,468 | 67 | 15,296 | 369 | 94,605 | 657 | 231,262 | 85 | 25,314 |
| TURKEY | 0 | 0 | 0 | 20 | 153 | 46,688 | 111 | 37,639 | 60 | 25,043 |
| CANADA | 24 | 4,189 | 44 | 11,906 | 125 | 33,405 | 177 | 76,631 | 53 | 23,711 |
| TUNISIA | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 46,680 | 51 | 23,640 |
| MOROCCO | 0 | 0 | 0 | 0 | 85 | 23,156 | 138 | 44,347 | 51 | 18,738 |
| JAPAN | 0 | 0 | 0 | 0 | 0 | 23 | 4 | 1,245 | 38 | 17,243 |
| ALGERIA | 0 | 0 | 0 | 0 | 17 | 5,221 | 0 | 0 | 34 | 15,959 |
| BELGIUM | 30 | 5,223 | 13 | 2,217 | 13 | 2,503 | 23 | 4,731 | 31 | 7,138 |
| POLAND | 0 | 0 | 19 | 3,674 | 154 | 38,514 | 419 | 124,754 | 22 | 7,090 |
| MALAYSIA | 0 | 0 | 4 | 1,035 | 2 | 419 | 11 | 3,468 | 18 | 6,400 |
| BRAZIL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1,939 |
| CROATIA | 30 | 5,987 | 18 | 3,517 | 2 | 471 | 0 | 0 | 5 | 1,519 |
| CONGO P REP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 724 |
| INDONESIA | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 591 |
| TAIWAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 465 |
| BANGLADESH PR | 12 | 1,692 | 20 | 2,796 | 10 | 1,380 | 20 | 3,018 | 1 | 365 |
| ISRAEL | 0 | 0 | 2 | 326 | 2 | 361 | 1 | 229 | 1 | 352 |
| NIGERIA | 1 | 226 | 0 | 0 | 2 | 487 | 2 | 641 | 1 | 200 |
| U ARAB EMTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 197 |
| KOREA DP RP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| IRELAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 13 |
| SRI LANKA DSR | 0 | 0 | 0 | 89 | 1 | 138 | 0 | 71 | 0 | 2 |
| HUNGARY | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| U.K. | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 24,853 | 0 | 0 |
| CHINA P RP | 0 | 0 | 100 | 6,289 | 0 | 0 | 24 | 10,953 | 0 | 0 |
| NETHERLAND | 34 | 8,312 | 0 | 0 | 112 | 28,851 | 32 | 10,280 | 0 | 0 |
| PORTUGAL | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3,559 | 0 | 0 |
| SPAIN | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1,181 | 0 | 0 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 823 | 0 | 0 |
| MAURITIUS | 0 | 0 | 0 | 0 | 2 | 288 | 2 | 438 | 0 | 0 |
| NEPAL | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 | 0 | 0 |
| OMAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| UGANDA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| UNSPECIFIED | 0 | 0 | 0 | 0 | 84 | 19,370 | 0 | 0 | 0 | 0 |
| SYRIA | 0 | 0 | 0 | 0 | 6 | 1,850 | 0 | 0 | 0 | 0 |
| AFGHANISTAN TIS | 0 | 0 | 1 | 228 | 0 | 0 | 0 | 0 | 0 | 0 |
| BAHARAIN IS | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 0 |
| GREECE | 10 | 1,792 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(Table 10.25 – Exports of casein, casein derivatives continued on next page)



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**Table 10.25 – Exports of casein, casein derivatives HS Code 350110 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| GUYANA | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IRAN | 3 | 609 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KENYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MYANMAR | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAKISTAN IR | 0 | 0 | 2 | 472 | 0 | 0 | 0 | 0 | 0 | 0 |
| QATAR | 4 | 382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UKRAINE | 0 | 69 | 0 | 69 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **8,447** | **2,010,875** | **10,768** | **2,797,522** | **8,096** | **1,982,329** | **14,700** | **5,042,800** | **6,716** | **2,721,408** |
| Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | | | |

**Table 10.26 – Exports of caseinates, caseinate derivatives HS Code 350190**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| SOUTH AFRICA | 3 | 45 | | | 10 | 2,159 | 20 | 4,107 | 21 | 4,747 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1,616 |
| HONG KONG | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 3,309 | 5 | 1,074 |
| CHINA P RP | 0 | 0 | 0 | 0 | 2 | 290 | 19 | 871 | 13 | 1,041 |
| SRI LANKA DSR | 0 | 0 | 0 | 0 | 2 | 214 | 10 | 1,588 | 2 | 960 |
| U ARAB EMTS | 32 | 3,405 | 2 | 188 | 0 | 0 | 6 | 878 | 5 | 880 |
| THAILAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 382 |
| U K | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 284 |
| GERMANY | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 163 |
| MOROCCO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 115 |
| BANGLADESH PR | 0 | 0 | 0 | 0 | 2 | 255 | 0 | 0 | 2 | 93 |
| TURKEY | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 139 | 1 | 47 |
| KOREA RP | 0 | 0 | 0 | 0 | 7 | 1,458 | 15 | 4,481 | 0 | 25 |
| ITALY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| U S A | 1,303 | 318,123 | 103 | 18,559 | 313 | 65,624 | 356 | 70,214 | 0 | 0 |
| TANZANIA REP | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 236 | 0 | 0 |
| BULGARIA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 228 | 0 | 0 |
| KUWAIT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 |
| SAUDI ARAB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 |
| UGANDA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 |
| VIETNAM SOC REP | | | | | | | 1 | 28 | 0 | 0 |
| NIGERIA | 0 | 0 | 5 | 971 | 5 | 972 | 0 | 25 | 0 | 0 |
| MALAYSIA | 0 | 235 | 0 | 12 | 0 | 0 | 0 | 25 | 0 | 0 |
| PHILIPPINES | 2 | 233 | 0 | 0 | 0 | 0 | 1 | 24 | 0 | 0 |
| NEPAL | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 |
| MOZAMBIQUE | 0 | 0 | 25 | 1,476 | 4 | 1,594 | 0 | 0 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 1 | 967 | 0 | 0 | 0 | 0 |
| FIJI IS | 0 | 0 | 0 | 0 | 1 | 126 | 0 | 0 | 0 | 0 |
| MALDIVES | 2 | 287 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SINGAPORE | 2 | 170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SPAIN | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 |
| TAIWAN | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1,345** | **322,708** | **135** | **21,223** | **347** | **73,659** | **506** | **86,310** | **65** | **11,428** |
| Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | | | |

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## 10.7. Lactose and lactose syrup HS code 1702

**Table 10.27 – Exports of lactose & syrup containing 99 per cent or more of lacts HS Code 170211**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 0 | 188 | 21,794 | 417 | 18,642 |
| IRAN | 0 | 0 | 0 | 0 | 0 | 0 | 811 | 31,339 | 252 | 14,633 |
| NIGERIA | 1 | 57 | 88 | 2,621 | 13 | 465 | 35 | 1,148 | 113 | 7,630 |
| GHANA | 0 | 0 | 12 | 461 | 2 | 95 | 150 | 8,874 | 112 | 5,433 |
| TANZANIA REP | 0 | 0 | 1 | 21 | 21 | 626 | 0 | 0 | 280 | 5,167 |
| TOGO | 0 | 0 | 0 | 0 | 1 | 31 | 82 | 3,296 | 134 | 5,095 |
| U S A | 2 | 109 | 0 | 0 | 2 | 113 | 63 | 4,513 | 52 | 4,034 |
| MYANMAR | 0 | 0 | 0 | 0 | 0 | 0 | 318 | 11,502 | 50 | 3,961 |
| UGANDA | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 148 | 63 | 3,313 |
| BENIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 2,441 |
| ARGENTINA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 1,915 |
| BRAZIL | 0 | 0 | 0 | 0 | 29 | 2,346 | 0 | 0 | 23 | 1,687 |
| MALAYSIA | 29 | 491 | 29 | 375 | 20 | 776 | 6 | 140 | 46 | 1,299 |
| SINGAPORE | 23 | 255 | 66 | 814 | 22 | 449 | 331 | 9,706 | 31 | 976 |
| SUDAN | 0 | 0 | 0 | 0 | 5 | 177 | 1 | 17 | 13 | 811 |
| NEPAL | 44 | 518 | 61 | 1,223 | 71 | 1,985 | 85 | 3,673 | 31 | 711 |
| ISRAEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 502 |
| HONG KONG | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 527 | 6 | 479 |
| JORDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 324 |
| COLOMBIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 300 |
| YEMEN REPUBLIC | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 3,390 | 5 | 293 |
| OMAN | 0 | 0 | 5 | 100 | 0 | 0 | 0 | 0 | 10 | 270 |
| KENYA | 0 | 0 | 1 | 43 | 10 | 272 | 0 | 0 | 3 | 256 |
| CANADA | 2 | 62 | 0 | 46 | 19 | 579 | 13 | 457 | 5 | 185 |
| U K | 0 | 0 | 1 | 11 | 6 | 209 | 12 | 330 | 6 | 178 |
| SIERRA LEONE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 140 |
| AUSTRALIA | 0 | 0 | 1 | 26 | 1 | 42 | 14 | 353 | 5 | 126 |
| MALDIVES | 4 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 105 |
| CHILE | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 586 | 1 | 96 |
| UZBEKISTAN | 36 | 1,124 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 83 |
| TUNISIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 47 |
| SAUDI ARAB | 22 | 170 | 18 | 243 | 2 | 41 | 0 | 0 | 2 | 44 |
| KUWAIT | 0 | 0 | 0 | 0 | 11 | 426 | 0 | 0 | 1 | 39 |
| SRI LANKA DSR | 6 | 243 | 5 | 75 | 0 | 0 | 3 | 34 | 2 | 35 |
| CONGO P REP | 0 | 0 | 8 | 232 | 0 | 0 | 4 | 53 | 1 | 20 |
| FIJI IS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| SWITZERLAND | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 29 | 0 | 1 |
| CHINA P RP | 0 | 0 | 0 | 0 | 34 | 2,821 | 346 | 36,122 | 0 | 0 |
| EGYPT A RP | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 3,729 | 0 | 0 |
| FINLAND | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2,757 | 0 | 0 |
| GERMANY | 0 | 0 | 7 | 315 | 19 | 1,500 | 19 | 2,281 | 0 | 0 |
| THAILAND | 0 | 0 | 0 | 0 | | | 31 | 1,486 | 0 | 0 |
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 1,420 | 0 | 0 |
| PHILIPPINES | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 778 | 0 | 0 |
| BHUTAN | 943 | 11,842 | 0 | 0 | 0 | 0 | 48 | 656 | 0 | 0 |
| SYRIA | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 616 | 0 | 0 |

(Table 10.27 – Exports of lactose & syrup containing 99 per cent or more of lacts continued on next page)

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**Table 10.27 – Exports of lactose & syrup containing 99 per cent or more of lacts HS Code 170211 (Continued)**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| LEBANON | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 345 | 0 | 0 |
| BELGIUM | 0 | 12 | 0 | 0 | 2 | 29 | 6 | 87 | 0 | 0 |
| U ARAB EMTS | 0 | 0 | 16 | 463 | 23 | 857 | 1 | 42 | 0 | 0 |
| CAMBODIA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 | 0 | 0 |
| VIETNAM SOC REP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| PAKISTAN IR | 0 | 0 | 0 | 0 | 6 | 1,027 | 0 | 0 | 0 | 0 |
| SOMALIA | 0 | 0 | 0 | 0 | 13 | 277 | 0 | 0 | 0 | 0 |
| BURUNDI | 0 | 0 | 19 | 501 | 10 | 223 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 0 | 0 | 0 | 5 | 104 | 0 | 0 | 0 | 0 |
| FRANCE | 3 | 206 | 1 | 15 | 2 | 63 | 0 | 0 | 0 | 0 |
| MOZAMBIQUE | 0 | 0 | 0 | 0 | 1 | 32 | 0 | 0 | 0 | 0 |
| CHAD | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| BULGARIA | 2 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COTE D' IVOIRE | 0 | 0 | 3 | 62 | 0 | 0 | 0 | 0 | 0 | 0 |
| DENMARK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GUYANA | 0 | 0 | 2 | 132 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH AFRICA | 1 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1,117** | **15,342** | **343** | **7,779** | **350** | **15,580** | **2,986** | **152,266** | **1,856** | **81,280** |
| Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | | | |



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**Table 10.28 – Exports of lactose & syrup containing < 99 per cent of lacts HS Code 170219**

| Country | 2004-05 | | 2005-06 | | 2006-07 | | 2007-2008 | | April 08 - Dec. 08 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | Value | QTY | Value | QTY | Value | QTY | Value | QTY | VALUE |
| | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 | Tons | Rs. '000 |
| U ARAB EMTS | 0 | 0 | 23 | 1,480 | 42 | 2,860 | 136 | 9,159 | 76 | 4,848 |
| NIGERIA | 0 | 0 | 0 | 0 | 20 | 2,884 | 1 | 16 | 42 | 3,155 |
| OMAN | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 22 | 1,000 |
| KUWAIT | 0 | 0 | 0 | 0 | 3 | 131 | 10 | 639 | 9 | 640 |
| QATAR | 0 | 0 | 0 | 0 | 5 | 322 | 18 | 1,118 | 15 | 563 |
| BAHARAIN IS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 539 |
| SUDAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 325 |
| U K | 9 | 66 | 1 | 12 | 22 | 206 | 5 | 57 | 17 | 305 |
| SRI LANKA DSR | 2 | 48 | 0 | 0 | 8 | 371 | 5 | 227 | 20 | 214 |
| UGANDA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 5 | 163 |
| CAMBODIA | 0 | 0 | 0 | 0 | 1 | 53 | 0 | 0 | 4 | 83 |
| AUSTRALIA | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 135 | 1 | 51 |
| SIERRA LEONE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 34 |
| MALDIVES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| SWITZERLAND | 1 | 8 | 0 | 0 | 2 | 17 | 0 | 0 | 0 | 5 |
| GUYANA | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 356 | 0 | 0 |
| SAUDI ARAB | 0 | 0 | 6 | 100 | 0 | 0 | 15 | 196 | 0 | 0 |
| CANADA | 2 | 13 | 4 | 97 | 14 | 279 | 6 | 178 | 0 | 0 |
| CHAD | 0 | 0 | 0 | 0 | 2 | 47 | 8 | 145 | 0 | 0 |
| SINGAPORE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 88 | 0 | 0 |
| NEPAL | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 44 | 0 | 0 |
| MALAYSIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 |
| CONGO P REP | 0 | 0 | 3 | 49 | 0 | 0 | 0 | 15 | 0 | 0 |
| NORWAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| COTE D' IVOIRE | 0 | 0 | 0 | 0 | 2 | 66 | 0 | 0 | 0 | 0 |
| TANZANIA REP | 0 | 0 | 1 | 24 | 0 | 23 | 0 | 0 | 0 | 0 |
| KOREA RP | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| ALGERIA | 0 | 0 | 50 | 1,441 | 0 | 0 | 0 | 0 | 0 | 0 |
| BANGLADESH PR | 0 | 0 | 10 | 168 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAURITIUS | 0 | 0 | 1 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| NEW ZEALAND | 0 | 0 | 10 | 90 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOMALIA | 0 | 0 | 3,219 | 45,044 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH AFRICA | 6 | 278 | 8 | 278 | 0 | 0 | 0 | 0 | 0 | 0 |
| U S A | 10 | 427 | 4 | 71 | 0 | 0 | 0 | 0 | 0 | 0 |
| YEMEN REPUB | 1 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **31** | **885** | **3,340** | **48,868** | **121** | **7,280** | **223** | **12,461** | **233** | **11,932** |
| Source: Ministry of Commerce, Govt. of India and DGCIS, Kolkata | | | | | | | | | | |


Amul probiotic ice cream

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# 11. Future of Indian dairy exports

Indian dairy scenario for the next four years can be summed up by the following key facts:

- Population to grow by about 1.3 per cent per annum, with increasing urbanization
- Economy to grow by about 6 per cent per annum
- Cattle herd size to reduce by about 2 per cent per annum
- Adult female cattle herd size to reduce by about 1 per cent per annum
- Buffalo (and female buffalo) herd size to increase by about 1.5 per cent per annum
- Bovine population to reduce by about 0.67 per cent per annum
- Milk production to increase by about 3 per cent per annum
- Per capita milk availability to increase by only about 1.5 per cent per annum

From the above scenario it is clear that India will face pressures on her milk demand-supply equation. Demand is projected to rise at a rate which is more than double of the rate of increase in supply. This will either force government to restrict exports or prices will rise to the level that exports will not be competitive.

We have seen in chapter 9 that average export realizations have risen in the past years for almost all major dairy products. This could be due to rising prices in domestic market and also due to increasing quality acceptance of Indian dairy products in global markets.

Increasing domestic prices forced government to impose a ban on export of milk powders from February to October 2007. Though the ban was lifted, the sentiment in government is against dairy exports, as can be seen from April 2008 withdrawal of export benefits to dairy exports. Strengthening of Rupee is also putting pressure on Indian exporters.

Overall, we are of the opinion that the medium and long term outlook for dairy exports from India is negative. We project that in the next few years, **India will turn a net importer of dairy products.** Present high level of milk purchase price (paid by dairy cooperatives to farmers) combined with low international prices of dairy products and devaluation of New Zealand Dollar are creating the climate for dairy imports into India.

India may, however, continue to export some products where Indian origin or quality is preferred by consumers. For example, ghee may be exported from India due to the preference of consumers for distinct aroma of ghee as compared to butter oil from Australia or New Zealand or Europe. Similarly, Indian cheese may be preferred by strict vegetarian consumers since Indian cheese is made without use of rennet.

India may also be able to export some dairy products based on buffalo milk since India is the largest producer of buffalo milk. There exists an untapped potential in goat milk. Exotic products may be made from organic goat milk and exported to markets across the globe. However, such exports from India will be miniscule and will not be any match to the current level of exports of milk powders, casein, lactose etc.

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# 12. WTO influence

The talk of support provided by developed countries to their dairy sector dominates any discussion between India and developed countries in WTO. The high levels of market price support along with export subsidies have consistently come in for criticism from India and other developing countries. Developing countries also argue that markets of developed countries remain impregnable due to high tariffs, and sanitary and phyto-sanitary (SPS) norms.

In June 2007, during a period of sustained high prices, the EU had set export subsidies for all dairy products at zero for the first time, aiming to make EU dairy exports less attractive for producers and thereby ensure adequate domestic supply. In mid-January 2009, the EU announced that export subsidies would be reinstated for butter, cheese and skimmed milk powder (SMP) via a series of regular tenders and trade bids. To help the European dairy sector, EU countries have been asked to approve extra volumes for butter and SMP above the existing maximum amounts that could be bought into public intervention stores via regular tenders.

The move by EU is in clear violation of the spirit of EU's negotiating position for the Doha round of world trade talks. The European Union -- the main user of farm handouts and the top payer of export aids -- had pledged to eliminate export subsidies provided that others did the same. With the January 2009 announcement, it appears that WTO commitments of reducing agricultural subsidies are taking a backseat.

Even during June 2007 to January 2009, the level of domestic support had continued to be very high. Inputs such as feed-grains, irrigation, interest on loan, insurance continued to receive subsidies but were either not reported or under-notified. As per calculations by the India Dairy Association in March 2007, EU was giving subsidy of more than USD 550 per ton on SMP, USD 850 per ton on Full Cream Milk Powder, USD 1,200 per ton on butter and butter oil.

As a result, Indian dairy sector will continue to find it difficult to compete with subsidized exports in international market.

The inability of Indian dairy producers to be able to compete with EU / US is and will be a matter of concern for India as long as the country is looking to export its dairy products.

As mentioned earlier, increasing population, migration to cities and high rate of economic growth is increasing demand for milk in India. Supply is also growing albeit at much lower rate. This inequality in demand-supply growth rates will force India to resort to significant imports of dairy products.

The shift from encouraging exports to boosting imports can already be seen in government policy. Government of India has through various initiatives indicated its discouragement of dairy exports. With increasing dependence on imports to bridge the gap between demand and supply, India will be looking for cheap SMP and butter oil. It will then be natural for India to welcome the subsidies that developed countries provide to dairy farmers.

Indian dairy infrastructure was built in 70's and 80's using the free SMP and butter oil received as aid from developed countries. Milk surpluses generated by subsidies in EU / USA enabled those countries to extend aid of dairy products to India. As India enters her next phase of growth, she may not need aid but may still gain from subsidies provided by EU / USA to their dairy farmers.

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# 13. Global companies in India

Indian dairy sector was built by cooperatives in 70's, 80's and 90's with assistance from Government of India acting through National Dairy Development Board. Organized private players got green signal to enter the dairy sector only after 1992.

When liberalization of dairy sector was announced in 1992, cooperative sector greeted it with loud protests. However, 16 years later, cooperatives have not withered away. During the past one and a half decades, while a few multinational companies have entered Indian dairy sector and a few who were present earlier have strengthened their presence, they have failed to be a threat to the cooperative sector, especially to the larger cooperatives like Gujarat Cooperative Milk Marketing Federation (GCMMF, better known by its brand AMUL).

We discuss below about some major international players, who are either present in Indian dairy industry or are mulling entry.

## 13.1. Nestle

Nestle is the oldest multinational present in Indian dairy segment. Nestle's plant in Punjab was set up in 1961. After liberalization, the company has significantly strengthened its presence in the sector.

Nestle has tied up with Andhra Pradesh based Heritage Foods India Ltd in the South, Bengal Nester in the East and Dynamix Dairy Industries Ltd in the West not only for sourcing milk but also processing, packaging and supplying in the areas concerned. It has already built Moga in Punjab into a procurement haven, from where the company sources the bulk of its milk requirement, about 1 million litres per day.

Nestle's focus is on liquid milk and its variants as well as yoghurt. The firm's portfolio already consists of products like milk in cartons and slim milk in the liquid milk category, while its yoghurt segment consists of Fresh 'n Natural *Dahi* (curd), Slim *Dahi* (curd), *Jeera Raita* (cumin flavored curd) and fruit-flavored yoghurts. The company is not looking at products like cheese, butter, ice creams etc. due to high competition in these segments.

In July 2008 Nestle launched NesVita (pro-heart milk) in tetrapack under its probiotic range of products.

Milk Products and Nutrition segment of the company reported a growth rate of 17.8 per cent in net sales at Rs. 6 billion during the first quarter of 2009.

## 13.2. Fonterra Cooperative Group / Britannia

Fonterra Cooperative Group of New Zealand was present in India through its joint venture with Britannia Industries Ltd. (a well-known biscuit manufacturer of India). The joint venture company known as Britannia New Zealand Foods Pvt. Ltd was established in March 2002 and operated with the brand name "Britannia MilkMan".

In April 2009, Britannia Industries signed an agreement with Fonterra Brands (Mauritius Holding) Ltd, Mauritius, for acquiring the latter's 49 per cent equity and preference shareholding in Britannia New Zealand Foods Pvt. Ltd, their dairy joint venture. The agreement is subject to Reserve Bank of India approval. With this Britannia New Zealand Foods Ltd. has become a

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wholly owned subsidiary of Britannia Industries Ltd.

Britannia entered the dairy business in 1997 with two products - Processed Cheese and Dairy Whitener. Over a period of time Butter, Ghee (Clarified Butter) and Flavored Milk were added into the portfolio. In the last two years the company had got into fresh, pasteurized milk. It also markets Fresh *Paneer* & Fresh *Lassi* in and around Delhi.

Britannia New Zealand Foods Pvt. Ltd. tried to sell liquid milk in and around Delhi. Losses in the business forced the company to close liquid milk sales. Presently, the company gets almost half its sales from cheese. Butter and ghee also contribute significantly to sales.

The company is making efforts to bring to market high value added products to improve its profitability.

## 13.3. Groupe Danone

French dairy giant Groupe Danone has a joint venture with Japanese company Yakult. Yakult-Danone Pvt. Ltd. has launched probiotic fermented milk drink. The company has set up a probiotic milk plant in Haryana with a production capacity of 1,140,000 bottles per day.


In addition to probiotic milk, Danone has expressed its desire to enter dairy industry in India. In the past, its plans had run into some deep trouble. Danone was a partner with Wadia family in Britannia Industries Ltd. Under Indian laws, Danone needed a no-objection from Wadia family to foray into dairy business in India. In April 2009, Wadias and Danone parted ways amicably. This has cleared the major roadblock that Danone was facing in its India plans. More news from the company about its dairy plans is awaited.

## 13.4. New Zealand Naturals


New Zealand Naturals, one of the world's premier ice cream and dairy products company, had announced the launch of a range of ice creams, which the company claimed had only vegetarian content. The company was importing ice creams from New Zealand. In the past one



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year, there has been no news from the company. It seems that the company's plans have not materialized as per their expectations.

## 13.5. Wal-Mart

Wal-Mart which is partnering Bharti Retail is the newest entrant in the dairy procurement and retail business in India.

Wal-Mart has been buying milk directly from cooperatives rather than from farmers. The company had been reportedly targeting supply and procurement of 1.5 million litres milk daily in Punjab, while eyeing similar targets in Uttar Pradesh and Bihar. At the time of writing this, the company's plans seem to be going slower than expected.

## 13.6. Unilever


Hindustan Unilever Ltd., Indian arm of Unilever, is present in dairy segment in India through ice creams. In 2006, the company garnered Rs. 1.37 bio in ice cream sales, which is a shade more than a tenth of the Rs. 12 bio market. The company has been losing market share to competitors like Amul, Mother Dairy and regional players.

## 13.7. Schreiber Foods

In May 2004, US-based Schreiber Foods Inc acquired a 51 per cent stake in Dynamix Dairy Industries Limited, a Pune-based food contract manufacturing firm for a total consideration of Rs 1.7 billion. Dynamix has a state-of-the-art milk processing-cum-product manufacturing plant at Baramati, Pune with a capacity of 1.2 million Litres per day.

The company does not market liquid milk. The company's primary business is manufacturing and exporting products like cheese, butter, ghee, SMP/WMP, casein, lactose, whey products, and UHT milk. The company has been facing a difficult time since the last quarter of 2008 due to global economic downturn and resultant fall in international milk prices. In November 2008, the company reduced its milk procurement from 1.1 million liters per day to about 0.4 million liters per day.

**In addition to the above, Coca Cola and Pepsi have been toying with the idea of introducing milk-based beverages.**

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# 14. New products

There are two distinct trends for new product development in dairy segment in India. On one hand, companies are trying to introduce functional products on health platform. This includes probiotics and sugar-free products. On the other hand, companies are vying with one another to introduce products that are in line with local flavors and tastes. A short discussion on the two categories of new products is as follows:

## 14.1. Functional products

In April 2008, Mother Dairy launched Nutrifit, a fermented probiotic milk. The company's manufacturing facility in Uttar Pradesh can produce up to 5 million bottles (of 100 ml) a day. The company had earlier launched b-Activ probiotic curd and *lassi*.

Yakult-Danone Pvt. Ltd. had launched probiotic fermented milk drink in December 2007.

Amul and Nestle have also launched their probiotic products. Amul has been fairly successful with their range of probiotic ice creams, which are also sugar-free. Amul's probiotic curd has helped it increase its sale in the curd category by 35 per cent.

Sugar-free and low sugar ice creams and milk-sweets seem to be the new trend in Indian dairy industry. Aavin, a Tamil Nadu-based cooperative sector milk and dairy products marketer, has also launched a low-sugar variant of ice creams. The ice cream claims to be 'without added sugar'. The variant is said to have just 80 calories and has 16 mg of sweetener against 8,000 mg of sugar in conventional ice creams.

In addition to the efforts of dairy giants, many small players including in the unorganized sector have launched sugar-free products. It is now possible to get sugar-free sweets and ice creams in many high profile sweet and ice cream shops in cities of India.

In addition to reducing sugar content, dairy companies are working on introducing fortified products. Amul has launched Amul Calci Plus – a high calcium liquid milk. Britannia New Zealand Foods has launched high calcium malt-based drink. Hindustan Unilever introduced Moo ice cream under the health and wellness umbrella. Each stick of Moo has calcium equivalent to one glass of milk. Nestle has introduced a new Omega 3 enriched milk product that will help manage cholesterol under the NesVita brand, the tetrapacked Pro-Heart milk.

Simultaneously, there is a growing preference for natural flavors and ingredients. Amul has shifted to natural vanilla for its ice creams.

Many small ice cream manufacturers are introducing fruit and natural flavor based ice creams.

## 14.2. Local traditional tastes

Dairy manufacturers in cooperative as well as private sector have used latest technology to manufacture some items that were traditional to various regions of India. Some of the traditional dairy products, that are currently being manufactured industrially are – *shrikhand, rasogolla, gulab jamun, paneer, chhach, lassi*, and *mishti do*i.

Flavored milk is gaining in popularity in India with flavors that are typical of India. For example, Amul has introduced a *thandai* flavor.

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Nestle sells a *jeera raita,* which is curd mixed with water and some cumin powder, salt and other spices. This is a typically Indian product.


Lassi is like a milk shake made from yogurt instead of milk

Dairy cooperatives and companies in India have been regularly experimenting with spices and flavors that match the traditional ones to introduce new products and gain a competitive edge.

In addition to launching of traditional milk products by organized dairies, there is a trend of developing western milk products in Indian flavors. For example, Britannia has launched new variants of flavored cheese. The cubes will be available in three flavors *Masala* Mania, *Mirchi* Poppers and Cream 'n Onion. Amul has a cheese spread in garlic and pepper flavors. Almost all ice cream manufacturers in India have some flavors that are typically Indian.

Gulab Jamun – Balls made of khoa / mawa are fried and dipped in sugar syrup

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# 15. Summary of projections

A quick summary of projections for the period to year 2012-13 is as follows:

- Population to grow by about 1.3 per cent per annum, with increasing urbanization
- Economy to grow by about 6 per cent per annum, with agricultural growth in the range of 2-3 per cent per annum
- Cattle herd size to reduce by about 2 per cent per annum
- Adult female cattle herd size to reduce by about 1 per cent per annum, while the percentage of high-yielding crossbred cows will increase
- Buffalo (and female buffalo) herd size to increase by about 1.5 per cent per annum
- Bovine population to reduce by about 0.67 per cent per annum
- Goat population will grow at about 0.15 per cent per annum
- Fodder shortage will be an hindrance to growth
- Milk production to increase by about 3 per cent per annum
- Ghee consumption to rise by about 9 per cent per annum
- Table butter consumption to grow at about 10 per cent per annum
- *Paneer* (cottage cheese) market to grow at about 10 per cent per annum
- Processed cheese market will grow at about 14 per cent per annum
- Dairy whiteners and condensed milk market will grow at about 8 per cent per annum
- Per capita milk availability to increase by only about 1.5 per cent per annum
- Per capita milk consumption for rural and urban areas will grow only marginally. However, increasing migration to cities will boost overall per capita milk consumption
- India will face shortage of milk and dairy products
- India will turn net importer of dairy products
- India shall continue to export dairy products where Indian products enjoy an advantage / consumer preference e.g. ghee and cheese.
- Bulk exports of products like milk powders, casein and lactose will either stop completely or reduce significantly. In case of lactose, quantity of imports is currently about 4 times the quantity of exports.
- Domestically, dairy companies will concentrate on introducing products on health platform using new functional ingredients such as probiotics, sugar substitutes and calcium additives.
- Traditional Indian tastes and flavors will continue to be a key area for new product development.

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# Annexure A – Definitions & Abbreviations

| Term | Meaning or Explanation |
|---|---|
| Bio | Billion |
| Mio | Million |
| GDP | Gross Domestic Product |
| WPI | Wholesale Price Index, which is a measure of wholesale price movement for the economy. The concept of wholesale price adopted for calculation of WPI represents the quoted price of bulk transaction generally at primary stage. |
| MMPO | Milk and Milk Products Order, 1992 |
| MSNF | Milk Solids Not Fat |
| SNF | Solids Not Fat |
| SMP | Skimmed Milk Powder |
| APEDA | Agricultural and Processed Food Products Export Development Authority (India) |
| DAHD | Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Govt. of India |
| DGCIS | Directorate General of Commercial Intelligence & Statistics |
| FICCI | Federation of Indian Chambers of Commerce and industry |
| IGFRI | Indian Grassland and Fodder Research Institute |
| NDDB | National Dairy Development Board |
| NSS / NSSO | National Sample Survey Organisation |
| RBI | Reserve Bank of India |
| USDA | United States Department of Agriculture |
| Ghee | Ghee is clarified butter. Cream and butter are boiled long enough to remove all traces of water to get ghee. Butter oil and ghee are similar, except that ghee has a distinct aroma. |
| *Lassi* | *Lassi* (often thick) is curd churned and cooled with ice. *Lassi* is popular in north India and can be sweet as well as salted. |
| *Chhach* | *Chhach* or butter milk is also curd churned. It is always thin and salted. Spices like cumin powder and mint are often added to *chhach*. |
| *Paneer* | *Paneer* is a semi hard unripened cheese mainly obtained by acid coagulation. It has a soft and thin rind. Its body is homogeneous without eyeholes and it has a mild and fresh taste. Its colour is white when it is made mainly from buffalo milk and yellowish in other cases. |
| *Chhana* | *Chhanna* consists of acid coagulated milk solids used for the preparation of many milk based sweets. It differs from *paneer* in that no pressure is applied to remove the whey. |
| *Rasogolla* | *Rasogolla* is the most common *chhanna*-based sweet. It is prepared using fresh and soft-*chhanna*. It is in the form of balls 30 mm in diameter with a typical spongy body and smooth texture. It is stored and served in sugar syrup |
| *Khoa* | *Khoa* is obtained from cow, buffalo or mixed milk by thermal evaporation of milk in an open pan. |
| UHT | Ultra-high Temperature Treated |

Financial Year in India is from 1 April to 31 March. So, year 2006-07 refers to the period from 1 April 2006 to 31 March 2007

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# Annexure B – Sources of Information


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