



Review of the Dairy Industry in Mauritius

Final Report

June 2004

Prepared by

Imani Development Consultants

Prepared for:

**RATES Center
P.O. Box 1325-00606
Nairobi, Kenya
rates@ratescenter.org**

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iii
1.0 BACKGROUND	1
2.0 STRUCTURE OF THE DAIRY SECTOR	4
2.1 Overview	4
2.2 Production	5
2.2.1 Overview.....	5
2.2.2 Dairy Farming	5
<i>Table 1: Cattle population from Livestock Censuses, 1921 – 1983 *</i>	6
<i>Table 2: Number of Cow breeders in each district.....</i>	6
2.2.3 Milk Production and Reproductive Performance	7
2.2.4 Government incentives in support of dairy farming	7
2.2.5 Animal Feed Industry	9
<i>Table 3: Sales of Cattle Feed (tons).....</i>	10
2.2.6 Animal Genetics.....	10
2.2.7 Research and Extension.....	11
2.3 Dairy Processing Industry	11
2.3.1 Processing plants	11
2.3.2 Source of raw materials for the processing	13
2.3.3 Summary of discussion with dairy producers	14
2.4 Production constraints.....	14
2.5 Future strategies for local milk production.....	15
3.0 VALUE CHAIN ANALYSIS.....	16
<i>Table 4: Cost of Production of Pasteurised Milk (Rs.)</i>	17
<i>Table 5: Yearly Milk Collection for the period 1999-2002</i>	18
3.2 Constraints of the milk marketing scheme	18
4.0 SUPPLY AND DEMAND SITUATION AND TRADE FLOW ANALYSIS.....	19
4.1 Production Vs Estimated consumption of milk and milk products	19
4.1.1 Annual production.....	19
4.1.2 Consumption level and patterns.....	19
<i>Table 6: Per capita consumption of food commodities, 1999 - 2002</i>	20
4.1.3 The Gap between Production and Consumption of Dairy Products	21
4.2 Trade Flow Analysis	21
4.2.1 exports.....	21
<i>Table 7: Volume and Value (US\$) of Exports of Dairy products in Mauritius, 1998-2002,</i> 22	22
4.2.2 Imports.....	23
<i>Table 8: Volume and Value (US\$) of Imports of Dairy products in Mauritius, 1998-2002,</i> 24	24
<i>Table 9: Imports of Major Dairy Products Commodities (Tons)*.....</i>	25
<i>Table 10: Main Dairy Food Imported and Countries from which they are imported</i>	28
4.3 Dairy Distribution and Marketing	28
4.3.1 Happy World Foods Ltd.	28
4.3.2 Ireland Blyth Consumer Goods Ltd.	28
4.3.3 Nestle	29
4.3.4 Marketing Strategies	29
5.0 TRADE POLICIES AND REGULATIONS	30
5.1 Import and export regulations.....	30
5.1.1 Import Permits	30
5.1.2 Pre-market Approval Permit.....	30
5.1.3 Price Controls	31
<i>Table 11: Average Price of Imported and Local Dairy Products</i>	31
<i>Table 12: Average Comparative Prices of Imported Dry Milk Powder, Pasteurised Milk</i> <i>and Fresh Raw Milk.....</i>	32

5.2	Customs Requirements.....	32
5.3	Import Tariffs and other non tariff charges on dairy products.....	32
	<i>Table 13: Import Duty Products and Animal Genetics</i>	33
5.4	Quality Standards.....	33
5.4.1	Quality specifications and enforcement procedures and practices.....	33
5.4.2	Infrastructure for quality and healthy safety testing.....	42
5.5	Sanitary Requirements.....	43
5.5.1	Sanitary specifications and enforcement procedures.....	43
5.5.2	Institutional arrangement for enforcement of Sanitary requirements.....	44
5.5	Regulatory requirements.....	45
5.6.1	Labelling.....	45
5.6.2	Pre-Packaging.....	45
5.7	Summary of concerns raised on the policy and regulatory framework.....	45
6.0	ISSUES FOR NATIONAL RATIONALISATION	47
7.0	ISSUES FOR REGIONAL RATIONALISATION	48
<u>ANNEX 1:</u>	<u>BIBLIOGRAPHY</u>	<u>49</u>
<u>ANNEX 2:</u>	<u>LIST OF ENTERPRISES IN THE DAIRY SECTOR</u>	<u>51</u>
<u>ANNEX 3:</u>	<u>MAIN MILK PRODUCTS BRAND PRICES, MARCH 2004</u>	<u>52</u>
<u>ANNEX 4:</u>	<u>APPLICATION FORM FOR PRE-MARKET APPROVAL OF CONTAINER, CONTACT MATERIAL, FOOD AND PREPACKED FOOD INTENDED FOR HUMAN CONSUMPTION</u>	<u>54</u>
<u>ANNEX 5:</u>	<u>REGULATION'S FOR PRE-MARKET APPROVAL PERMIT (EXTRACT)</u>	<u>55</u>
<u>ANNEX 6:</u>	<u>FOOD COMPOSITION AND LABELLING (Extract)</u>	<u>57</u>
<u>ANNEX 7:</u>	<u>MILK AND MILK PRODUCT STANDARDS IN MAURITIUS ACCORDING TO THE FOOD ACT 1998</u>	<u>61</u>

EXECUTIVE SUMMARY

Mauritius has one of the strongest economies in Africa, with a per capita GDP close to US\$3,900. Economic performance has been impressive for the past 15 years. Annual economic growth ranged between 5% and 6% over this period. It relies on exports of sugar and textiles, tourism, offshore business, and financial services for its foreign exchange earnings.

Mauritius is classified as a net food importing country according to WTO criteria. The country imports 99% of her total dairy products' requirements. Indeed, between 1995 and 2002, the food import bill rose from Rs 4 billion, for a volume of 315,000 tons, to Rs 11.1 billion (571,000 tons), representing an increase of 78 and 81 per cent respectively. In the year 2002, imports of dairy product in Mauritius were estimated at Rs 1.3 billion or US\$32 million.

The local dairy sector has declined considerably and is a very small sector with only about 5000 dairy cows, producing about 4 million litres of milk, which represent only 5% of the total requirements. Hence, Mauritius does not have the resources and capacity to produce milk efficiently. About 1 million litres of the milk produced (through reconstitution from powder milk) is marketed as pasteurised milk by the Agricultural Marketing Board.

The trade policies of Mauritius are geared towards securing the import requirements of its population and the protection of the consumer. In this line, along with other products, import dairy markets have been liberalised and there are no customs tariffs on most dairy products except a few like yoghurt.

The consumption of most dairy products has considerably increased over the past 5 years from 12,800 tons in 1995 to 22,000 tons in the year 2002. This trend is expected to continue with the rising incomes of the local population and the expanding tourist industry. There is now a growing market for UHT milk despite the fact that milk powder is widely preferred by the population. Australia and New Zealand are the main suppliers of dairy products to Mauritius and Australia holds over 60% of the market share for this category of food. Other countries such as South Africa, United Kingdom and France are also non-negligible suppliers of dairy products to Mauritius. There are various renowned dairy products brands in most supermarkets and retail shops. Private companies mainly do distribution of imported dairy products.

Though Mauritius is not a milk producing country, it has two main dairy products manufacturers producing mainly yoghurt, ice cream, sterilised milk and flavoured milk, using imported raw materials.

Government has recently updated its food laws to be in line with international standards and to safeguard imports for consumers who are now more quality conscious. The milk and milk standards have been substantially revised so as to facilitate trade and protect the consumers. The main regulatory body for enforcement of the milk standards is the Ministry of Health. Though the food laws are present, there is some harmonisation to be done so as to render it effective.

In conclusion, Mauritius is considered to be a small player in dairy products manufacture and consumption of dairy products based mainly on imported products, which represent a

significant amount of the food import bill. The dairy sector is well regulated and there is practically no trade and no tariffs barriers to import milk products provided they satisfy the prescribed standards and regulations. This could thus represent a potential market for the countries in the region. As Mauritius is a partner to a number of regional economic blocks in the Africa regions, this could serve as a major stepping stone to develop of trade partnerships in milk products.

1.0 BACKGROUND

One of the key objectives of the trade integration program which Mauritius has been pursuing under the aegis of COMESA, SADC and IOC, and at Multilateral level under the WTO and ACP/EU arrangements, is to provide market export or import opportunities. Evidence has shown that while implementation of the trade integration programs has been at top gear, with the launch of the COMESA FTA in 2000 and imminent Launch of the Customs Union in 2004, this is not a panacea to increased trade. Beyond the macro provisions of the regional integration programs, there are pertinent provisions at commodity level, which are crucial to enhancing commodity trade. This poses as a challenge that requires urgent attention, at least for commodities deemed to have a potential to be traded regionally. One such commodity is a dairy product.

Regional Agricultural Trade Expansion Support (RATES) Program, in collaboration with Eastern and Central Africa Programme for Agricultural Policy Analysis (ECAPAPA)¹ Program COMESA, SADC and EAC is carrying out baseline studies addressing issues relevant to regional and extra-regional trade in dairy products. Malawi is among 8 countries which have been sampled for the study on account of its meeting the criteria of being a principal importing country, with potential for exporting in the regional market. Other countries, which are being covered by the study, include: Ethiopia, Kenya, Tanzania, Rwanda, Uganda, Zambia and Mauritius. The thrust of the studies will be identification of national and regional policies and regulatory requirements in the dairy sector that may be impeding intra and extra regional exports of dairy products as well as inventorise dairy sector players in the region. The analysis is expected to provide in a concise manner issues that will need to be discussed by national public and private fora for the purpose of increasing efficiency and effectiveness within countries and also for increasing trade of dairy products across national boundaries.

The overall goal of the study is to facilitate harmonisation of regional and national dairy sector policies and regulations in the region and to identify the dairy sector network of traders and stakeholders whom RATES can work with in promoting regional trade in the dairy produce. The specific objectives of the study are to: -

1. Briefly describe the structure of the dairy sector in terms of the size of the dairy farming industry and production of raw milk, types of processed dairy products and installed capacities of the processing industries, source of primary raw material for the processing industries (distinguishing between regional and extra regional sources), production in volume and value of the processed products for the period 1997-2003, number of processing historical trends of dairy production and development;
2. Review and document current marketing structure and develop a Value Chain (showing linkage of national and intra/extra-regional markets) for the dairy sub-sector, highlighting volume and prices along the chain. Create an inventory of processors, distributors and producers of dairy products, showing the following details: types of dairy products they are handling, their capacity for each of the products, their markets, and their contact details (physical address and telephone etc.)

¹ ECAPAPA is a program of the Association for Strengthening Agricultural Research in Eastern and Central Africa

3. Review and quantify formal imports and exports of dairy products by type (as defined in the tariff book), sources and destinations for the period 1998-2003.
4. Review and quantify formal imports and exports of animal genetics (Bovine Semen and Live Bovine-Pure bred breeding animals) sources and destinations for the period 1997-2003.
5. Through interviews with exporters/importers of dairy products, animal genetics and livestock feeds, determine constraints faced in accessing regional market. Categorise these constraints into two i.e. (i) policy and regulatory provisions in destination or source country (ii) other forms of constraints (specify them showing linkage to regional trade in dairy produce).
6. Review and document the evolution of dairy sector policies, with particular emphasis on trade (exports and imports);
7. Document and analyse (showing underlying rationale) of the current dairy sector trade policy and regulatory environment, covering production, collection, processing and marketing (domestic trade and export and imports of dairy products). This to include all legislations touching on traded dairy products and the effectiveness of their implementation or enforcement, licensing requirements and procedures;
8. Identify key stakeholders and key players² and their respective roles within the policy and regulatory environment;
9. Review and document grades and standards for traded dairy products, including sanitary³ standards and critically examine how the enforcement procedures may be impeding or facilitating trade in dairy products;
10. Review and document a) how the standards are derived, whether based on international standards or local/regional analyses, and b) whether they are performance or process (e.g., HACCP) based;
11. Identify specific policies, procedures, regulations, rules, standards and grades for national rationalisation;
12. Identify specific policies, procedures, regulations, rules, standards and grades for regional harmonisation;
13. Organise a National Consultative Meeting, where findings of the study will be discussed.

The product coverage was confined to dairy products and animal genetics. To accomplish these objectives, the following approach was applied: -

Desk Study

Desk study of recent reports in the dairy sector was conducted. Secondary data on production, consumption, exports and imports was collected from the Central Statistics Office, a Division of the Ministry of Finance and Economic Development.

Consultations with government institutions

Consultations were held with the following government institutions to determine the current dairy trade policies and regulations, and the future and prospects of dairy farming in

² Identify stakeholders key players in production, marketing, regulation (market, health), standards setting, export trade etc

³ Animal and human/public health

Mauritius: Ministry of Agriculture, Food Technology and Natural Resources, Ministry of Finance and Economic Development and the Ministry of Commerce and Co-operatives.

Consultations with Dairy Processors and Importers

Key informants in the dairy processing industries were interviewed to generate information regarding their capacity of production and types of processed dairy products. Their quality and safety management systems were also discussed.

Fieldwork

Meetings were held with key informants in the following organizations:

Livestock Extension Service of the AREU is to determine the current dairy production in the smallholder dairy production systems; Milk Section of the Agricultural Marketing Board.

2.0 STRUCTURE OF THE DAIRY SECTOR

2.1 Overview

The Republic of Mauritius is a small island in the Indian Ocean, some 800 km off the east coast of the Malagasy Republic. It is located in the Indian Ocean at a longitude of about 57° East and latitude of 20° South. The total area is roughly 1850 km² or 185,000 hectares and it supports a multi-ethnic population of 1.2 million (2000) and around 650,000 tourists visiting the island every year, mostly from Europe.

The climate is predominantly sub tropical. The summer lasts from November to April and winter from May to October. The annual average rainfall is about 2000 mm and varies considerably in different parts of the island depending upon its exposure to the southeast trade winds. The island is prone to cyclones of varying intensity during November to March with the highest frequency in January and February.

Agriculture occupies 46% of the total land (86,500 hectares). Sugarcane is the most important crop and 76,500 hectares are being under sugarcane cultivation (CSO, 2002). The share of the agriculture sector in the Gross Domestic Product has declined from around 12% in 1990 to some 6% in 2002. Sugarcane remains, however, an important foreign exchange earner (21% of total domestic exports in 1999). The other agricultural sub sectors are food crops, livestock and poultry, fisheries, fruits, flowers, tea and tobacco. Mauritius's dairy industry is very small compared to other livestock industries and hence its contribution to GDP is regarded as negligible.

Mauritius has one of the strongest economies in Africa, with a GDP per capita income close to US\$3,900. Economic performance has been impressive for the past 15 years. Annual economic growth ranged between 5% and 6% over this period. It is reliant on exports of sugar and textiles, tourism, offshore business, and financial services for its foreign exchange earnings.

Mauritius is classified as a net food importing country according to WTO criteria. The main imports include cereal, cereal based products, dairy products, fish products, fruits, canned vegetables, meat products and other food products. Food security is thus ensured through both local production and imports. Indeed, between 1995 and 2002, the food import bill rose from Rs 4 billion, for a volume of 315,000 tons, to Rs 11.1 billion (571,000 tons), representing an increase of 78 and 81 per cent respectively.

However, in spite of all the efforts undertaken to boost the local agribusiness sector the overall results, except for a few success stories where self-sufficiency has been attained (fresh vegetables, poultry and eggs), have been well below expectations as evidenced by the growing dependence of Mauritius on imported foodstuffs and raw materials to supply the local market and agro-industries.

The gap between domestic production and consumption of food of animal origin has dramatically increased for all animal based food products over the past decade, except for poultry meat and eggs. Demand for milk and milk products has increased from 12800t (dry equivalent) in 1995 to around 22,000 t in the year 2000.

2.2 Production

2.2.1 Overview

Over the past three decades Mauritius was producing fresh milk for its local consumption. At that time cow keeping was a major social and commercial activity mainly in rural and also in some urban areas. It was a major source of income for many dairy producers. The milkman was delivering fresh milk daily to many places, urban and regional. However with time this sector has faded slowly with the decrease of cattle population and cattle breeders. Over the years, local milk production has gone down and today the country is producing only 5% of its requirement. In addition to the constraints related to milk production, the increased price competitiveness of imported milk powder resulted in the availability of cheaper products compared to the locally produced ones.

The liberalization of dairy products and removal of customs tariffs on almost all dairy products caused an additional upsurge in the importation of these products. Australia and New Zealand are the main supplier of dairy products to Mauritius and Australia holds over 60% of the market share for this category of food. Other countries such as South Africa, United Kingdom and France are also significant suppliers of dairy products to Mauritius.

2.2.2 Dairy Farming

3 distinct groups, the smallholders, the large farm holders and the Government own the dairy cattle.

Small Scale Dairy Production Systems

The smallholders' milk producers comprise of individual family units who are primarily made up of small cane growers and landless labourers. They are locally known as cow keepers and are generally scattered all over the island. They are engaged in dairy production on a part-time basis. Most of the small cattle breeders are carrying this activity as a secondary one to supplement their monthly income. They have others sources of revenue from other activities or income from their children who are working in other sectors of the economy. Some breeders are just rearing animals because of a traditional customs and are not much interested in increasing production.

They generally own one to two cows that are housed in locally made shelters, in the backyard of the owner's premises. The level of inputs and management vary greatly among the farmers and they are generally low. It is estimated that 60-65% of the cattle population are owned by the small cow keepers and produce approximately 90% of the fresh milk in the island.

On the other hand, a few progressive farmers (75) have emerged whom own not more than 10 animals. They have adopted modern techniques of cattle rising with a view to optimise milk production.

*Table 1: Cattle population from Livestock Censuses, 1921 – 1983 **

Census Year	1921	1930	1940	1943	1950	1956	1964	1973	1978	1983
Number of Cattle	44,339	25,925	24,269	34,443	37,213	40,074	45,683	41,094	21,098	25,485

Source: CSO, 2003

* No formal census has been undertaken since 1983

Table 2: Number of Cow breeders in each district

District	Total No of cattle Breeders		Total No of cows		Total No of Head*	
	Sept 1999	Sept 2003	Sept 1999	Sept 2003	Sept 1999	Sept 2003
Black River/Port Louis	318	213	510	294	1709	1503
Savanne	97	189	114	189	358	403
Grand Port	218	224	218	309	493	800
Flacq	615	640	516	545	1350	1398
Riviere du Rempart	276	254	344	307	803	835
Pamplemousses	570	319	371	349	1176	1174
Moka	438	169	821	217	950	578
Plaines Wilhems	305	171	410	299	1002	829
Total	2840	2072	3304	2499	7841	6963

Source: AREU, Livestock Extension Unit

* Includes cows, heifers, calves and bulls

Large Scale Production

In the past the large-scale dairy sector was associated with the Sugar Estates who set up large dairy units for commercial milk production. However, all those production units have been closed down due to a multitude of constraints such as very high cost of production, low profitability and lack of fodder during certain periods of the year. The only private dairy that has been operating for the last 20 years closed down in 2001 due to financial difficulty. That farm known as Societe Malherbes, was located at Mon Loisir, Riviere du Rempart in the North of the Island. The company had a herd of 200 milking cows, reared on marginal lands planted with pasture and on farm manufactured feeds and was mechanically milked twice a day. The enterprise had refrigeration facilities and the milk was sold in sealed plastic sachets.

Government Dairy Farms

In the past there were three Government dairy farms that would keep around 200 head of cattle. The main objective of these stations was to produce quality stock for sale to smallholder dairy farmers. In view of the current situation and the declining interest within the sector, the Ministry of Agriculture has taken certain measures to review the general set up and organisation within the livestock sector with a view to streamlining its activities and focusing only on the main requirements. Along this line, in view of the fact that demand for breeding stock of animals has largely decreased, there is only one farm, Palmar Livestock Breeding Station that is now fully operational. This is a polyvalent livestock production unit and covers 246.38 arpent (1 arpent = 1.5 acres) of which buildings /paddocks represent a

surface area of 50 arpent while the remaining consists of fodder. As at 31 December 2000 there was a herd of 808 dairy cattle out of which there were 367 cows.

The other livestock station, Richelieu Livestock Breeding Station (RLPU), has been converted into a quarantine station. At the end of year 2000, RLPU carried a total of 401 heads of cattle consisting of 236 cows. The total milk yield for the year 2000 was 372,963 litres. Milk production on the station was sold to the public and to a local dairy processor.

2.2.3 Milk Production and Reproductive Performance

Mauritius has developed relevant feed technology based on sugarcane by-products for dairy cattle. Considerable research and development funded by the United Nations Development Programme (UNDP) throughout the mid 1970's and 1980's has been done on the optimum utilisation of sugarcane by-products and tropical forage as feeds.

The Creole cow has a milk production potential of around 2100 litres per 300-day lactation period. In the case of Friesian and Friesian-cross cows with good nutrition, production exceeds 3500 litres per lactation. Research has clearly demonstrated that dairy cows which are supplemented with dairy concentrate /protein concentrate yield more milk (Boodhoo et al. 1988) than the un-supplemented ones.

Recent research funded by the IAEA (1993-2000) has revealed that the cow reproductive performance is not efficient so as to sustain optimum milk production. Research data has clearly shown that the interval between calving and resumption of ovarian activity, conception rates and calving interval of the cows are not within the optimum range for maximum production (Boodhoo et al 1997, 1998, Toolsee and Saraye, 2002).

2.2.4 Government incentives in support of dairy farming

Since the 1980's, the Government has implemented various policies with a view to promote development of the dairy cattle sector. The objectives of such policies were mainly to increase the self-sufficiency ratio in milk production, to reduce dependency on imports, to promote the development of the local agro-processing industries, to increase the income of the producers.

Since 1983, the Government has provided a wide range of incentives to boost the sector productivity. Many of these incentives involved direct subsidies in terms of inputs (feeds, drugs and direct cash) whilst subsidies on product have not been introduced. The Milk Marketing scheme whilst guaranteeing a price to the producer does not give a subsidy to the producer. The Milk productivity Bonus Scheme is more productivity rather than input oriented.

The range of incentives that were in operation in the dairy sector and more specifically in the smallholder sector is described below:

a) Subsidies on Cattle Feed

This subsidy was intended to improve the quantity and quality of their milk and to reduce their cost of production. The subsidy on cow feed produced by the Government Livestock Feed Factory was Rs 1500/ton. A similar subsidy was given

on imported cotton seed cake. A sum of about 9 million rupees is budgeted under this item.

b) Subsidised Sale of breeding animals

The Government has imported from time to time pregnant heifers, dairy cows and heifers to be sold to interested breeders at low prices so as to encourage them to increase their herd size and improve the genetics of the local dairy cattle.

c) Artificial Insemination Service and Free drugs Scheme

The veterinary services operate a free drug scheme and provide AI services for a nominal fee (Rs 2.60)

d) Milk marketing guaranteed price system

This scheme was introduced to provide a guaranteed price for milk in order to protect the breeders from being exploited by the middleman. A subsidy of Rs 3.50 per litre of pasteurised milk sold was paid to AMB by the government to ensure that the price of pasteurised milk remains competitive.

e) Cash Incentive Scheme

The scheme was set up to encourage breeders to keep more animals. The breeder receives Rs1000 at the birth of a first calf, and Rs 500 for subsequent births of additional calves.

A cash grant of Rs 500 for fattening bulls was also given to breeders when the bulls reach two years of age.

f) Milk Productivity Bonus Scheme

This scheme is aimed at encouraging breeders to improve productivity of their cows by cutting down calving intervals. The cow keepers are rewarded in cash for shorter calving intervals of their cows. A maximum bonus of Rs 800 and a minimum of 200 were paid for calving intervals of 390 days to 450 days respectively.

g) Compensation to Cow keepers

The objective was to help breeders whose animals die due to accidents- poisoning, cyclone etc or need to be replaced on health/fertility reasons (calving difficulties, uterine prolapse and bloat). In case of such happenings, the breeders receive a discount of 80% for the purchase of an equivalent animal.

h) Setting up of the Maison des Eleveurs

Under the Franco-Mauritian joint commission (1983) a project entitled “ Maison des Eleveurs was implemented in 2 regions with the following objectives:

- *Provide green fodder and ensiled cane tops to cow keepers at their premises free of cost or at subsidised rates.*
- *Sell urea/molasses mixture to the cow keepers*
- *Sell cattle feed concentrates and provide veterinary and extension services.*
- *Form two co-operatives involving the cow keepers at the two chosen regions.*
- *Provide a regular market and guaranteed price for the milk.*

i) Setting up of Fodder Sites

Two fodder sites were created on marginal lands in the super humid zones at Mon Bois and Nouvelle Decouverte to cultivate improved pasture and to supply fodder at a nominal price to the cow keepers.

j) Lease of State Lands

Dairy production now faces serious environmental constraints. It is now under constant pressure from health and environmental authorities to respect the prescribed environmental norms. An attempt to regroup the dairy producers in specific livestock zones by leasing state lands to minimise environmental problems and increase their herd size has not produced the expected results in the way it was conceptualised. One of the most serious obstacles is the reluctance of small producers to move away from their premises. At present, only one such association is operational.

k) Credit Schemes

Government has provided several competitive schemes to provide credit facilities to the livestock enterprises. For example, prospective entrepreneurs starting livestock projects or modernising and improving their existing units are eligible to several fiscal concessions.

Impact of incentives

In spite of continuous support through an array of subsidies and incentives to boost the dairy sector, the expected development in the sector in terms of investments and productivity, have often fell short of targets. The number of cattle farmers and cattle heads has been steadily decreasing over the years. The local cattle population in the smallholder sector has declined considerably from the peak of 45,683 in 1964 to 25,000 head in 1983 and to around 5000 in 2003 and it is expected that this trend will continue. The overall production of fresh milk has consequently decreased from 10 million litres in 1995 to four million litres of fresh milk in 2002.

However, in an effort to rationalize those various incentives, in 1999, the Government has removed all subsidies except the feed subsidy and maintained a few incentives like the Milk Marketing Scheme, Free Drugs Scheme. However, to encourage those who want to continue and expand in this field and motivate the progressive farmers, a low interest loan from the Development Bank of Mauritius, has been launched. Accordingly, the role of Government in this sector has changed from direct participation to creating an enabling environment in which farmers and private investors could grow and develop the dairy industry.

2.2.5 Animal Feed Industry

There are three main feed mills in Mauritius. The Government owned Livestock Feed Factory presently produces around 6300 ton of animal feed per year of which 60% are cattle feed. The feed factory through its sales centres located across the country markets the feed thus produced. The annual sales volume of cattle feeds is given in table. However, the sales of cow feed is 85% of the total sales shown below:

Table 3: Sales of Cattle Feed (tons)

Year	1998	1999	2000	2001	2002	2003
Tons	3554	3982	4178	4157	3964	3825

The other two private feed factories also produce cattle feed concentrates. However, these factories use most of the installed capacities for manufacturing pig and poultry feeds.

Most of the raw materials for the manufacture of animal feeds are imported. For the manufacture of the dairy concentrate- locally known as cow feed- by-products of the sugar industry (molasses, bagasse) and flour mill (wheat bran) are used while the other ingredients maize, cotton seed cake and minerals are imported. Mauritius imports its entire annual requirement of maize, which stands at 60,000 tonnes, out of which about 30%, comes from the region.

The main problems encountered by the feed millers are the rising costs of the ingredients and its availability.

The total annual production of one of the feed mill is estimated to be of the order of 100,000 tonnes of which poultry feeds account for about 75%. Of the total production about 5% represent cattle feeds. The Major Feed mills are listed below. These feed millers do not benefit from the feed subsidy and this renders their products uneconomical for most small farmers.

Livestock Feed Ltd Meaders	Mr Rocky Forget	Claude Delaitre Rd, Les Guibies	286 1112	286 1114
Livestock Feed Factory	Mr Bhunnoo	Agricultural Services		

i) Fodder Resources

There are very few planted pastures in Mauritius. Nearly all dairy cattle are therefore kept under a zero grazing system. In the sugar cane harvest season (June to November) cattle are fed sugar cane tops, during the rest of the year they are mainly fed with grasses harvested from the roadsides and wasteland or forest lands. There are fodder shortages during the month April-June particularly when rainfall is below average.

ii) Silage Making

Although silage from sugarcane tops production techniques are well known, silage is rarely used. Various attempts by the livestock technical services have been made to promote its usage but the rate of adoption is very low.

2.2.6 Animal Genetics

The predominant indigenous cattle breed in Mauritius was the Creole, which is a large framed dual-purpose animal. Introduction of both Friesian cattle and semen has increased the numbers of both Friesians purebred and Friesians/Creole crossbreds, which together with the Creole now provide the basis for all milk production in Mauritius. The Creole cow is well

adapted and generally of better body condition than the Friesians under similar feeding and management conditions.

In Mauritius there is no defined policy for genetic improvement of the dairy herd. However, the Artificial Insemination service uses improved Creole and Friesian semen or imported frozen semen to service the dairy cows in the villages.

The Government in its effort to enhance milk production through genetic improvement and to meet the demand from breeders for productive animals have imported animals from various countries such South Africa, Australia and Zimbabwe.

2.2.7 Research and Extension

The former research and extension component of the Agricultural services of the Ministry of Agriculture and Natural Resources has been reorganised into a parastatal body called The Agricultural Research and Extension Unit (AREU) of the Food and Agricultural Research Council to allow for a more professional and efficient approach to meet farming community needs and the policy of the government stated objectives. AREU is now responsible for research and extension and development in the agricultural sector. The Livestock Research Division is responsible for research and development in animal health, reproduction and nutrition of large and small ruminants and monogastrics.

The Livestock Extension Division provides direct support to livestock breeders. Technical brochures on each livestock species are produced to help farmers to adopt new and improved management practices to enable them to increase production. In addition audio-visual programmes on radio and farmers meetings are carried to vulgarise good husbandry management practices. These are provided free of charge.

There are now strong linkages between two sections. This new structure allows for a more effective dissemination of research results and technology.

2.3 Dairy Processing Industry

2.3.1 Processing plants

There are three dairy processing plants that produce a variety of dairy products such as yoghurts, fermented milk, flavoured milk and cottage cheese and ice cream. The other dairy plant produces only pasteurised milk for AMB.

Name of Dairy Company	Installed Capacity (Litres)/year	Utilized Capacity (Litres)/year	Location	Products
Maurilait	10 million		Phoenix	Stirred, set and drinking Yoghurt Flavoured Milk Ice Cream Sterilised Milk
Laiterie de Curepipe	4 million		Forest side	Yoghurt Flavoured Milk Cottage Cheese Pasteurised Milk
Best Dairy	2 million		Quatre Bornes	
Happy World Foods	300-500 000		Phoenix	Ice Cream and Yoghurt

NOTE:

PLEASE GIVE LEVEL OF CAPACITY UTILIZATION IN EACH COUNTRY

The two firms, in particular Maurilait and the Laiterie de Curepipe, hold respectively approximately 70 % and 30% of the local market. They are the two leading dairy producers on the local market and their main features are as follows:

- ✓ *Reputed for producing quality products*
- ✓ *Have Pool of qualified and experienced personnel*
- ✓ *Make use of latest technology*
- ✓ *Operate under international franchise*
- ✓ *Adopted quality standards though it is not mandatory*
- ✓ *Engage in product development*

a) Maurilait

Maurilait was set up in 1976. Their main products are sterilised milk, yoghurt, ice cream and lollies and cream. It has developed close partnerships and international branding with Yoplait, Candia and Miko. It has created brands name like Perette (flavoured milk) and Dahi (Drink type yoghurt). Yoghurt production represents 50% of its total production followed by sterilised milk (40%) and ice cream and cream (10%). Most of its products are manufactured for the local market and the hotels.

Maurilait has adopted a quality management system compliant with ISO 9001: 2000, ISO 14001 and HACCP standards. It has a well-equipped analytical laboratory so as to ensure throughout control of all processing operations.

In line with its market leadership position, Maurilait Production Ltée promotes wider health consciousness through various means including sponsorships of sports activities and the organisation of seminars on food and nutritional issues.

The installed capacity of the dairy processing plant is 10 million litres of milk per year and is presently being used at 95% of its capacity. Most of its raw materials are imported and it uses only about 1% of the total local milk production. Milk from the AMB is not bought for it does not satisfy their quality requirements. However, they prefer to purchase milk from the Government Dairy stations as it is of a better quality than the smallholder milk.

b) Laiterie de Curepipe

Laiterie de Curepipe was first established in 1972. Their main products are yoghurt, flavoured milk and cottage cheese. It has developed close partnerships and international branding with Mamie Nova. It has created brands name like Purlait (flavoured milk) and Juta (Drink type yoghurt). Yoghurt production represents 50% of its total dairy production followed by flavoured milk (40%) and cream (10%). Most of its products are manufactured for the local market. The company is ISO certified and has developed its GMPs and it will shortly be HACCP certified.

The installed capacity of the dairy processing plant is 4 million litres of milk per year and is presently being used at 95% of its capacity. Most of its raw materials are imported and it does not use local milk production for processing, as it does not satisfy their quality requirements. The packing materials are imported from Kenya

c) Best Dairy

This is an old company, which has an installed capacity of about 1.5 million litres of milk per year. Its main product is pasteurised milk. Their main supplier is the AMB. Their capacity has remained at this level and it is unlikely that the company will increase its installed capacity given the current milk production on the island.

d) Happy World Foods

Happy World Foods has an ice cream factory, which manufactures Nestlé products under the brand name Dairymaid. Full cream milk being the main input is imported from Australia. Other inputs for the manufacture of ice cream are imported from India. The company's annual turnover is estimated at Rs 75 million.

Happy World has also recently tied up with a South African brand name and invested in a yoghurt manufacturing company for the local market and it will be operational in April 2004. Milk for this factory is expected to come from Australia whereas the other raw material is expected to come from South Africa.

2.3.2 Source of raw materials for the processing

All the dairy companies import their raw materials as powdered milk because the local milk production cannot meet their demand in terms of quantity and quality. The local milk price is also not competitive with the imported milk powder.

Despite Mauritius being a member of several regional trade blocs, little effort has been made by the local dairy processors to explore alternative sources for their raw materials in the region main dairy producing countries like Uganda and Kenya. As most of the dairy producers use milk powder for processing and these countries may not be able to supply, as

they are not milk powder producers. The other major handicap is the high transportation costs involved in moving the materials out of these countries, which are land locked. However, most of them agreed that there could be opportunities to be tapped from the region and there is a need to explore them.

2.3.3 Summary of discussion with dairy producers

Market Considerations

- ✓ *Remoteness of overseas markets and suppliers of raw materials*
- ✓ *Smallness of domestic market, though there is an expanding tourism sector*
- ✓ *Products considered to be expensive by a certain category of consumers*
- ✓ *High costs of freights for development of trade*
- ✓ *Heavy Reliance on overseas markets for raw materials*
- ✓ *Importation of raw milk is not feasible (milk is a highly perishable product)*
- ✓ *Preference of powdered milk for manufacturing dairy products*
- ✓ *Preference to import milk from sources known for their safe and quality products (e.g. Australia)*

Other Issues Discussed

- ✓ *Competition from imported dairy products like Yoghurt, Ice cream*
- ✓ *Low quality of locally produced milk*
- ✓ *Rising costs of inputs thereby increasing cost of production*
- ✓ *No consultation prior to drafting of the Food Act*
- ✓ *No transitory period for gradual implementation of Food Act*
- ✓ *Relocation of manufacturing activities to neighbouring countries such as Madagascar where milk can be produced at a cheaper rate*

2.4 Production constraints

Unfortunately, the industrialization of the country, the increase in tourism and the recent boom of service providers has prompted a rapid economic and social development in Mauritius which has had deep consequences on the livestock, particularly the dairy cattle, goat and sheep sector. From the discussion with various stakeholders and published and unpublished internal reports, the decline in the cattle population has been attributed to the following factors:

- ✓ *Increasing cost of production*
- ✓ *Ageing of cow breeders*
- ✓ *Non availability of adequate family labour*
- ✓ *Better job opportunities offered to the younger and educated generation in other sectors of the economy*
- ✓ *Decrease in the quality of milk*
- ✓ *Poor genetic potential of the herd*
- ✓ *Poor competitiveness with the quality and price of imported milk powder and milk products*
- ✓ *Limited land availability for cultivating pastures*
- ✓ *Seasonal scarcity of fodder and grass*

- ✓ *Diminished sources of fodder (Reduction in marginal lands which constituted free sources of fodder to the cow keepers, chemical weed control in sugar cane fields, and burning of sugarcane fields prior to harvest*
- ✓ *Insufficient and inefficient marketing facilities scheme*
- ✓ *Stricter Environmental regulations*
- ✓ *Poor Veterinary Backup Services*
- ✓ *Inefficient Artificial Insemination service*

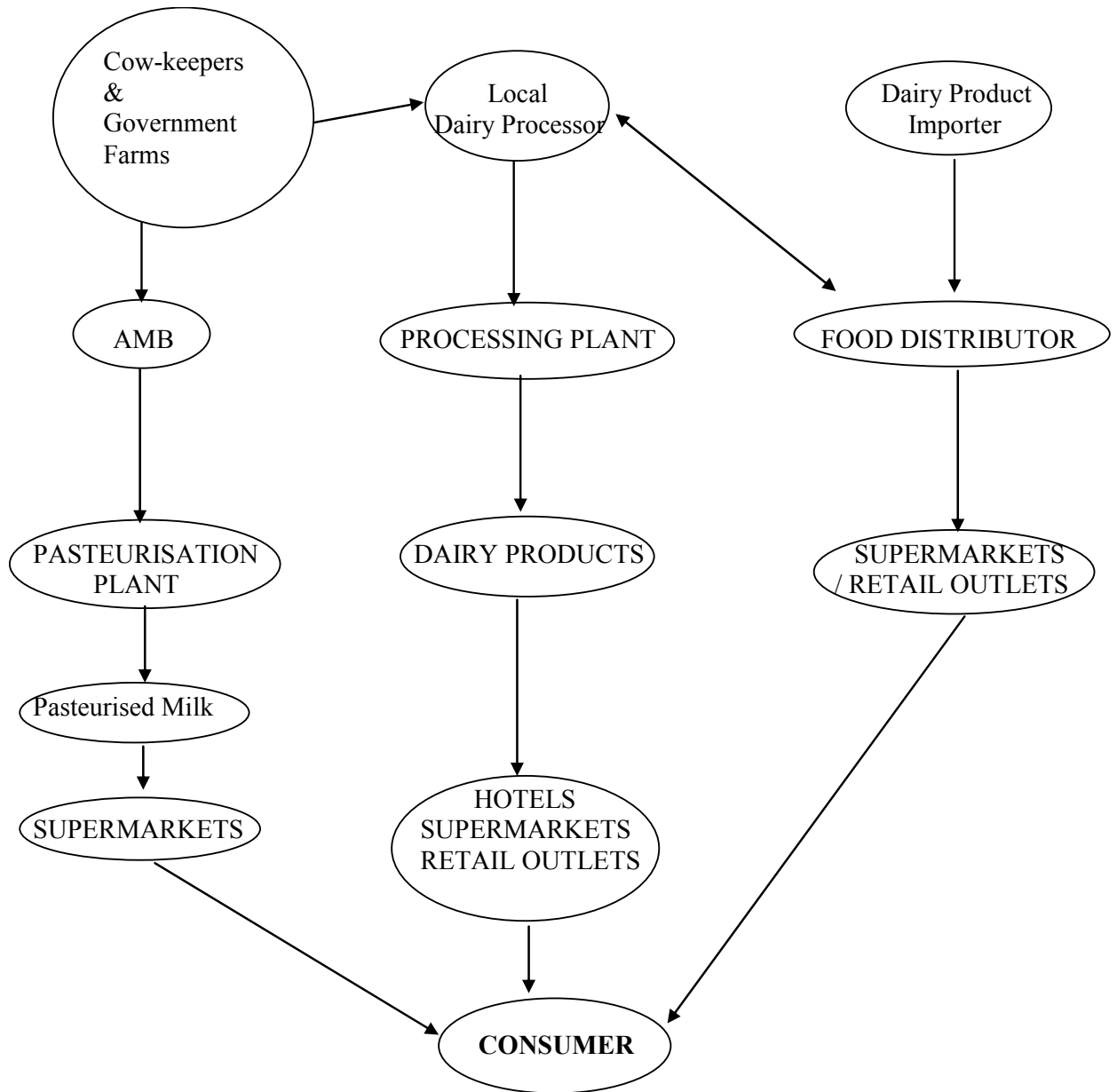
2.5 Future strategies for local milk production

The number of breeding cattle as at September 2003 is only about 4000 in the small holder sector and this is largely insufficient to support a viable dairy industry. After considerations of the constraints and the present socio-economic factors it is clear that Mauritius does not have any comparative advantage to take up a full-fledged dairy development programme. It is, however, believed that any plan put forward should favour the emergence of relatively medium sized enterprises, which would be more feasible than the traditional cow keeping.

However, in view of the high costs of importation of milk products (Rs 1 billion in the year 2001) and for food security reasons, the Government propose to set up a modern dairy plant so as to boost the local dairy production. The main proposals as detailed in the non-sugar strategic plan (2003) are reproduced hereunder.

- (i) *Extend and maintain the facility currently provided to small cow keepers with regard to the marketing of their milk, in the context of the review and re-dynamisation of the sale of milk by the AMB;*
- (ii) *Review the pricing mechanism currently applied by the Ministry of Agriculture for sale of milk;*
- (iii) *Review loan schemes presently provided by the Development Bank of Mauritius to encourage new entrants in the sub sector; and,*
- (iv) *Work out a collaborative work programme between the AMB and the proposed Dairy Plant, once it becomes operational, with a view to promoting value-addition to locally produced milk.*

3.0 VALUE CHAIN ANALYSIS



3.1 Local milk marketing structure

In 1985 the Agricultural Marketing Board launched a pilot Milk Marketing scheme. The aim was to boost the local milk industry and to provide a secure market to small cow keepers all around the island and to solve problems of low returns to milk producers and widespread adulteration of milk.

This scheme consisted of the collection, processing and selling the milk of the small dairy producers. The milk collectors hired by AMB collect milk from the doorsteps of the cow keepers. There is no proper quality testing except Lactometer readings being taken occasionally. The collected milk is then delivered to AMB pickup vans. Presently, milk collection is done only in the mornings. On Sundays and public holidays there is no collection.

Most producers have no appropriate chilling systems for their milk. Instead some of them rely on household refrigerators. This means that milk must be collected every day and therefore bulk collection, which would significantly reduce transport costs, is not possible.

All local milk is pasteurised at a private dairy plant and packed in half a litre sachets. Most of this packed milk is sold in Supermarkets.

The milk is bought at the farm gate at the price of 9.50 rupees per litre and the cow keepers are paid on a monthly basis by the AMB. On every litre of milk sold, the Government used to provide a subsidy of 3.50 rupees to cover the costs involved in collection, transportation and processing of the milk. However, since this subsidy has been abolished the AMB claims that they are incurring losses due to the high cost of production of pasteurised milk. The cow keepers are generally satisfied about the price. Pasteurised fresh milk is delivered to general dealers at Rs 11.00 per litre, who retail it at Rs 14.00 a litre. The cost for producing one litre of pasteurised milk is estimated at Rs14.40, (Table 4)

Table 4: Cost of Production of Pasteurised Milk (Rs.)

Price Paid to cow keepers	9.50
Commission paid to collectors	0.80
Travelling costs	1.10
Cost of pasteurisation	3.00
Total cost of production	14.40
Wholesale Selling price	11.00
Retail Price	14.00

Since the AMB pilot Milk Marketing Scheme was launched in 1985, the number of cow keepers involved has considerably increased from 200 to some 1,300 in the current year. Similarly, the number of litres of milk collected increased from 413,718 litres in 1985 to 1,508,753 litres in 1994. However, since the past 4 years the amount of milk collected has decreased. In 1999, 1,478,437 litres of milk was collected while in 2002 this amount fell to 992,581 litres of milk, see table below. There are now only about 425 cow keepers selling their milk to the AMB.

Table 5: Yearly Milk Collection for the period 1999-2002

	1999	2000	2001	2002
Amount of milk collected (litres)	1,478,437	1,474,650	1,080,864	992,581

Hence, it is estimated that the scheme markets about 30% of the total annual local milk production. The remaining milk is either home consumed or sold to the residents of the regions where they rear the animals. According to a survey (Rangasamy, 2003), the price fetched by the cow keepers selling milk in the informal market varied between 10-15 rupees. Milk is sold directly to consumers in the rural areas whilst in the urban regions milk is sold via the independent milkman who buys milk from the cow keepers. However, there are now very few milkmen still operating.

3.2 Constraints of the milk marketing scheme

From interviews with the cow keepers and the key informants at the AMB, there are a few constraints, which has prevented smooth running of the scheme. They are listed below.

- ✓ *Irregular Milk supply by the cow keepers*
- ✓ *Non compliance with legal standards*
- ✓ *Poor quality of milk*
- ✓ *Adulteration with water*
- ✓ *Irregular milk collection by AMB*
- ✓ *Lack of a proper marketing strategy*
- ✓ *High transport cost for collection*
- ✓ *No chilling facilities*
- ✓ *No proper dairy processing facilities*
- ✓ *Limited storage capacity*
- ✓ *Financial losses due to removal of subsidy*

4.0 SUPPLY AND DEMAND SITUATION AND TRADE FLOW ANALYSIS

4.1 Production Vs Estimated consumption of milk and milk products

4.1.1 Annual production

It was not possible to compile information with respect to production of each dairy produce. The companies were not very keen to release detailed production figures for the various dairy products for fear of competition. Nevertheless, the overall production for each of their main products was given in percentages of their installed capacity.

Local dairy processors are manufacturing the equivalent of between 15 -15.5 million litres of milk per year. Of this amount only about 1 million litres is sourced from local milk producers. A further 2 million litres of local production is for home consumption by the producers and their neighbours.

Total imports of dairy products per year is about 20 000 tons, of which 60-70% is milk powder, most of which in turn goes to the dairy processors.

4.1.2 Consumption level and patterns

The most favoured milk product in Mauritius is milk powder. However, even though there is an overall upward trend in the consumption of dairy products, some dairy products are more favoured than others. From the statistics available, (see table below) it is noted that the consumption of full fat milk fell 50% from 8.09 kg in 1998 to 4.52kg in 2002. On the other hand, low fat milk consumption increased 100% from 3.35 to 6.61 kg over the same period.

The consumption of fresh milk has decreased considerably over the years, as there has been a decline in the production of local fresh milk. On the other hand, there has been a noticeable increase in the consumption of UHT milk as shown in the trade statistics below. UHT milk imports have grown dramatically. During the 5-year period 1998-2002, UHT imports increased from 1317 tons in 1998 to 3391 tons in 2002.

The whole milk (reconstituted milk and UHT) per capita consumption is estimated at about 90kg (FAO, 2002) and is considered to be on the low side when compared with other developed and developing countries.

The average consumption of cheese has increased from 1.9kg in 1999 to 2.63 kg in 2000. The cheese market is largely dominated by the Cheddar Cheese (Kraft and Sunny South).

Ghee (clarified butter) is a popular product on the local market. Butter in Mauritius faces fierce competition from non-dairy products like margarine. It is lower in cost than most butter sold on the local markets.

Table 6: Per capita consumption of food commodities, 1999 - 2002

Commodity	1999		2000		2001		2002	
	Kg per year	Grams per day	Kg per year	Grams per day	Kg per year	Grams per day	Kg per year	Grams per day
MILK								
Fresh milk & cream	6.96	19.06	6.18	16.92	5.87	16.08	6.23	17.08
Dried milk exceeding 1.5 % by weight of fat	8.09	22.17	8.33	22.81	4.40	12.06	4.52	12.39
Dried milk not exceeding 1.5 % by weight of fat	3.14	8.60	5.23	14.33	6.34	17.38	6.71	18.38
Condensed milk	0.88	2.41	0.69	1.90	1.36	3.73	0.97	2.65
Milk/cheese	1.96	5.38	2.11	5.79	2.62	7.17	2.28	6.24

Source: CSO, 2003

In the light of the food scares that have affected Europe, demand for milk products especially milk powder from these countries has decreased. This has resulted in the near disappearance of one famous milk powder brand on the local market.

Local dairy products and consumption

Though there are no official statistics with regard to locally produced dairy products, it is postulated that the consumption of the major locally produced dairy products such as yoghurt, flavoured milk and ice cream has increased. It would seem that the market of yoghurt is very promising in Mauritius for about 50,000 cups (125ml size) are consumed each day. The introduction of flavoured milk (chocolate, vanilla) bottled in single serving, convenience size plastic containers has certainly influenced its consumption. It is believed that its sales volume has increased constantly over the past years.

Since the late 1990s, the demand for ice cream has increased tremendously. Ice cream was at one time a luxury good in Mauritius, but it is now readily available in most shops, supermarkets and hypermarkets. In addition, the appearance of speciality ice-cream shops, mobile ice-cream vans and pre-packaged ice cream has caused an increase in its consumption. However, its consumption is seasonal being low in the winter season.

Though there is an expanding demand for processed dairy products, there is competition from an exploding soft drink, juice drinks, sports drinks and bottled water industry.

Factors driving consumption of dairy products

At the international level, it has been shown that the demand for value added dairy products is affected by a number of factors such as increased urbanisation, income growth, growing number of supermarkets, different levels of adding value, changes in food habits (Griffiths,

1998). During the interviews with the key stakeholders, it became clear the growth in demand for dairy products in Mauritius is also driven by some of the above factors and are shown below.

- ✓ *Emergence of fast food chains like Pizza Hut, KFC and McDonalds*
- ✓ *Increased awareness of the health benefits of drinking milk*
- ✓ *Rising disposable income*
- ✓ *Growth of supermarkets and hypermarkets*
- ✓ *Changes in Life styles and food habits*
- ✓ *Increasing demand for product variety with higher quality*
- ✓ *Off-home consumption.*
- ✓ *Changes in marketing systems*

Even though the elasticity indices are difficult to evaluate, it appears from the evolution observed in recent years that the demand for milk and milk products is likely to grow substantially with the increase in income and the expanding tourist industry. This continued expansion of the internal markets would present both to local producers and importers great opportunities to expand their trade.

4.1.3 The Gap between Production and Consumption of Dairy Products

According to CSO local milk production stood at about 5 million of litres of milk (625,000 kg milk on a dry equivalent basis) in 2002. In the same year 14421 tons of dried milk powder were imported. There is thus a large gap between production and consumption of dairy products. In the case of other dairy products (cheese, butter, etc.) there is no local production. It is estimated that this gap will increase over the years because local milk production is steadily decreasing. Hence, Mauritius will continue to be a net dairy food importer.

4.2 Trade Flow Analysis

4.2.1 exports

Exports of dairy products consist mainly of re-exports because all the products indicated in the table are products, which are not produced in Mauritius. For products like margarine and yoghurt, which are manufactured in Mauritius, export figures are very low.

The main re-exported products consist of milk powder, buttermilk and processed cheese. The total import figures indicate that the export values grew from very low US\$ 88 375 and US\$ 201546 in 2000 to 100 % increase in 2001 and 2002. The export values increased from US\$ 745 032 to US\$1.4 million in 2002.

In terms of destination, the main countries are Madagascar, South Africa, and Seychelles.

Table 7: Volume and Value (US\$) of Exports of Dairy products in Mauritius, 1998-2002,

HSCODE	DESC	Unit	1998		1999		2000		2001		2002	
			QTY	FOB Value	QTY	FOB Value	QTY	FOB Value	QTY	FOB Value	QTY	FOB Value
04011000	Milk And Cream Containing =<1% Fat, Not Concentrated Or Sweetened	Litres	72	75					600	345	2,690	6,473
04012000	Milk And Cream Of >1% But =<6% Fat, Not Concentrated Or Sweetened	Litres		-					4,845	6,477	360	387
04013000	Milk And Cream Containing >6% Fat, Not Concentrated Or Sweetened	Litres		-			52,122	59,202	5,462	8,110	9,919	9,606
04021000	Concentrated/sweetened Milk And Cream Of =<1.5% Fat In Powder/solid Form	Kg	1,510	1,281	778	937	49,489	61,611	77,181	134,951	122,957	274,460
04022100	Concentrated/sweetened Milk And Cream Of 1.5% Fat In Powder/solid Form	Kg		-					235,885	381,215	73,852	68,300
04029100	Concentrated/unsweetened milk and cream in liquid or paste form	Litres	121	67								
04031000	Yoghurt	Litres		-	35	119	461	522	669	650	75	385
04039000	Buttermilk/curdled Milk/kephir And Other Fermented Or Acid Milk/cream	Litres	2,365	936	12,000	9,126	20,100	13,003	13,609	7,362	176	486
04049000	Products Containing Natural Milk Constituents, Nes	Litres		-							723,395	755,901
04051000	Dairy Butter	Kg	307	362			158	504	721	1,155	24,886	42,526
04052000	Dairy Spreads of Milk	Kg	72	75								
04059000	Fat And Oil Derived From Milk Excluding Dairy Butter And Dairy Spreads	Kg	500	230			54	360				
04061000	Unfermented Fresh Cheese, And Curd (including Whey Cheese)	Kg		-	911	4,209					1,097	2,593
04062000	Grated Or Powdered Cheese Of All Kind	Kg		-			108	76	25,600	69,936		
04063000	Processed Cheese, Not Grated Or Powdered	Kg	42,336	84,390					29,221	105,293	53,667	186,639
04069000	Cheese Excluding 040610 To 040640	Kg	764	957	1,482	4,289	22,236	66,269	14,803	29,537	4,549	14,530
	Total		-	88,375	-	18,681	-	201,546	-	745,032	-	1,362,287

4.2.2 Imports

Table 8 shows the evolution of the imports of dairy products in Mauritius from 1998 to 2002. The market for imported dairy product in Mauritius is evaluated at Rs 1.3 billion which in dollar terms is equivalent to US\$32 million in 2002. In fact the total amount of dairy products in Rupee terms has increased by 36% and in dollar terms by 21% during that period. As shown in the table below, there are 4 main imported products, which are milk powder, UHT milk, butter and processed cheese. These items account for more than 90% of the total dairy products imported. Over the five-year period, there has been increase in all of the above items. The greatest increase is mainly due to growth in UHT milk, milk powder and processed cheese. The market for UHT milk represents a market of US\$ 2,4 million and has increased by 12% in US\$ value terms between 1998 and 2004 whereas for the same period processed cheese has increased by 60%. The market for butter is evaluated at US\$ 2million for a volume of almost 1000 metric tons.

In volume terms the table also indicates that the increase has been the same as in dollar terms, which is 36%. The volume of imported products followed the same pattern as in value terms for UHT milk, milk powder, dairy butter and processed cheese. The rest consists of cream, butter, ice cream and other fresh products such as yoghurt and fermented milk. A variety of brands are available on the market. Most of the imported dairy products come from Australia and New Zealand for being renowned for manufacturing high quality, safe products using the best technology in the world. The volume of imported milk powder for the last 5 years has increased by 33% whereas that of processed cheese has almost doubled during the same period. Most of the dairy butter and the processed cheese come from Australia. Other small suppliers for the same products are France and South Africa mainly.

Table 8: Volume and Value (US\$) of Imports of Dairy products in Mauritius, 1998-2002,

HS CODE	DESC	Unit	QTY	CIF (US\$)	QTY	CIF (US\$)	QTY	CIF (US\$)	QTY	CIF (US\$)	QTY	CIF (US\$)
			1998		1999		2000		2001		2002	
01021000	Live Pure-bred Breeding Bovine Animals	Unit	6,396	4,054,922	3,193	2,286,808	3,258	1,661,063		-		-
				-		-		-		-		-
04011000	Milk And Cream Containing =<1% Fat, Not Concentrated Or Sweetened	Litres	3,219,895	161,380	431,672	277,255	613,618	344,896	595,829	374,552	873,066	522,253
04012000	Milk And Cream Of >1% But =<6% Fat, Not Concentrated Or Sweetened	Litres	13,071,701	681,667	753,187	467,380	953,416	503,220	597,537	342,042	714,593	395,163
04013000	Milk And Cream Containing >6% Fat, Not Concentrated Or Sweetened	Litres	1,493,287	1,296,191	1,649,164	1,519,081	1,561,084	1,083,600	1,901,969	1,459,900	1,804,122	1,472,678
	Sub Total UHT Milk	Litres	17,784,883	2,139,237	2,834,023	2,263,716	3,128,118	1,931,716	3,095,335	2,176,494	3,391,781	2,390,094
04021000	Concentrated/sweetened Milk And Cream Of =<1.5% Fat In Powder/solid From	Kg	1,135,831	2,827,948	696,529	1,393,903	661,798	1,188,283	1,485,726	3,304,311	3,730,201	7,377,267
04022100	Concentrated/sweetened Milk And Cream Of 1.5% Fat In Powder/solid From	Kg	5,457,799	13,146,165	5,794,183	12,142,009	6,065,733	11,330,386	6,198,247	12,939,445	4,968,126	9,376,536
04022900	Concentrated/sweetened Milk And Cream Of 1.5% Fat In Powder/solid From	Kg			6,393,984	14,678,401	6,632,042	338,816,968	5,309,717	329,263,026	5,723,270	12,553,189
	Sub Total Milk Powder		6,593,630	15,974,113	12,884,696	28,214,314	13,359,573	351,335,637	12,993,690	345,506,782	14,421,597	29,306,993
04031000	Yoghurt	Litres	10,696	23,705	6,610	18,159	5,253	15,153	8,920	34,926	9,562	43,691
04039000	Buttermilk/curdled Milk/kephir And Other Fermented Or Acid Milk/cream	Litres	1,428	3,356	509	2,679	1,211	4,327	2,022	7,489	54,413	133,743
04041000	Whey Whether Or Not Concentrated Or Sweetened	Litres	700	3,189	4,686	5,102	23,225	40,896	7,694	15,190	7,824	11,169
04051000	Dairy Butter	Kg	919,109	2,306,458	778,872	1,881,255	912,003	1,853,099	847,021	1,724,969	915,144	2,035,114
04059000	Fat And Oil Derived From Milk Excluding Dairy Butter And Dairy Spreads	Kg	61,777	186,160	162,670	445,938	50,716	125,087				
04061000	Unfermented Fresh Cheese, And Curd (including Whey Cheese)	Kg	113,315	545,389	147,543	611,584	133,852	445,539	81,475	347,245	87,911	401,564
04062000	Grated Or Powdered Cheese Of All Kind	Kg	380	3,663	11,500	45,542	1,877	8,118	17,538	51,347	2,023	8,077
04063000	Processed Cheese, Not Grated Or Powdered	Kg	1,273,675	5,075,599	1,699,019	6,285,644	1,821,713	5,474,692	2,125,743	5,061,581	2,231,615	8,073,993
04069000	Cheese Excluding 040610 To 040640	Kg			441,404	1,830,056	573,346	2,027,279	965,663	3,256,315	513,898	2,108,386
05111000	Bovine Semen	-	7	2,097	43	17,585	15	10,493				
	Total			30,317,888		29,229,980		26,116,129		28,919,312		76,209,909

Source: Customs and Excise Trade Statistics

Table 9 gives a summary of the volume of imports with common names.

Table 9: Imports of Major Dairy Products Commodities (Tons)*

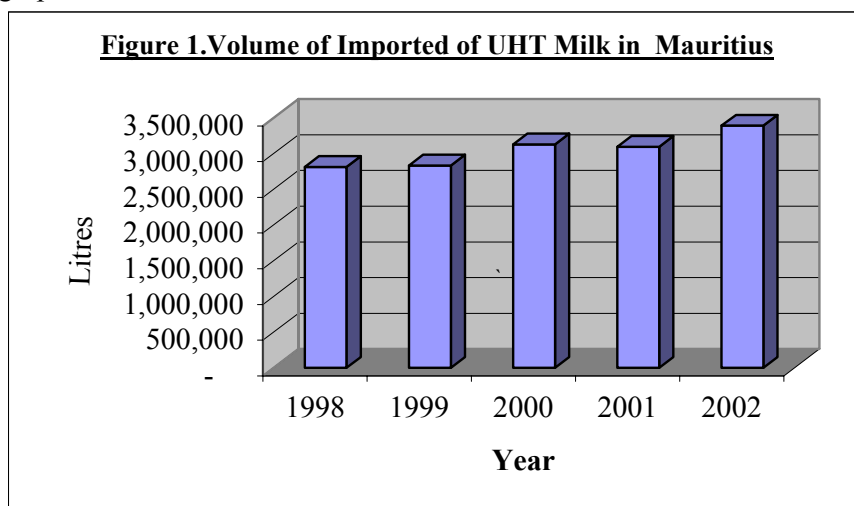
Product	1998	1999	2000	2001	2002
Dried Milk Powder ¹		12884	13360	12993	14421
Processed Cheese	1273	1699	1821	2125	2231
Butter	919	778	912	847	915
Pure Cow Ghee	na	na	99	165	213
UHT Milk ²	1317	2834	2174	3095	3391
UHT Milk Less than 1%	256	na	613	595	873
Dried Powder Milk Less than 1%	na	na	6726	7683	8698

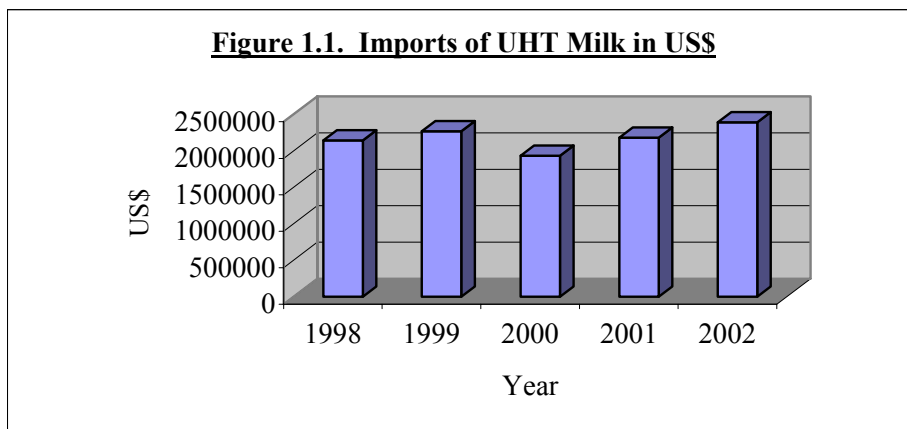
* Data compiled from Customs and Excise Trade Statistics

¹ Includes all types of dried milk powder

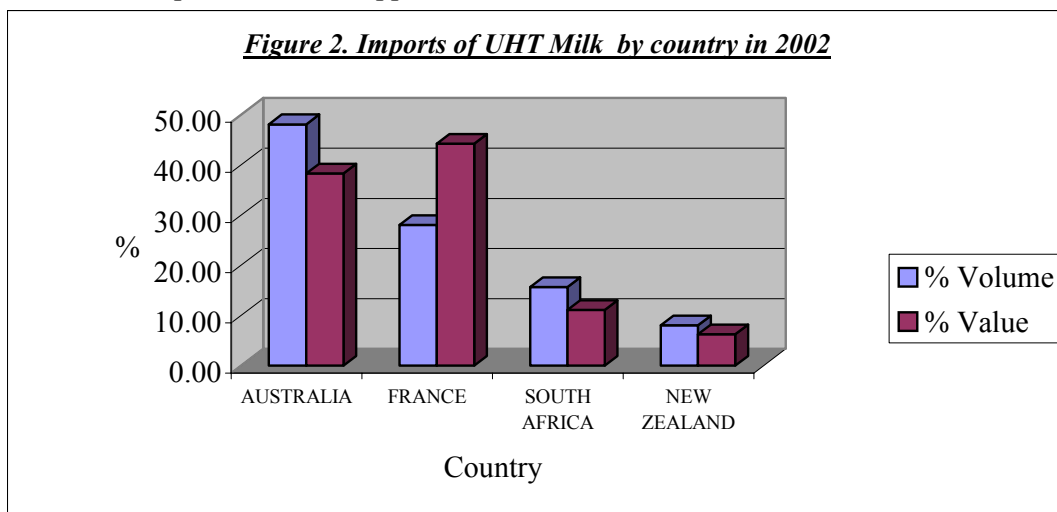
² Includes all types of UHT milk

According to the importers, UHT milk in Mauritius is a growing market (Figures 1 & 1.1.). In 2002 the UHT milk market has been evaluated at US\$ 2.4million whereas in 1998 it was 2.1 million US\$. In fact from 1998 the market has increased by 21% in volume terms and 12% in US\$. It still represents 7% of the total dairy market and 12.6% of the milk market graph.

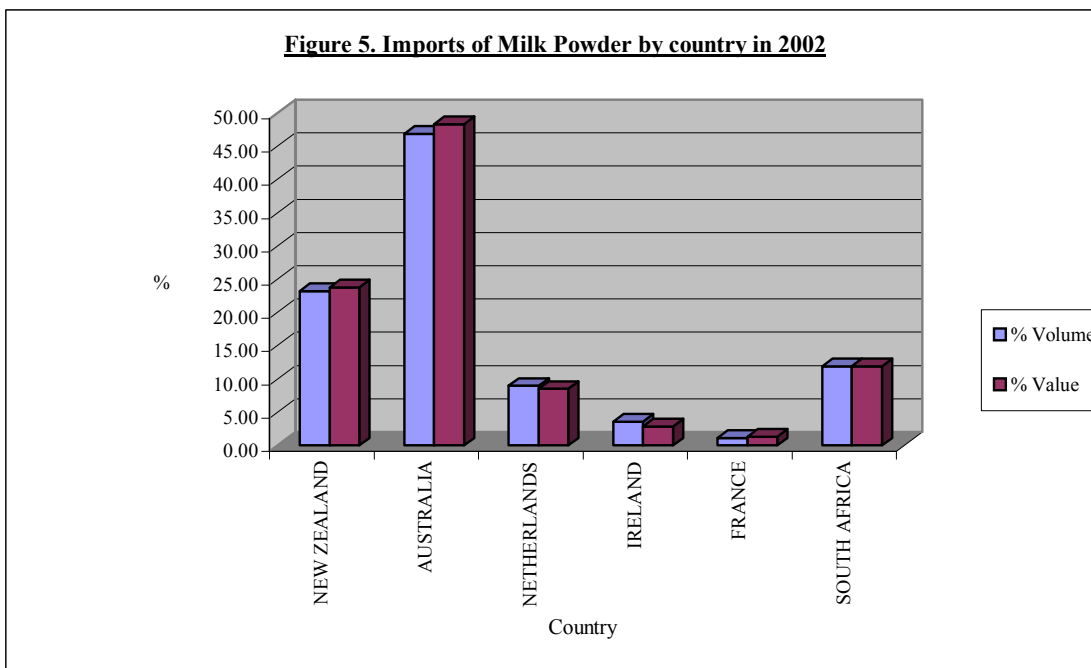
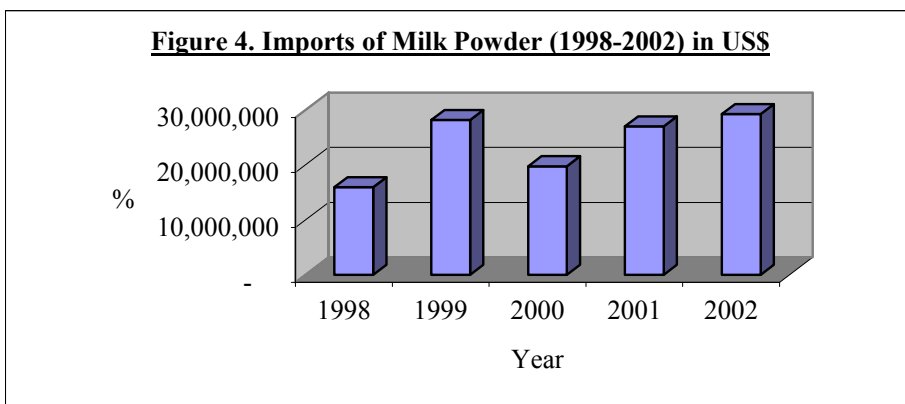
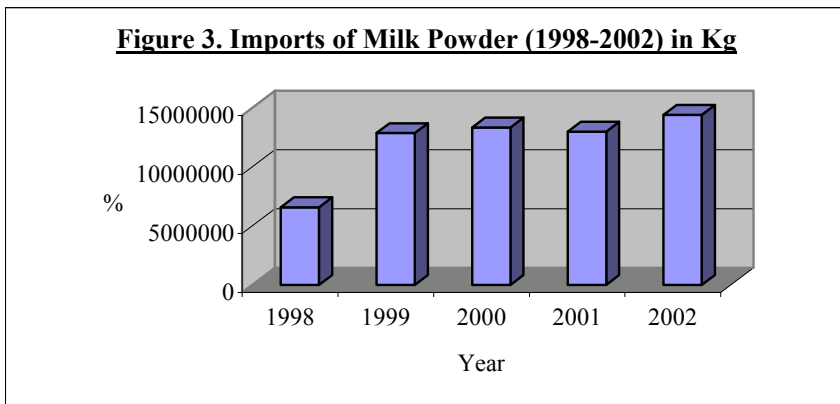




As indicated in the Figure 2, the main suppliers of UHT milk were Australia as the leader with 48% of the market share in terms of volume in 2002 followed by France 28%. South Africa represents a market of 15%. The share represented by New Zealand in UHT milk is still small compared to other suppliers.



Regarding milk powder (Figure 5), almost 47% is imported from Australia followed by 24% from New Zealand. South Africa supplies 12% of the milk powder. The rest comes from Netherlands (9%), Ireland and France. The market for imported milk represents US\$ 29 million for a volume of 14.4 tons of milk for 2002. In the last 4 years the milk powder market has increased by 12% in volume terms and 8% in value terms as shown in graphs 4 and 5 below.



Australia and New Zealand are the main suppliers of dairy products to Mauritius and Australia holds over 60% of the market share for this category of food. Other countries such as South Africa, United Kingdom and France are also non-negligible suppliers of dairy

products to Mauritius. The main dairy foods imported and the countries from which they are imported is depicted below:

Table 10: Main Dairy Food Imported and Countries from which they are imported

Product	Source Countries
UHT milk	Australia, France, New Zealand, South Africa, United Kingdom
Powdered Milk	Australia, France, United Kingdom, Ireland, New Zealand, Singapore, Netherlands, Argentina
Butter	Australia, France, United Kingdom, Ireland, South Africa
Cheese	Australia, New Zealand, France
Condensed Milk	Australia, Canada, United Kingdom South Africa

4.3 Dairy Distribution and Marketing

Mainly private companies carry out the distribution of dairy products. The main ones are Happy World Foods, Nestle Ltd, New Zealand Milk, and Ireland Blyth Ltd. It is a straightforward distribution channel. Local agents are supplied their milk products from overseas suppliers. These local agents then market their products to the various outlets such as the supermarkets, hotels dairy processors, sundry shops in rural areas etc. In some cases, the supermarkets and dairy processors import directly from overseas sources. The main features of the dairy products importers are given below.

4.3.1 Happy World Foods Ltd.

Happy World used to represent about 30% of the imported powdered milk market during the last few years but since 2003 the brand has shifted to a new operation, the New Zealand Milk (Mauritius) who is the sole representative of the New Zealand Dairy Board. The company has now shifted to a new brand called Twin Cows, which comes from Australia. The volume of powdered milk now imported by Happy World Foods represents 16% of the market share.

Happy World also imports a small volume of various types of cheeses mainly from France for a niche market. These products are mainly meant for the hotels, restaurants and the supermarkets. The shelf life of these products is very short (usually one week) and the fact that they are imported by airfreight has a significant impact on their prices.

4.3.2 Ireland Blyth Consumer Goods Ltd.

This company has been importing milk, processed cheese and butter for more than 40 years. IBL is the main importer for processed Australian cheddar cheese under the name Kraft. It represents more than 80% of the market for this type of product.

Powdered milk is also imported from Australia under the brand name Red Feather. The volume imported is equivalent to 14 twenty-foot containers per year representing roughly 20% of the market share. They also import instant milk from France (Régilait). This brand is sold as low fat milk.

4.3.3 Nestle

Nestlé used to be a key distributor of dairy products with a large market share for milk powder. Due to the fact that the milk powder was being imported from Ireland, imports were severely affected after the impact of the mad cow disease. The company now imports from South Africa but the market share is quite low.

4.3.4 Marketing Strategies

The leading dairy products distributors have aggressive advertising and promotional campaigns to promote their brands despite that the milk comes from the same source (e.g., Australia). In addition they negotiate with the individual retail supermarkets and hypermarkets to gain greater shelf space and mark-up on volume of sales. They also employ merchandisers to keep track of products display and sales. According to the distributors it is difficult to change the consumer preferences from milk products once they get used to them and the perceived lack of quality milk from Africa could be major handicaps to attract an audience within the Mauritian consumers. However, given there is no marketing information on such products it is therefore essential to develop a product information database so that potential importers could explore the possibilities of developing trade within the region.

5.0 TRADE POLICIES AND REGULATIONS

5.1 Import and export regulations

5.1.1 Import Permits

During the past decade, Mauritius trade regime has been extensively liberalised. In 1991, import and export licensing which was applied on a vast majority of imports was eliminated for all except a limited range of products for health, sanitary or security reasons. This is in line with the trade policies of Mauritius, which are geared towards securing the import requirements of its population and the protection of consumers' interest as well as promoting Mauritius overseas as business centre.

With respect to dairy products, only packed fresh liquid (e.g., UHT milk) are subject to import permits, mainly for health purposes and national interest. The Ministry of Commerce is responsible for the control of importation of these items in collaboration with other controlling agencies. Import permits for UHT milk require first clearance from the Agricultural Marketing Board. This permit was put in force at one point in time with a view to protect the local milk producers from competition with imported packed liquid fresh milk. However, since the local milk production can't keep pace with the increasing demand for fresh milk from the consumers, the AMB is not stringent in issuing this permit. In fact according to the AMB there are no specific requirements, which importers need to fulfil before getting this clearance.

However, importation of other dairy products requires the pre-market approval permit from the Health Inspectorate of the Ministry of Health and Quality of life. The dairy products should satisfy the standards described in the Food Act.

However, even though Mauritius has liberalized its markets, it has had to ban imports or control imports of food products of animal origin by means of notification to WTO under the SPS agreement. For example following the outbreak of foot-and-mouth disease (FMD) in the United Kingdom (UK), the Division of Veterinary Services of the Ministry of Agriculture, Food Technology and Natural Resources, has imposed a ban on all import of livestock and livestock products from the United Kingdom for the safeguard of animal health and the MFD free-status of Mauritius until further notice.

5.1.2 Pre-market Approval Permit

According to the new food act the importer of any dairy products should apply for pre-market approval permit. The regulation states that:

“No person shall import or manufacture any food, pre-packed food, appliance or container or contact material intended to be used for the preparation of any food, listed in the Third Schedule, unless he has obtained a pre-market approval permit issued by the Permanent Secretary.”

The pre-market approval permit is obtained from the Health Inspectorate of the Ministry of Health and Quality of Life. According to the regulations, the importer shall fill in a standard form whereby the following information is specified the type of product, expiry date,

importer details, country of origin, quality standards etc. In addition samples of the products need to be deposited for investigations and analysis. The grant of the permit is subject to the product satisfying all the required standards. All imported dairy products require that a phytosanitary certificate accompany the relevant documents for clearance. The full regulations governing pre-market approval permit can be found in the Annex.

Most of the traders reported that the permit might take 2-3 months to be delivered and it is a straightforward procedure if all the necessary documents and samples have been submitted to the Government analyst. All the dairy products importers recognised that this permit is not restrictive to trade and is a must to guarantee that safe dairy products are being imported in the country. They strongly advised new traders to obtain such permit before any type of dairy products are imported otherwise such goods may be seized or destroyed by the customs officials. There is no explicit discrimination against milk products importation based on country of origin. However, the importers reported that any importation from less well-known dairy producing countries may take more time and the pre market permit will be delivered if it satisfies all the regulations. It is noted that Mauritius is importing powdered milk from countries like Argentina.

5.1.3 Price Controls

Price controls consist of fixing a maximum price for imported and locally produced goods and setting up a maximum percentage mark-up system (only on imports). Prices are fixed to ensure supply at reasonable prices, including where lack of competition makes consumer protection mandatory. In July 1998, the Government passed a new regulation – Consumer Protection (Price and Supplies Control) Act, which provides regulations for price control on several imported basic commodities. However, only infant milk powder prices are covered by this regulation. Hence the market forces to a large extent determine the prices of other types of dairy products. Table 11 gives an indication of the wide range of milk products prices at the main supermarkets and hypermarkets in Mauritius:

Table 11: Average Price of Imported and Local Dairy Products

Products	Origin	Quantity	Price (Rs)
Raw Milk	Local	Litre	15.00
Pasteurised Milk	Local	Litre	14.00
Sterilised Milk	Local	Litre	16.50
UHT Milk	Imported	Litre	21.00
UHT Semi-Skimmed Milk	Imported	Litre	25.00
Full Cream Milk Powder	Imported	1kg	65.00-110.00
Skimmed Milk Powder	Imported	1kg	72.00-110.00
Yoghurt (set)	Local	125mL	8.00
Yoghurt (drink)	Local	250mL	8.00
Butter	Imported	227g	16.00-22.00
Cheese	Imported	250g	29.00
Flavoured Milk	Local	120mL	6.00
Ice Cream	Local	Litre	50.00 – 95.00
Ice Cream	Imported	Litre	80.00- 120.00
Sweetened Condensed Milk	Imported	Litre	25.00 – 30.00

The price of reconstituted milk from dry milk powder costs less than either locally pasteurised milk or farm gate price of fresh milk. This wide disparity between the price of imported milk powder and fresh milk is mainly due to the zero tariffs rate for most of the milk products.

Table 12: Average Comparative Prices of Imported Dry Milk Powder, Pasteurised Milk and Fresh Raw Milk.

Type of Products	Price In Rupees	Price in Us dollars
Dry Milk Powder (reconstituted to liquid milk)#	8.00-14.00	0.32-0.56
Pasteurised Milk	14.00	0.56
Raw Milk*	15.00	0.60

*Farm gate

1kg of milk powder=8 litres of liquid milk.

5.2 Customs Requirements

The following import documents are required by Customs:

- ✓ *Invoice, showing the FOB and CIF value of goods*
- ✓ *Packing list*
- ✓ *Bill of lading / Airway bill*
- ✓ *Bill of entry*
- ✓ *Insurance certificate (if applicable)*
- ✓ *Certificate of inspection (if applicable – does Mauritius require dairy products to be inspected before preshipment)*
- ✓ *Certificate of origin (for products coming from COMESA, SADC and where else (may be countries where Mauritius has Bilateral Agreements))*
- ✓ *Import permits (if applicable)*

It is the customs regulations that an importer needs a registered clearing agent to clear goods imported for commercial purposes. This requirement is mandatory.

Most of the milk products importers reported that clearing goods from the customs is a quick process provided all the above documents are available and are properly filled. One of the frequent problems that some non-dairy food importers have faced with the regions is that the packing list does not match with the invoice or bill of lading etc. Otherwise there are generally no problems from the customs department.

5.3 Import Tariffs and other non-tariff charges on dairy products

Nearly all dairy products, with a few exceptions namely yoghurt, butter, ghee, and cheese spreads, are exempted from custom duties. As yoghurt is the major dairy product manufactured locally, importation of yoghurt is heavily taxed. This is line with the Government's Policy to monitor importation of food products, which compete with domestically produced goods. The description of the dairy products and their respective rates are detailed in table below.

Table 13: Import Duty Products and Animal Genetics

HS No.	Tariff No	Commodity Description	Import Duty for milk originating from			Other charges
			COMESA	SADC	Other countries	
04011: Milk and cream not concentrated nor containing sugar or other sweetening matter						
040110	04011000	of a fat content by weight not exceeding 1% (Skimmed UHT)	0	0	0	0
040120	04012000	of a fat content by weight exceeding 1% but not exceeding 6% (UHT)	0	0	0	0
040130	04023000	of a fat content by weight exceeding 6%	0	0	0	0
0402: Milk and cream concentrated or containing sugar or other sweetening matter						
040210	04021000	In powder-granules or other solid forms, of a fat content by weight not exceeding 1.5%	0	0	0	0
040221	04022100	Not containing added sugar	0	0	0	0
040291	04029100	Not containing added sugar or other sweetening matter	0	0	0	0
0403: Buttermilk, curdled milk cream, yoghurt, Kephir and other fermented or acidified milk						
040310	04031000	Yoghurt	0	0	55	0
040390	04039000	Other	0	0	55	0
0404: Whey, whether or not concentrated						
040410	04041000	Whey and modified	0	0	15	0
040490	04049000	Other	0	0	15	VAT 15%
0405: Butter and other fats and oils derived from milk; dairy spreads.						
040510	04051000	Butter	0	0	15	0
040520	04052000	Dairy spreads	0	0	15	0
040590 1		Pure Cow Ghee	0	0	0	0
040590	04059000	Other	0	0	15	0
4.06: Cheese and curd						
040610	04061000	Fresh (unripened or uncured) cheese, including whey cheese, and curd	0	0	0	0
040620	04062000	Grated or powdered cheese of all kinds	0	0	0	0
040630	04063000	Processed cheese, not grated or powdered	0	0	0	0
040690	04069000	Blue veined cheese	0	0	0	0
040690	04069000	Other cheese	0	0	0	0
Animal Genetics						
010210	01021000	Live bovine pure bred	0		0	0
051110	05111000	Bovine Semen	0		0	0

5.4 Quality Standards

5.4.1 Quality specifications and enforcement procedures and practices

Food Act

Before 1998, the legal framework for the dairy industry was based on the Milk Trade Regulations. This law was repealed when the Government passed the new Food Act in 1998,

under which a number of horizontal and vertical regulations were passed. Indeed, the former law was no longer suitable to cope with the emerging challenges and new changes occurring in the dairy sector, food consumption patterns and quality assurance. The main objective of the Food Act is to provide for the modernisation and the consolidation of the law relating to the quality of food. The regulations in the Food Act are based on international standards of Codex Alimentarius Commission.

It gives specifications for a range of dairy products covering chemical and microbiological tolerance levels, allowed additives, labelling, packaging, storage and handling. The standards are applied to both domestic and imported products. A summary of the milk and milk products standards is given below and the full standards are listed in Annex 7.

Summary of Milk and Milk Products Standards

A. Definition for Whole Milk and skimmed Milk

***Whole milk** shall be the clean and fresh mammary secretion obtained by milking a healthy cow without any addition to it or extraction from it. It shall not contain any added water; food additive, other added or foreign substance; and trace of antibiotics or veterinary drugs.*

***Skimmed milk** shall be milk from which milk fat has been removed. It includes skim milk, non-fat milk, and reduced fat milk and separated milk. It shall not contain any added water or other substances.*

Specifications

	Whole Milk	Skim Milk
Quality Parameters	Specifications	
Milk fat	Not less than 3.0%	Not more than 0.5%
Non-fat milk solids	Not less than 8.5%	Not less than 8.5%
Maximum Pesticide Residues	Less than 0.01 mg/kg	Less than 0.01 mg/kg
Microbiological specifications		
Total Viable count (30°C for 48hrs)	10 ⁵ per g	10 ⁵ per g

B. Definition of Sterilised, Pasteurised and Ultra Heat Treatment Milk

***Sterilised milk** is milk which has been filtered or clarified, homogenised, and thereafter heated to and maintained at a temperature of not less than 100°C for a length of time sufficient to render the milk sterile until its expiry date.*

***Pasteurised milk** shall be milk which has been heat-treated and retained at a temperature of not less than 63°C and not more than 65°C for Thirty minutes, immediately cooled to a temperature of not more than 4°C, immediately packed in an aseptically container and maintained at that temperature until delivery;*

or

shall be milk which has been heat-treated and retained at a temperature of not less than 73°C for fifteen Seconds, immediately cooled to a temperature of not more than 4°C, immediately packed in an aseptically container and maintained at that temperature until delivery.

Ultra Heat Treated Milk shall be milk which has at a continuous flow, been subjected to heat treatment of not less than 135°C for at least two Seconds and immediately aseptically packed in a sterile container.

Specifications are the same as for whole raw milk.

C. Definition for Flavoured milk

Flavoured milk shall be **whole milk, processed milk or reconstituted milk** which shall have been efficiently heat-treated by one of the methods specified in the previous definitions of **sterilised, pasteurised and UHT milk**.

Specifications

Quality Parameters	Requirements
Milk fat	Not less than 3.0%
Non-fat milk solids	Not less than 8.5%
Other Ingredients	Permitted colouring substance Permitted food conditioner May contain added sugar.

Microbiological specifications

Flora	Maximum Tolerable Level
Total Viable count	10 ⁵
Salmonella	Absent in 25 g
Campylobacter	Absent in 25 g
Staphylococcus aureus	100 per g
Salmonella	Absent in 25 g
Listeria	Absent in 1 g
E. Coli	1 per g
Coliform	100 per g

D. Definition for Milk Powder products

Skimmed milk powder shall be the product obtained by removing the water from skimmed milk.

Partly Skimmed milk powder shall be the product obtained by removing water from partly skimmed milk.

Whole or full cream milk powder shall be milk from which water has been removed and no fat has been removed.

Specifications

Characteristic	Products		
	Full Cream Milk Powder	Partly Skimmed Milk Powder	Skimmed Milk Powder
Water	Not more than 5%	Not more than 5%	Not more than 5%
Milk fat	Not less than 26%	More than 1.5% and less than 26%	Not more than 1.5%
Other Ingredients	Permitted food conditioner	Permitted food conditioner	Permitted food conditioner

Microbiological requirements

Flora	Maximum Tolerable Level
Total viable count (30oC/48 hrs)	10 ⁵
Coliforms	10 per g
Staphylococcus aureus	100 per g
Salmonella	Absent in 25 g
Listeria	Absent in 1 g

E. Definition for Evaporated Milk and Condensed Milk

Evaporated milk or unsweetened condensed milk shall be the product obtained by evaporating a portion of water from milk, or by reconstitution of milk constituents and submitting the reconstituted milk constituents to part evaporation.

Sweetened Condensed Milk shall be the product obtained by evaporating a portion of water from milk, or by reconstitution of milk constituents and submitting the reconstituted milk constituents to part evaporation and to which sugar has been added.

Specifications

Characteristic	Product Requirement	
	Unsweetened condensed milk	Sweetened Condensed Milk
Total milk solids	Not less than 25%	Not less than 28%
Milk fat	Not less than 7.5% of milk fat	Not less than 8%
Other Ingredients	Permitted Food Conditioner	Permitted Food Conditioner May contain sugar

F. Definitions for Dairy Creams

Cream shall be a milk product obtained by separating the constituents of whole milk, through a mechanical separation process and may have varying percentages of fat (e.g. half-cream, whipped cream, heavy whipped cream and double cream).

Pasteurised, sterilised, ultra-heat treated cream shall be cream which has been manufactured from pasteurised milk; or has been pasteurised by either of the methods of heat treatment mentioned in section 2 above.

Sterilised cream shall be cream, which has been sterilised by the method of heat treatment mentioned in Section 2 above, while the cream is in the container in which it is supplied to the consumer.

Ultra heat treated cream shall be cream which has been ultra heat treated in a continuous flow by the method of heat treatment mentioned in section 2 above and which has been packed aseptically.

Specifications

Characteristic	Product Requirement				
	Cream	Half Cream	Whipped Cream	Heavy whipped Cream	Double Cream
Total solids	a maximum level of 2% milk solids non fat and 0.1% caseinates	a maximum level of 2% milk solids non fat and 0.1% caseinates	a maximum level of 2% milk solids non fat and 0.1% caseinates	a maximum level of 2% milk solids non fat and 0.1% caseinates	a maximum level of 2% milk solids non fat and 0.1% caseinates
Milk fat, %	a minimum of 18%	<u>a minimum content of 10% and a maximum content of less than 18%</u>	a minimum content of 28%	a minimum of 35%	a minimum of 45%
Other Ingredients	permitted flavouring permitted stabilizers permitted emulsifiers permitted thickening agents	permitted flavouring permitted stabilizers permitted emulsifiers permitted thickening agents	permitted flavouring permitted stabilizers permitted emulsifiers permitted thickening agents	permitted flavouring permitted stabilizers permitted emulsifiers permitted thickening agents	permitted flavouring permitted stabilizers permitted emulsifiers permitted thickening agents

Microbiological requirements:

Total Viable count	10^5
--------------------	--------

G. Definition for yoghurt, sweetened yoghurt and flavoured yoghurt

Yoghurt shall be the coagulated product obtained from pasteurised milk, pasteurised cream or a mixture of both which has been subjected to lactic acid fermentation through the action of organisms of the types *Lactobacillus bulgaricus* and *Streptococcus thermophilus*.

Flavoured yoghurt shall be yoghurt, reduced-fat yoghurt or non-fat yoghurt mixed together with fruit, fruit pulp, sliced fruit, fruit juice, or flavouring derived from fruit.

Curdled milk shall be the product obtained by subjecting sterilised or pasteurised whole milk, or skimmed milk to inoculation with a culture of organisms of the type *Lactobacillus acidophilus* or *Lactobacillus bulgaricus*;

Specifications

Quality Factors	Product Requirements
Milk fat	Not less than 3% of milk fat for full cream yoghurt more than 0.5% but less than 3% milk fat for reduced fat yoghurt not more than 0.5% milk fat for non -fat yoghurt.
Milk solids, non-fat	Yoghurt, reduced-fat yoghurt and non-fat yoghurt shall contain not less than 8.2% of milk solids other than fat
Essential Raw Materials	Yoghurt shall be made from whole milk, low fat milk, skimmed milk (all of these might be concentrated) or cream.
Other Ingredients	Permitted sweeteners Permitted, emulsifiers and thickeners For flavoured yoghurts shall contain not less than 5 % fruit or fruit juice; may contain sugar; may contain gelatine, which shall not exceed 1% of the yoghurt. Permitted colouring agents and preservative

Microbiological requirements:

Flora	Maximum Tolerable Level
Total viable count (30oC/48 hrs)	10 ⁵
Coliforms	10 per g
Staphylococcus aureus	100 per g
Salmonella	Absent in 25 g
Listeria	Absent in 1 g
E. Coli	1 per g

H. Definition of the products:

Cheese shall be the fresh or matured solid or semi-solid product obtained by coagulating whole milk, skimmed milk, cream, butter milk, whey or any mixture of these, with protein coagulating enzymes and subjecting the mixture to heat; and **shall not contain any fat other than milk fat.**

Cottage cheese shall be cheese made from pasteurised milk from which all the fat has not been removed with protein coagulating enzymes.

Cream cheese shall be cheese made from cream; or from milk to which cream has been added.

Processed cheese shall be the product obtained by processing cheese, which has been comminuted, emulsified and pasteurized.

Cheese spread includes cheese paste and cheese mixture. Cheese spread shall be a paste prepared from cheese together with other foodstuff and condiment and shall not contain less than 75% cheese

Soft cheese shall be cheese, which is readily deformed by moderate pressure; and shall not contain any colouring substance.

Hard cheese shall be cheese other than soft cheese, whey cheese or processed cheese and does not contain any colouring substance. Hard cheese may have on its surface, carotene or annatto as a colouring substance.

Specifications

Characteristic	Requirement				
	Cheese	Cottage Cheese	Cream Cheese	Processed cheese	Cheese Spread
Water		Not more than 80%	Not more than 55%		More than 50% moisture
Milk fat	not less than 40% on a water free basis	<u>a minimum fat content of 10% and a maximum fat content of less than 18%;</u>	not less than 65% on water free basis	not less than 45% on a water free basis	
Other Ingredients	Can contain ripening ferments permitted preservative permitted colouring agent of vegetable origin permitted flavouring may be coated	permitted preservative	permitted preservative shall contain 0.5% stabiliser as permitted food conditioner	Shall contain cultures of harmless bacteria Shall not contain more than 3% of emulsifying agent sodium phosphate or sodium citrate Permitted preservative permitted flavouring permitted colouring substance	Not more 3% permitted emulsifier Permitted preservative permitted colouring substance of vegetable origin permitted flavouring

	with harmless wax or plastic			any permitted flavour enhancer permitted food conditioner	permitted food conditioner
--	------------------------------	--	--	--	----------------------------

Microbiological requirements

Characteristic	Maximum Tolerable Level
E.Coli	10 per gram for pasteurized milk 10,000 per gram for unpasteurised
Staphylococcus aureus	100 per gram for pasteurised milk 1000 per gram for unpasteurised milk
Salmonella	Absent in 25 g
Listeria	Absent in 25 g

I. Definition of Ice Cream Products

Ice-cream shall be the product obtained by freezing a mixture of milk with one or more of the following milk fat; vegetable fat; cream; butter; or sugar;
Ice cream together with any ingredient used in the preparation of ice-cream shall be frozen after having been efficiently heat-treated by being kept at a temperature of not less than - 69°C for at least 20 minutes; 74°C for at least 10 minutes; or 80°C for at least 10 Seconds.

The volume of air incorporated in ice cream shall be such that the weight per unit of volume of ice cream in its frozen state is no to be less than 0.51 calculated as gram per millilitre.

Milk ice shall be the product obtained by freezing a mixture of milk with one or more of the following water; sugar; glucose; or fruit juice

Dairy ice mix shall be a mixture of foodstuff, the fat content of which consists only of milk fat, and which is used in the preparation of ice cream. It may contain permitted stabiliser.

Ice-cream prepared from dairy ice mix Where dairy ice mix is used, according to written directions contained on its package, to prepare ice-cream, the ice-cream shall contain not more than 5% of milk fat and not more than 1.4% stabilisers.

Specifications

Characteristic	Product Requirement	
	Ice Cream	Milk Ice
Total solids		Not less than 8% of whole milk solids
Milk fat	Not less than 10% of milk fat	<u>a minimum fat content of 10% and a maximum fat content of less than 18%;</u>
Other Ingredients	<p>may contain other food</p> <p>shall not contain any farinaceous substance, other than gelatinised starch*</p> <p>shall contain</p> <p>permitted colouring agent</p> <p>permitted flavouring</p> <p>may be coated with harmless wax</p>	permitted colouring

* The addition to ice-cream of gelatin, sodium alginate, edible gum, pre-gelatinised starch and the mono or di-glycerides of fat-forming fatty acids is permitted either singly or in combination but in a total proportion not exceeding 1.4%.

Microbiological requirements

Flora Characteristic	Maximum Tolerable Level
Total Viable count	10 ⁵
E.Coli	1 per g
Coliform	100 per g
Staphylococcus aureus	100 per gram
Salmonella	Absent in 25 g
Listeria	Absent in 1 g

The mandate for food inspection is shared among four Ministries: Health, Agriculture, Industry and Commerce, Local Government. Each Ministry is accountable for specific responsibilities as set out in their respective legislation. The Ministry of Health has primary responsibility in ensuring the health, safety and nutritional requirements for food sold in Mauritius and they administer the Food Act and Regulations. However, the main agency enforcing the Food act is the Health Inspectorate of the Ministry of Health and quality of life.

The Food Act prescribe standards of composition for milk and milk products among other foods and also list permitted food additives as well as limits for contaminants such as pesticide residues, heavy metals and veterinary drug residues. Many of these requirements are

consistent with the international standards such as Codex. The World Trade Organisation (WTO) recognises Codex as the body responsible for setting international food safety standards, and it uses Codex standards as benchmarks in settling international trade disputes. Hence these standards are to a large extent consistent with international standards

Standards of other countries are not accepted unless they are the same or equivalent or unless there is an agreement that such standards are deemed equivalent to Mauritian standards.

Implementation of Food Quality Standards

Though there are no provisions for making the implementation of Hazard Analysis Critical Control Points (HACCP) compulsory in the Food Act. All the dairy processors recognised that for dairy products it is essential to implement quality and safety and management systems to ensure production of healthy and wholesome products rather than relying solely on the final inspection of the food products. All the dairy producers agreed that the introduction of HACCP principles will shape the dairy products industry of tomorrow. The exporting ability of Mauritius will be determined by their capacity to meet the requirements over hygiene standards as well as technical regulations set by the major market countries. The dairy companies have voluntarily implemented HACCP as a marketing tool to meet demands for high quality goods by the quality conscious consumers.

Mauritius Standard Bureau

The Mauritius Standard Bureau is a corporate body established under the MSB Act 1993 to carry out standardization and quality assurance in industry and trade. Apart from these functions it also provides testing facilities for dried milk powder.

The dry milk powder standards are the only dairy product standards produced by the MSB. Though this standard is more elaborate than the one in the Food Act it is not mandatory. It is essentially used to issue product mark to local companies wishing to certify that their dry milk powder conforms to the standards. It is also used in certifying quality of dry milk powders from suppliers tendering for supply of milk powder to government institutions.

5.4.2 Infrastructure for quality and healthy safety testing

Dairy Chemistry Division

This Division operates a laboratory, which is equipped for routine testing of the locally produced milk, fermented milk products, and imported milk powders. Amongst others, the laboratory has facilities for the measurement of fat and added water in milk. The percentage of added water is estimated using a cryoscope and milk over 10% added water with less than 3% fat is rejected as unsuitable.

Government Analyst Division

This Division is responsible for analysing food samples including dairy products collected by the Ministry of Health. It has facilities for physico-chemical analyses. However microbiological analysis are done by the Central Laboratory of Victoria Hospital and the National Environment Laboratory. Both laboratories fall under the purview of the Ministry of Health and quality of life.

Any prospective importers of dairy products should obtain the pre-market approval permit prior to importation by sending samples of their products to this Division for analyses. Though the Dairy Chemistry has all the facilities for analysing dairy products, it is the

Government Analyst and Food Microbiologist who are empowered, under the Food Act, to carry out analysis and examination of dairy foods.

Food Technology Lab

The Ministry of Agriculture has made provisions to set up a Food Technology Laboratory, which will provide timely service to various stakeholders in the food sector including importers, exporters, agro-industries as well as consumers at large. The 2 main objectives of the laboratory will be to safeguard of imported of food items into Mauritius and to provide assistance to the local food processing industry and exporters of food commodities to meet export requirements and international norms.

5.5 Sanitary Requirements

5.5.1 Sanitary specifications and enforcement procedures

The country is free from most diseases and zoonoses affecting the region. Strict quarantine measures by the Veterinary Services control the import of animal and animal products specially meat and meat products. They are not directly concerned in regulating importation of dairy products. In the case of imports of live cattle animals require health clearance certificate issued at the port of entrance stating that the animals are healthy. On arrival in Mauritius, these animals will be inspected on board and if they are found healthy and do not present any disease symptoms they will quarantine in specific location until they are released on the market. In the past, Mauritius has imported animals from Zimbabwe, Madagascar and South Africa without any major problems. These measures do not affect trade, as they are just sanitary measures to protect the local cattle industry and other animal species from diseases.

The Government through its division of veterinary services has the overall responsibility of safeguarding animal health and welfare and ensuring food safety and protection of public health at the same time.

At the level of present legislation there are no guidelines of sanitary requirements for each specific milk and milk products. The Animal Disease Act currently in force dates back to 1925 and deals only with importation of live animal and meat products. Thus the importation of milk and milk products is mainly governed by the standards in the Food Act. Although, at present the OIE, BSE standards do not recommend any restrictions on the trade of milk and milk products, the Mauritian Veterinary Services only allows imports from BSE, foot and mouth free countries.

Also in the face of globalisation the government is revising the existing legislation in order to boost public confidence and maintain the country's free disease health status. In the year 2000 the Animal Disease Act of 1925 was reviewed and passed in the National Assembly but was not promulgated. A new Bill, the Veterinary Services (Duties and Powers) Amendment Bill 2004 will be soon be enacted and it covers milk and milk products. Under this law, exporters of milk and milk products will be under the obligation to submit an official veterinary certificate from the Veterinary Services of the exporting countries.

5.5.2 Institutional arrangement for enforcement of Sanitary requirements

Veterinary Services (DVS)

The Veterinary Service Division is responsible for providing AI services, veterinary aid and diagnostic services. The DVS also enforces the Animal Disease Act through the quarantine regulations and issues import permits, veterinary certificates of health and slaughter permits and carries out inspection of imported meat and meat products. EU recognizes its Food Hygiene Laboratory and it provides certification for export of meat products from Mauritius to EU countries.

Regulations to livestock production

Under the Public Health Act, there are a number of horizontal and vertical regulations that provide detailed technical requirements and standards to enforce environmental protection. Regulations for cattle were established under this law. These regulations are categorised according to location, premises, design and layout of housing and equipment, husbandry practices and authorisations for setting and managing livestock enterprises.

5.5 Regulatory requirements

5.6.1 Labelling

The regulations on labelling are governed to some extent by the Commodities regulations (Indication of origin) 1981, Pre-packaged Food Regulations 1989 and the Pre-packaged commodities Regulations 1994.

The Ministry of Commerce and Co-operative is responsible for enforcement of the pre-packaged food regulations falling under the Fair Trading Act and the commodities regulations (Indication of Origin). The former specifies date of manufacture, date of expiry, country of origin, name and address of manufacturer, traders warranty, price, content and any additives if added while the latter makes it compulsory for labels to indicate the origin of the product. This overlaps with the Food Act, which specifies the same requirements for labelling. However, the labelling and standards requirements of the Food Act (Annex 6) are more elaborate than these regulations.

5.6.2 Pre-Packaging

Pre-packaging is regulated by the Legal Metrology (Prepacked Commodities) Regulations. The Regulations prescribe labelling requirements, declaration of net/nominal quantity, standard quantities, sampling and tolerances (tolerable negative error). The LMD is responsible for enforcing the provisions of the prepacked commodities legislation.

One of the main anomalies in the existing legislation was that only locally manufactured goods were subject to the provisions of the law. Following proposed amendments, the legislation on legal metrology will be applicable to both locally manufactured and imported commodities. They also proposed that the range of authorised pack sizes be extended, as they are too restrictive for product development and trade.

However this regulation controls specifically the net contents of pre-packed commodities and hence it is not really a concern. However, since some parts of the other two regulations overlap with the Food Act some producers were of the view that the Food Act packaging and labelling parts could be further consolidated so that only Act governs packaging and labelling for milk and milk products.

5.7 Summary of concerns raised on the policy and regulatory framework

- Mauritius should further harmonise, as far as possible, the standards applicable to dairy products in accordance with relevant internationally recognised provisions.
- A database of prices of commodities available in the region with information on transport costs and time for delivery between countries of the region would go a long way to promote information flows and a response form the dairy processors and importers.
- Severe resource constraints for testing facilities. Need for more accredited laboratories and trained staff.
- Shortage of financial resources to properly equip institutions to follow the new requirements.
- Lack of co-ordination between state bodies involved.
- Multiplicity of agencies charged with implementation.
- More than one standards-setting body in the country.

-
- Resultant inefficiencies, lack of accountability, and high administrative costs.
 - Lack of co-ordination among ministries, resulting in the overlap and duplication of work (i.e. food inspection).
 - Low qualifications of inspectors vis-à-vis the new requirements.

6.0 ISSUES FOR NATIONAL RATIONALISATION

Though the government has provided various incentives over the years to boost up the dairy sector, results have not met their required objectives. Based on discussion with stakeholders it appears that only additional investment or incentive will not help the sector further. The following proposals have therefore been made to improve the existing set up.

Issue	Proposal	Institution	Time Frame
Poor Milk Quality e.g., adulteration with water, low fat content etc.,	i) Financial Incentives for better quality milk	Agricultural Marketing Board	2 years
	ii) Develop awareness campaigns to raise the hygienic quality of milk	Agricultural Research and Extension unit	1 year
Marketing of Raw Milk	Need to increase efficiency of collection and distribution	Agricultural Marketing Board	2 years
Accredited Dairy Laboratory	Upgrade the existing dairy chemistry laboratory into an accredited lab for analysing all diary foods thereby relieving the load of work of the Government Analyst Division. This would also allow putting in place a more efficient monitoring, testing and certification structures to demonstrate compliance.	Ministry of Health and Quality of Life and the Ministry of Agriculture, Food Technology and Natural Resources	2 Years
Enforcement of Laws	Food Inspection is currently being carried out by both health inspectors of the MOH and municipal health inspectors. At times there are inadequate liaison with MOH to ensure coordination of enforcement activities that would avoid duplication of activities. Hence there is a need to harmonise the enforcement branch so as to render it more effective	All Ministries concerned	1 Year

7.0 ISSUES FOR REGIONAL RATIONALISATION

Issue	Proposal	Institution	Time Frame
Milk and Milk products Standards	i) Cooperative Study in standards in the region required ii) Mauritius already in line with CODEX, lowering standards just to arrange regional trade on milk products not feasible	Ministry of Commerce and Cooperatives, Mauritius Standards Bureau, Ministry of Health and Quality of Life	2 Years
Lack of proper information on regional products	Organize a trade Meeting of the different milk providing countries to disseminate information and promote products A database of prices of commodities available in the region with information on transport costs and time for delivery between countries of the region would go a long way to promote information flows and a response form the dairy processors and importers	Consultants to be determined.	1 Year

ANNEXES

ANNEX 1: BIBLIOGRAPHY

Anon (1998). Food Act No.1 Legal Supplement Government Gazette of Mauritius No. 64 of 13 June 1998, pp 1-29

Anon (1999). Food Regulations 1999. Legal Supplement Government Gazette of Mauritius, No.114 of 8 Dec 1999 pp 939-1232.

Anon (1994). Legal Metrology (Prepacked Commodities) Regulations 1994 Legal Supplement Government Gazette of Mauritius, No.73 of July 1994. pp 491-496

Anon (1999). The Consumer Protection (Price and Supplies Control) Act. Legal Supplement Government Gazette of Mauritius, No.135 of 1999.

Boodhoo, K., Toolsee, p., Rangasamy, M, Monneramsing, M. and Boodoo, A.A (1997). An assessment of the reproductive performance of smallholder dairy cows using the milk progesterone radioimmunoassay technique. Proceedings of the Second Annual Meeting of Agricultural Scientists, Reduit, Mauritius

CSO (2003). Digest of Agricultural Statistics. Central Statistics Office, Port-Louis, Mauritius

Griffin, M. (2000) Value Added Dairy Products: An International Perspective-Paper presented at the North Atlantic Treaty Organisations (NATO), 5-7 July 2000, Rydzyna, Poland.

MOA (1983). White Paper on Agricultural Diversification, Ministry of Agriculture and Natural resources and the Environment, Port Louis, Mauritius

MOA (1995). Initiatives 2000. Towards Revitalising agriculture, Ministry of Agriculture, Food Technology and Natural resources, Port-Louis, Mauritius

MOA (2000) Annual Report of the Ministry of Agriculture, Food Technology and Natural Resources.

MOA (2003) Non-sugar sector Strategic Plan (2003-2007)- A sustained programme for Agricultural diversification, Ministry of Agriculture, Food Technology and Natural Resources.

MCA (2001) A new strategic orientation for the Agri-Business sector, Mauritius Chamber of Agriculture, Port-Louis, Mauritius

Peersia, K. (2001). A critical Evaluation of the National Food Control system. BSc Dissertation, University of Mauritius, Reduit, Mauritius.

Rangasamy, S. (2003) problems and Prospects of the milk marketing Scheme. BSc Dissertation, University of Mauritius, Reduit, Mauritius

Vythelingum, S. (2000). FLIP 2000 Mauritius. In Food Law Internet Project 2000. Department of Food Science and Technology, University of Reading, UK. <http://www.fst.rdg.ac.uk/foodlaw/flip2000/mauritius.htm>.

ANNEX 2: LIST OF ENTERPRISES IN THE DAIRY SECTOR

Company	Contact Person	Products	Installed Capacity (litres/year)	Address	Tel No.	Fax No.
Happy World Foods	Mr. Nicolas Caboche	Imported Milk Powder, Ice Cream, Yoghurt, Imported Cheese	300-500,000	Caudan, Port Louis	286 9950	286 3058
Laiterie de Curepipe	Mr Thanacody	Yoghurt Flavoured Milk Cottage Cheese	4 million	Ferney Rd, Forest Side	675 2024	675 0054
Panagora Marketing - Maurilait Production Ltd	Mrs Ella Jatta	Stirred, set and drinking Yoghurt Flavoured Milk Ice Cream Sterilised Milk	10 million	Industrial Zone, Phoenix	697 2203	697 2080
Nestlé's Products (Mtius) Ltd	Mr Georges Hofmann	Imported Milk Powder, Chocolate	No processing	North Motor way, Riche Terre	248 9600	248 9595
New Zealand Milk Ltd	Mr P. Ah Lin	Imported Milk Powder, Imported Processed Cheese, butter	No processing	Anchor Bldg, Les Pailles	286 4920	286 4654
Ireland Blyth Limited	Mr Laurent Borelly	Imported Milk Powder, Imported Processed Cheese, butter	No processing	IBL Complex no.2 Riche Terre	248 8228	248 8315
Sik Yuen	Mr T. Sik Yuen	Imported Milk Powder, Imported Processed Cheese, butter	No Processing	Cmn, Pope Henessy & Royal Rd, Curepipe	674 9742	676 7070
Best Dairy	Mr Gaya	Pasteurised Milk	2 million	Ave Bertaud, Quatre Bornes		
Butter and Dairy enterprise		Dry Milk Powder	No processing	Industrial estate, Phoenix	6967970	696 7957

ANNEX 3: MAIN MILK PRODUCTS BRAND PRICES, MARCH 2004

Product	Brand Name	Country	Quantity	Retail Price (US\$)
Milk Powder				
	Red Cow	Australia	1 kg	3.62
	Anchor	New Zealand	1 kg	3.61
	Nido (Tin)	Nestle (Netherlands)	1 kg	3.77
	Red Feather	Australia	1 kg	3.46
	Everyday	Nestle (South Africa)	1 kg	4.60
	Twin Cow	Australia	1 kg	3.50
	Island Dairy	Australia	1 kg	3.04
	Farm land	Australia	1 kg	2.84
	Green Meadow	Argentina	1 kg	2.82
	Snowy	Australia	1 kg	2.98
	Winners	Australia	1 kg	3.04
				0.00
UHT Milk				0.00
	Devondale	Australia	1 litre	0.83
	Pauls	Australia	1 litre	0.90
	Red Cow	Australia	1 litre	1.03
	Anchor	New Zealand	1 litre	0.92
	Elle & Vivre	France	1 litre	1.11
	Twin Cow	Australia	1 litre	0.88
				0.00
Cheese				0.00
	Sunny South	New Zealand	250g	1.25
	Kraft's Cheddar	Australia	250g	1.19
	Kraft Philadelphia Cream Cheese	Australia	250g	1.73
	Red Cow slices	Australia	200g	1.65
Butter				0.00
	Anchor	New Zealand	227g	1.00
	Sunny South	New Zealand	227g	1.07
	Red Feather	Australia	227g	0.97
	Kerry Gold	Ireland	227g	0.92
	Elle & Vivre	France	227g	1.15
	Erica	South Africa	227g	1.04
	Red Feather (Tin)	Australia	340g	1.67
	Golden Fern	New Zealand	340g	1.81
	Even	France	227g	0.96
Evaporated Milk				0.00
	Nestle	South Africa	380g	1.04
	La Belle Hollandaise	Netherlands	410g	1.00
Sweetened Condensed Milk	La Belle Hollandaise	Netherlands	397g	1.04
	Nestle	South Africa	397g	1.00

Company	Contact Person	Products	Installed Capacity (litres/year)	Address	Tel No.	Fax No.
A. Abdul Rahim Oosman	Mr. Salim Habib	Milk powder, condensed milk	No processing	12, Louis Pasteur, Port-Louis	2422236	2414468
Societe Ho Man Cheong (Lucky Enterprise)		Milk Powder and UHT milk	No processing	68, La Paix Street, P.O. Box 835, Port-Louis	241 3331	2407230

Source: Major supermarket in Port Louis, Mauritius

ANNEX 4: APPLICATION FORM FOR PRE-MARKET APPROVAL OF CONTAINER, CONTACT MATERIAL, FOOD AND PREPACKED FOOD INTENDED FOR HUMAN CONSUMPTION

- 1. Name and address of importer/manufacturer
 - Common name of food/product
 - Scientific name of food/product (if any).....
 - Country of origin
 - Any laboratory certificate produced
 - Composition of the food/product
 - Brand name
 - Type of package
 - Material used for packaging
 - Specimen of label produced/not produced
 - Any special storage conditions
 - Has the food been treated with ionising radiation
 - Has the food been subjected to any treatment
 - If so, indicate what treatment.....

- 2. Type of food container/contact material
- Composition of the material of the food container/contact material
- Purity and grade of the container/contact material
- Country of origin
- Material of food container/contact material
- Nature of food to be packed in the food container/contact material
- Any laboratory certificate produced

.....
Signature of applicant

.....
Name and Address of applicant

Date:

ANNEX 5: REGULATION'S FOR PRE-MARKET APPROVAL PERMIT (EXTRACT)**20. Food requiring written warranty**

The food in respect of which a manufacturer or dealer or distributor, is required to give a written warranty or other written statement under Section 12 of the Food Act 1998 when selling such food to a vendor shall be those specified in the Second Schedule.

21. Selling food not of the nature demanded

No person shall sell to the prejudice of a purchaser any food, which is not of the nature or substance or quality demanded by the purchaser.

22. Provision as to false and misleading advertisement

No person shall publish or shall be party to the publication of any advertisement, which falsely describes any food, or which is likely to mislead as to the nature or substance or quality of the food unless he proves that he did not know and could not with reasonable diligence have ascertained that the publication was of such a character.

23. Application for pre-market approval of food, food container or food**Appliance**

- (a) No person shall import or manufacture any food, pre-packed food, appliance or container or contact material intended to be used for the preparation of any food, listed in the Third Schedule, unless he has obtained a pre-market approval permit issued by the Permanent Secretary.
- (b) An application for a pre-market approval permit shall be in the form specified in the Fourth Schedule.
- (c) A person who applies for a pre-market approval permit, shall upon request, furnish to the Permanent Secretary any information or sample, as may be necessary, for investigations or analysis.
- (d) Any person who has imported or manufactured any food or pre-packed food, appliance, container or contact material listed in the Third Schedule before the commencement of these regulations shall, after the commencement of these regulations, obtain the required pre-market approval permit.

24. Criteria for granting a pre-market approval permit.

- (1) The Permanent Secretary may, in deciding whether to grant or refuse an application for a pre-market approval permit, consider among other factors whether the food, pre-packed food, appliance, container or contact material, subject matter of the application is -
 - (a) Violating any regulation made under the Food Act;
 - (b) Restricted for sale in Mauritius;
 - (c) Misbranded;
 - (d) Improperly labelled; or
 - (e) Likely to be hazardous to public health.

- (2) The Permanent Secretary may stipulate such conditions as he deems fit in a pre-market approval permit.

25. Revocation of pre-market approval permit

The Permanent Secretary may revoke any pre-market approval permit if he is

Satisfied that -

- (a) The product, which is being imported or manufactured by the permit holder, is not of the same standard as the product in relation to which the pre-market approval permit was originally granted;
- (b) The holder of the permit has failed to comply with any conditions stipulated in the permit; or
- (c) The food, pre-packed food, appliance, container or contact material does not comply with standards prescribed in the regulations made under the Food Act.

ANNEX 6 FOOD COMPOSITION AND LABELLING (Extract)

3. LABELLING REQUIREMENTS OF PRE-PACKED FOOD

No person shall import, manufacture, process, pack, store, offer for sale or sell any pre-packed food unless there is on the package a label conspicuously showing the following particulars in English or French -

- (a) The name of the food, which shall reflect the true nature of the food contained therein and the label shall mention in particular whether any substance has been added or abstracted from the food;
- (b) Where the food contains edible fat or edible oil, the name of the edible fat or edible oil together with the common name of the animal or vegetable from which such fat or oil is derived;
- (c) The list of the ingredients present in the food in decreasing order of mass or Percentage;
- (d) The country of origin;
- (e) The name and address of the manufacturer or packer;
- (f) In the case of mixed or blended food, words which indicate that the contents are mixed or blended, and such words shall be conjoined with the name of the food in capital lettering;
- (g) Where the food contains alcohol, a statement as to the presence in that food of Such alcohol in capital lettering;
- (h) Where the food contains food additive, the chemical, common name, EEC Serial No. and type of the food additive;
- (i) Any special storage conditions or conditions of use, as well as the expiry date, except for food mentioned in the First Schedule;
- (j) Expiry date as well as the date of manufacture, which shall be printed on the label or embossed on the container;
- (k) The lot identification, which shall be printed on the label or embossed in code or in clear on the container to identify the lot;
- (l) The designation "treated with ionizing radiation", if the food has been so treated;
- (m) The designation that the food has been obtained as result of genetic modification or that the food contains any ingredient that is genetically modified, if that is the case;
- (n) The net weight or volume of the food;
- (o) Where the food contains beef or pork, or its derivatives or lard, a statement As to the presence in that food of such beef or pork, or its derivatives or lard;
- (p) Where the food contains edible gelatin, a statement as to the presence in that food of such gelatin and the common name of the animal from which the gelatin is obtained.
- (q) Where a claim is made as to the presence in that food of any vitamin or Mineral or amino acid, a statement setting out in the case of -
 - (i) Vitamin, the quantity of each vitamin in International Units or milligrams;
 - (ii) Mineral, the quantity of each mineral in parts per cent or milligrams; or
 - (iii) Amino acid, the quantity of each amino acid in milligrams present in a stated quantity of food.

- (r) Where the label attached to a food contains an expression or vignette or a picture indicating or implying the nature of the food, it shall be a true indication of the food contained in the package.

4. Food for which no standard is prescribed

Where no standard has been expressly prescribed in these regulations in relation to a particular food, the label on the package of that food shall not describe or present that food in a manner, by a name or with a pictorial suggesting a comparison with another food for which a standard has been prescribed in these regulations.

5. Food with decrease sodium content

No person shall import, manufacture, process, pack, store, offer for sale or sell any food whose sodium content has been decreased or eliminated, unless the label on the package of the food bears the appropriate terminology for the following quantitative standards in respect of element of sodium -

- (a) "Sodium free" - not more than 5 milligrams per 100 grams;
- (b) "Very low sodium" - not more than 35 milligrams per 100 grams;
- (c) "Low sodium" - not more than 140 milligrams per 100 grams;
- (d) "Reduced sodium" - processed to reduce the usual level of sodium by 75 per cent;
- (e) "Unsalted" - processed without sodium chloride;
- (f) "No salt added" - should express the natural sodium content in milligram per 100 grams.

6. Low calorie food

- (1) No person shall import, manufacture, process, pack, store, offer for sale or sell any food labelled -
- (a) "LOW CALORIE" unless the food contains not more than 40 calorie per 100 grams of food;
- (b) "REDUCED CALORIE" unless the calorie content of the food is one third lower than the calorie content of the food to which it is compared; and
- (c) "DIET" or "DIETIC PRODUCT" unless the product complies with the standards specified in paragraph (2).
- (2) "DIET" or "DIETIC PRODUCT" shall -
- (a) Comply with the requirements for low or reduced calorie food;
- (b) Be clearly described as being useful for special dietary purposes; and
- (c) Not make any claim to the effect that the food is guaranteed to maintain or reduce body weight.

7. Substitution of trademark for name of food

No person shall substitute the name of a food by a trademark, brand name or fancy name.

8. Authorisation to process pre-packed food

No person shall engage in the processing of any pre-packed food without the written authorisation of the Permanent Secretary.

9. Expiry date of processed food and label tampering

No person shall -

- (a) Import, expose for sale, sell, or store any pre-packed food whose expiry date has lapsed;
- (b) Alter, obliterate, remove or forge the expiry date of any pre-packed food; or
- (c) Alter, obliterate, remove or forge any label of any pre-packed food.

10. False claims on labels

No person shall make any false, misleading or deceptive claim on the label of a package of food, and any package of food so found shall, after certification by the Government Analyst, be seized and destroyed by an authorised officer.

11. Packaging on retail premises

1. WHERE ANY FOOD IS PACKAGED ON RETAIL PREMISES AND IS OFFERED, EXPOSED OR KEPT FOR SALE IN SUCH A MANNER THAT THE CUSTOMER MAY HIMSELF SELECT THE PACKAGED FOOD -

- (a) Every such package shall be sealed; and
- (b) Where the package is of a transparent material, the label required by regulation 3 may be inserted inside the package.

12. Exemption from regulation 3

The provisions of regulation 3 shall not apply to -

- (a) Any package of food if the food is of the nature, quality, quantity, origin, or brand requested by the purchaser and weighed, counted or measured in the presence of the purchaser; or
- (b) Any perishable cooked food ready for human consumption, which is packaged on retail premises in response to a demand by a purchaser for a specified quantity of such food.

13. Powers of authorised officer

- (1) An authorised officer may seize any food whose package does not comply with the labelling requirements of these regulations.
- (2) Food seized under paragraph (1) may -
 - (a) Be destroyed following the same procedure as specified in section 5 of the Food Act; or
 - (b) Be otherwise disposed of, as the Permanent Secretary deems appropriate.

14. Special labelling requirements

The provisions of the regulations in this part do not preclude the inclusion of special labelling requirements where the nature of the food so requires.

ANNEX 7: MILK AND MILK PRODUCT STANDARDS IN MAURITIUS ACCORDING TO THE FOOD ACT 1998

PART XXI - MILK AND MILK PRODUCT

253. Definition of milk, processed milk and milk product

- (1) Whole milk includes -
 - (a) raw milk; and
 - (b) fresh milk.

- (2) Processed milk includes -
 - (a) skimmed milk;
 - (b) sterilised milk,
 - (c) pasteurised milk; and
 - (d) ultra heat treated (UHT) milk.

- (3) Milk products include -
 - (a) flavoured milk;
 - (b) full cream milk powder;
 - (c) skimmed milk powder;
 - (d) partly skimmed milk powder;
 - (e) reconstituted milk;
 - (f) evaporated milk;
 - (g) sweetened condensed milk;
 - (h) filled milk;
 - (i) evaporated filled milk;
 - (j) condensed filled milk;
 - (k) filled milk powder;
 - (l) cream;
 - (m) pasteurised, sterilised or ultra heated cream;
 - (n) imitation cream;
 - (o) non-dairy coffee whitener or non-dairy creamer;
 - (p) butter;
 - (q) ghee ;
 - (r) cheese;
 - (s) cottage cheese;
 - (t) cream cheese;
 - (u) processed cheese;
 - (v) cheese spread;
 - (w) sage cheese or hard cheese;
 - (x) yogurt;
 - (y) flavoured yogurt; and
 - (z) fermented yogurt.

254. Prohibition

No person shall import, manufacture, process, pack, store, offer for sale, sell, hawk or consign whole milk, processed milk or any milk products unless it complies with the standards specified in regulations 255 to 308.

255. Standard for whole milk

- (1) Whole milk -
- (a) shall be the clean and fresh mammary secretion obtained by milking a healthy cow without any addition to it or extraction from it;
 - (b) shall contain not less than -
 - (i) 3 per cent milk fat; and
 - (ii) 8.5 per cent of non-fat milk solids.
 - (c) shall not contain any -
 - (i) added water;
 - (ii) food additive;
 - (iii) other added or foreign substance; and
 - (iv) trace of antibiotics or veterinary drugs.
- (2) (a) A person may deal in whole milk obtained from milking animals other than a cow or processed milk or milk products obtained from such milk provided he is in possession of a written authorisation issued by the Permanent Secretary.
- (b) The Permanent Secretary may, in issuing an authorisation under paragraph (a) impose such conditions and set such standards as he deems fit.

256. Dealer in whole milk

- (1) A person who -
- (a) has in his possession, exposes, deposits or delivers for the purpose of sale;
 - (b) offers for sale, sells, hawks or consigns; whole milk for human consumption shall be a dealer in whole milk.
- (2) (a) Every dealer in whole milk shall make an application for registration as such a dealer at the Health Office in the district where he resides.
- (b) An applicant shall produce to the authorised officer dealing with his application, all information and documentary evidence requested by the authorised officer.
- (c) An authorised officer may, where he is satisfied that the applicant is a dealer in milk, deliver to him a certificate of registration.
- (d) A dealer in whole milk shall produce his certificate of registration to an authorised officer whenever requested.

257. Size of milk vessels for hawking of whole milk

No person shall hawk whole milk except in a vessel, which shall be of a capacity of not less than one litre or not more than fifteen litres.

258. Sealing of consigned whole milk

A person who consigns whole milk shall ensure that the milk is carried in a churn or vessel, which is effectively closed and locked at the time it leaves his premises.

259. Proper marking of milk vessel

A person who consigns, hawks or delivers whole milk, shall have conspicuously painted on the side of every milk vessel -

- (a) An indication to the effect that the vessel contains whole milk; and
- (b) His name, surname and the number of his registration certificate.

260. Skimmed milk

(1) Skimmed milk includes skim milk, non-fat milk, and reduced fat milk and separated milk.

(2) Skimmed milk -

- (a) shall be milk from which milk fat has been removed but shall not contain more than 0.5 per cent of milk fat;
- (b) shall not contain less than 8.5 per cent of non-fat milk solids; and
- (c) shall not contain any added water or other substances.

261. Special labelling requirement for skimmed milk

No person shall import, manufacture, store, offer for sale or sell any package containing skimmed milk unless, in compliance with regulation 3 -

- (a) the words skimmed milk, skim milk, non-fat milk, reduced fat milk or separated milk, as the case may be, are mentioned on the label; and
- (b) the words "NOT SUITABLE FOR INFANTS EXCEPT ON MEDICAL ADVICE" are mentioned in capital letters.

262. Skimmed milk to be sold in packets

- (1) Subject to paragraph (2), no person shall sell skimmed milk otherwise than in a sealed packet or bottle.
- (2) Skimmed milk may be sold otherwise in a sealed packet or bottle than in a depot approved by the Permanent Secretary.

263. Sterilised milk

- (1) Sterilised milk is milk which has been filtered or clarified, homogenised, and thereafter heated to and maintained at a temperature of not less than 100°C for a length of time sufficient to render the milk sterile until its expiry date.
- (2) The heat treatment mentioned in paragraph (1) shall be carried out in a bottle and after treatment; the bottle shall be sealed so as to be airtight.
- (3) A sample of sterilised milk taken after treatment and before delivery to the consumer shall satisfy a turbidity test.

264. Pasteurised milk

Pasteurised milk -

- (a) shall be milk which has been heat-treated and retained at a temperature of not less than 63°C and not more than 65°C for Thirty minutes, immediately cooled to a temperature of not more than 4°C, immediately packed in an aseptically container and maintained at that temperature until delivery; or
- (b) shall be milk which has been heat-treated and retained at a temperature of not less than 73°C for fifteen Seconds, immediately cooled to a temperature of not more than 4°C, immediately packed in an aseptically container and maintained at that temperature until delivery.

265. Test for pasteurised milk

- (1) A licensee of a milk plant shall ensure that -
 - (a) a phosphatase test; and
 - (b) a methylene blue test are carried out after milk has been pasteurised but before delivery for human consumption.
- (2) A licensee of a milk plant shall not deliver pasteurised milk for human consumption unless the milk satisfies -
 - (a) the phosphatase test and does not contain *coliform bacillus* in 0.01 millilitre of the milk; and
 - (b) the methylene blue test.
- (3) A person taking a sample of pasteurised milk for the purpose of a methylene blue test shall ensure that the sample is kept in an insulated container without artificial cooling until it reaches the laboratory.

266. Condition for storing pasteurised milk

A licensee of a milk plant or a person who sells pasteurised milk shall ensure that the milk is properly kept at all times at a temperature of 4°C or less until it is delivered or sold for human consumption.

267. Ultra-heat treated milk

Ultra Heat Treated (UHT) milk shall be milk which has at a continuous flow, been subjected to heat treatment of not less than 135°C for at least two Seconds and immediately aseptically packed in a sterile container.

268. Special labelling requirement for pasteurised milk, sterilised milk or ultra-heat treated milk

No person shall import, manufacture, store, offer for sale or sell any package containing pasteurised milk, sterilised milk or ultra heat treated milk unless, in compliance with regulation 3 -

- (a) the package is marked or labelled so as to indicate the name and address of the milk plant where the milk was processed; and
- (b) the label indicates the nature of the milk contained in the package together with the date when the milk was pasteurised or sterilised or ultra heat treated;

269. Flavoured milk

Flavoured milk –

- (a) shall be whole milk, processed milk or reconstituted milk to which any permitted flavouring substance listed in the Twenty-Third Schedule has been added and which shall have been efficiently heat-treated by one of the methods specified in regulations 263, 264 and 267;
- (b) shall contain not less than:-
 - (i) 3 per cent milk fat; and
 - (ii) 8.5 per cent of non-fat milk solids;
- (c) may contain any permitted colouring substance listed in the Nineteenth Schedule; and
- (d) may contain permitted food conditioner as provided in the Forty-Fifth Schedule; and
- (e) may contain added sugar.

270. Full-cream milk powder

Full cream milk powder or dried full cream milk -

- (a) shall be milk from which water has been removed.
- (b) shall not contain more than 5% of water;
- (c) shall contain not less than 26% of milk fat; and
- (d) may contain permitted food conditioner as provided in the Forty-Fourth and Forty-Fifth Schedules.

271. Special labelling requirement for full cream milk powder

No person shall import, manufacture, pack, store, offer for sale or sell any package containing full cream milk powder unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS BELOW THE AGE OF SIX MONTHS" are mentioned on the label.

272. Skimmed milk powder

Skimmed milk powder-

- (a) shall be the product obtained by removing the water from skimmed milk.
- (b) shall not contain more than:-
 - (i) 5 per cent of water; and
 - (ii) 1.5 per cent of milk fat; and
- (c) may contain permitted food conditioner as provided in the Forty-Fourth and Forty-Fifth Schedules.

273. Special labelling requirement for skimmed milk powder

No person shall import, manufacture, pack, store, offer for sale or sell any package containing skimmed milk powder unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS EXCEPT ON MEDICAL ADVICE" are mentioned on the label.

274. Partly skimmed milk powder

Partly skimmed milk powder-

- (a) shall be the product obtained by removing water from partly skimmed milk.
- (b) shall contain -
 - (i) more than 1.5% and less than 26% milk fat; and
 - (ii) not more than 5% water.

275. Special labelling requirement for partly skimmed milk powder

No person shall import, manufacture, pack, store, offer for sale or sell any package containing partly skimmed milk powder unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS EXCEPT ON MEDICAL ADVICE" are mentioned on the label.

276. Reconstituted milk

- 2. (1) RECONSTITUTED MILK -
 - (a) shall be the liquid product prepared by the addition of water to full cream milk powder; and
 - (b) shall be pasteurised, sterilised or ultra heat treated as specified in regulations 263, 264 and 267.
- (2) No person shall sell reconstituted milk otherwise than in a sealed package.

277. Evaporated milk

Evaporated milk or unsweetened condensed milk -

- (a) shall be the product obtained by evaporating a portion of water from milk, or by reconstitution of milk constituents and submitting the reconstituted milk constituents to part evaporation;
- (b) shall contain not less than -
 - (i) 7.5% of milk fat; and
 - (ii) 25% of total milk solids;
- (c) may contain permitted food conditioner as provided in the Fourth-Fifth and Forty- Sixth Schedules.

278. Special labelling requirement for evaporated milk

No person shall import, manufacture, pack, store, offer for sale or sell any package containing evaporated milk unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS" are mentioned on the label.

279. Condensed milk

Condensed milk -

- (a) shall be the product obtained by evaporating a portion of water from milk, or by reconstitution of milk constituents and submitting the reconstituted milk constituents to part evaporation and to which sugar has been added;
- (b) shall contain not less than -
 - (i) 28% of total milk solids; and
 - (ii) 8% milk fats; and
- (c) may contain sugar.

- 280. Special labelling requirement for condensed milk**
No person shall import, manufacture, pack, store, offer for sale or sell any package containing condensed milk unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS" are mentioned on the label.
- 281. Filled milk**
Filled milk -
- (a) shall be whole milk from which the milk fat has been replaced wholly or partly by an equivalent amount of edible vegetable oil or edible vegetable fat or a combination of both;
 - (b) shall be sterilised or ultra heat treated; and
 - (c) shall contain not less than -
 - (i) 3% fat, and
 - (ii) 8.5% non-fat milk solids;
- 282. Special labelling requirement for filled milk**
No person shall import, manufacture, pack, store, offer for sale or sell any package containing filled milk unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS" are mentioned on the label.
- 283. Evaporated filled milk**
Evaporated filled milk or unsweetened condensed filled milk shall in all respects comply with the standard for evaporated milk or unsweetened condensed milk except that the milk fat content is replaced by edible vegetable oil or edible vegetable fat.
- 284. Special labelling requirement for evaporated filled milk**
No person shall import, manufacture, pack, store, offer for sale or sell any package containing evaporated filled milk or unsweetened condensed filled milk unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS" are mentioned on the label.
- 285. Condensed filled milk**
Condensed filled milk shall comply with the standard for sweetened condensed milk except that the milk fat content is replaced by edible vegetable oil or edible vegetable fat.
- 286. Special labelling requirement for condensed filled milk**
No person shall import, manufacture, pack, store, offer for sale or sell any package containing condensed filled milk unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS" are mentioned on the label.
- 287. Filled milk powder**
Filled milk powder or dried filled milk shall be milk from which water has been removed, and shall comply with the standards for full cream milk powder, except that the milk fat content is replaced by edible vegetable oil or edible vegetable fat.

288. Special labelling requirement for filled milk powder

No person shall import, manufacture, pack, store, offer for sale or sell any package containing filled milk powder unless, in compliance with regulation 3, the words "THIS PRODUCT IS NOT SUITABLE FOR INFANTS BELOW THE AGE OF SIX MONTHS" are mentioned on the label.

289. Cream

- (1) Cream -
 - (a) shall be a milk product obtained by separating the constituents of whole milk, through a mechanical separation process and may have varying percentages of fat as specified in paragraph (2);
 - (b) shall have a minimum fat content of 18%;
 - (c) shall have a maximum level of 2% milk solids non fat and 0.1% caseinates;
 - (d) may contain permitted emulsifiers as provided in the Thirty-Ninth Schedule;
 - (e) may contain permitted stabilisers as provided in the Forty-Fifth Schedule;
 - (f) may contain permitted thickening agent as provided in the Forty-Sixth Schedule; and
 - (g) may contain any permitted flavouring substance listed in the Twenty-Third Schedule.
- (2)
 - (a) Cream may be varied depending on the percentage of fat as specified in paragraph (b).
 - (i) Half cream shall have a minimum fat content of 10% and a maximum fat content of less than 18%;
 - (ii) Whipping or whipped cream shall have a minimum fat content of 28%;
 - (iii) Heavy whipped cream shall have a minimum fat content of 35%; and
 - (iv) Double cream shall have a minimum fat content of 45%.

290. Pasteurised, sterilised, ultra-heat treated cream

- (1) Pasteurised cream shall be cream which –
 - (a) has been manufactured from pasteurised milk; or
 - (b) has been pasteurised by either of the methods of heat treatment mentioned in regulation 264.
- (2) Sterilised cream shall be cream which has been sterilised by the method of heat treatment mentioned in regulation 263 while the cream is in the container in which it is supplied to the consumer; and
- (3) Ultra heat treated cream shall be cream which has been ultra heat treated in a continuous flow by the method of heat treatment mentioned in regulation 267 and which has been packed aseptically.

291. IMITATION CREAM

Imitation cream -

- (a) shall be an emulsion of fat with or without other foodstuff and flavouring, prepared in imitation of cream; and
- (b) shall contain not less than 35% of total fats.

292. Special labelling requirement for imitation cream

No person shall import, manufacture, store, offer for sale or sell any package containing imitation cream unless, in compliance with regulation 3 -

- (a) the words "IMITATION CREAM" are mentioned on the label; and
- (b) the label does not bear any pictorial suggesting that the product is cream derived from cow's milk.

293. Non-dairy creamer

Non-dairy creamer -

- (a) shall be a mixture of coffee in powder form, reducing sugars and hydrogenated edible vegetable fat;
- (b) shall contain not less than 35% of total fat;
- (c) may contain -
 - (i) mono and di-glycerides of fat-forming fatty acids or lecithin in a proportion not exceeding 6%;
 - (ii) potassium phosphate not exceeding 2%; and
 - (iii) sodium silico-aluminate in proportion not exceeding 0.3% of the total volume of the creamer; and
- (d) may contain any permitted flavouring listed in the Twenty-Third Schedule.

294. BUTTER

Butter -

- (a) shall be the fatty product exclusively derived from milk;
- (b) shall have -
 - (i) a minimum fat content of 80%;
 - (ii) a maximum milk solids-non-fat content of 2%; and
 - (iii) a maximum water content of 16%.
- (c) may contain annato, beta-carotene or curcumin as food colours;
- (d) may contain as neutralising salts -
 - (i) a maximum of 2000 milligram per kilogram of sodium orthophosphate;
 - (ii) sodium carbonate;
 - (iii) sodium bicarbonate;
 - (iv) sodium hydroxide; or
 - (v) calcium hydroxide;
- (e) may contain sodium chloride; and
- (f) shall not contain -
 - (i) any fat or oil foreign to milk; and
 - (ii) any preservative.

295. Ghee

Ghee -

- (a) shall be the products exclusively obtained from butter or cream and resulting from the removal of water and solids-non-fat content.
- (b) shall have -
 - (i) a minimum milk fat content of 99.3%; and
 - (ii) a maximum water content of 0.5%;
- (c) may contain permitted antioxidants as provided in the Twenty-Eighth Schedule; and
- (d) shall not contain any substance foreign to milk or cream or butter.

296. Cheese

Cheese -

- (a) shall be the fresh or matured solid or semi-solid product obtained by coagulating whole milk, skimmed milk, cream, butter milk, whey or any mixture of these, with protein coagulating enzymes and subjecting the mixture to heat;
- (b) shall contain not less than 40% of milk fat on a water-free basis;
- (c) shall not contain any fat other than milk fat;
- (d) may contain -
 - (i) ripening ferments; and
 - (ii) harmless acid producing bacterial cultures and mould cultures;
 - (iii) permitted preservative as provided in the Twelfth and Thirteenth Schedules;
 - (iv) permitted colouring substance of vegetable origin as provided in the Seventeenth and Eighteenth Schedules and
 - (v) any permitted flavouring substance listed in the Twenty-Third Schedule;
- (e) may be coated with harmless wax or plastic;

297. Cottage cheese

Cottage cheese -

- (a) shall be cheese made from pasteurized milk from which all the fat has not been removed with protein coagulating enzymes;
- (b) shall not contain more than 80% water; and
- (c) may contain permitted preservative as provided in the Twelfth Schedule.

298. Cream cheese

(1) Cream cheese shall be cheese -

- (a) made from cream; or
- (b) From milk to which cream has been added;

(2) Cream cheese shall -

- (i) contain not more than 55% water;
- (ii) contain not less than 65% milk fat on a water-free basis;
- (iii) contain 0.5% stabiliser as permitted food conditioner as provided in the Forty-Fifth Schedule;

- (3) Cream cheese may contain permitted preservative as provided in the Twelfth Schedule.

299. Processed cheese

Processed cheese -

- (a) shall be the product obtained by processing cheese which has been comminuted, emulsified and pasteurised;
- (b) shall contain -
- (i) cultures of harmless bacteria;
 - (ii) not less than 45% of milk fat on a water-free basis; and
 - (iii) not more than 3% of emulsifying agent sodium phosphate or sodium citrate;
- (c) may contain -
- (i) permitted preservative as provided in the Twelfth and Thirteenth Schedules;
 - (ii) permitted colouring substance as provided in the Nineteenth Schedule;
 - (iii) any permitted flavouring substance listed in the Twenty-Third Schedule;
 - (iv) any permitted flavour enhancer listed in the Twenty-Sixth Schedule; or
 - (v) permitted food conditioner as provided in Fortieth, Forty-Second, Forty-Fifth and Forty-Sixth Schedules.

300. Cheese spread

- (1) Cheese spread includes cheese paste and cheese mixture.
- (2) Cheese spread -
- (a) shall be a paste prepared from cheese together with other foodstuff and condiment;
 - (b) shall not contain-
 - (i) less than 75% cheese;
 - (ii) more than 50% moisture; and
 - (iii) more than 3% permitted emulsifier as provided in the Fortieth Schedule.
- (c) may contain -
- (i) Permitted preservative as provided in the Twelfth Schedule;
 - (ii) permitted colouring substance of vegetable origin as provided in the Eighteenth Schedule;
 - (iii) any permitted flavouring substance listed in the Twenty-Third Schedule; and
 - (iv) permitted food conditioner as provided in the Fortieth, Forty-Second, Forty-Fifth and Forty-Sixth Schedules.

301. Sage cheese

- (1) Sage cheese -
- (a) shall be cheese containing herbs; and
 - (b) shall, subject to paragraph (2), not have on it any colouring substance.
- (2) Sage cheese may have on it carotene or annato as a colouring substance.

302. Hard and soft cheese

- (1) Soft cheese -
 - (a) shall be cheese which is readily deformed by moderate pressure; and
 - (b) shall not contain any colouring substance.

- (2) Hard cheese -
 - (a) shall be cheese other than soft cheese, whey cheese or processed cheese; and

 - (b) shall, subject to paragraph (3), not contain any colouring substance.

- (3) Hard cheese may have on its surface, carotene or annatto as a colouring substance.

303. Yogurt

- (1) Yogurt, shall be the coagulated product obtained from pasteurised milk, pasteurised cream or a mixture of both which has been subjected to lactic acid fermentation through the action of organisms of the types *Lactobacillus bulgaricus* and *streptococcus thermophilus*.

- (2)
 - (a) Yogurt shall be made from whole milk or cream and shall contain not less than 3% of milk fat;
 - (b) Reduced fat yogurt shall be made from reduced-fat milk and shall contain more than 0.5% but less than 3% milk fat; and
 - (c) Non-fat yogurt shall be made from non-fat milk and shall contain not more than 0.5% milk fat.

- (3) Yogurt, reduced-fat yogurt and non-fat yogurt -
 - (a) shall contain not less than 8.2% of milk solids other than fat;
 - (b) shall have a pH value not greater than 4.5;
 - (c) shall not contain more than one *Escherichia Coli* in 1gm of yogurt;.
 - (d) may contain added sugar; and
 - (e) may contain any permitted flavouring substance listed in the Twenty-Third Schedule.

304. Flavoured yogurt

- (1) Flavoured yogurt shall be yogurt, reduced-fat yogurt or non-fat yogurt mixed together with fruit, fruit pulp, sliced fruit, fruit juice, or flavouring derived from fruit.

- (2) Flavoured yogurt -
 - (a) shall contain not less than 5 % fruit or fruit juice;
 - (b) may contain sugar;
 - (c) may contain permitted preservative as provided in the Twelfth Schedule;
 - (d) may contain any permitted colouring substance listed in the Eighteenth Schedule; and
 - (e) may contain gelatin, which shall not exceed 1% of the yogurt.

305. Special labelling requirements for flavoured yogurt

No person shall import, manufacture, process, store, offer for sale or sell any package containing flavoured yogurt, unless in compliance with regulation 3 -

- (a) the words "FLAVOURED YOGURT (followed by the name of the fruit or fruit flavouring)" are mentioned on the label; and
- (b) the label does not bear any expression denoting fruit or pictorial representation of fruit where the yogurt does not contain fresh, canned, quick frozen or powdered fruit.

306. Curdled milk

- (1) Curdled milk includes fermented milk.
- (2) Curdled milk -
 - (a) shall be the product obtained by subjecting sterilised or pasteurised whole milk, or skimmed milk to inoculation with a culture of organisms of the type *Lactobacillus acidophilus* or *Lactobacillus bulgaricus*;
 - (b) may contain added lactose;
 - (c) may contain any permitted flavouring substance listed in the Twenty-Third Schedule; and
 - (d) shall have a pH of not less than 0.5 and not more than 1.

307. Milk processing plant

- (1) A milk processing plant is a plant where milk is processed or milk products are manufactured.
- (2)
 - (a) No person shall operate a milk processing plant unless he has a valid written permit issued by the Permanent Secretary
 - (c) The Permanent Secretary may, when issuing a permit, impose such sanitary conditions as he deems fit.
 - (c) The holder of a permit shall renew the permit annually.
- (3) The licensee of a milk processing plant shall, while the plant is in operation, allow an authorised officer to enter upon his premises so as to inspect the condition of the premises and of the equipment, and to carry out any test which the authorised officer may deem fit.

308. Standards of equipment of a milk processing plant

The owner, occupier or licensee of a milk plant shall ensure that -

- (a) the whole of the apparatus in which milk is pasteurised, or sterilised or ultra heat treated including the cooler, is so constructed as to afford protection to such milk from any risk of atmospheric contamination;
- (b) all piping, fitting and connection is of stainless steel and of suitable design, and of such interior dimensions as to be easily cleaned;
- (c) the temperature of milk or of the medium by which such milk is to be maintained at any temperature is automatically controlled;
- (d) any apparatus in which milk is to be heated to and maintained at a temperature of 63°C or more is provided with a safety device, which shall -

- (i) automatically divert the flow of milk which is not raised to or maintained at the temperature of 63 °C or more; and
 - (ii) prevent the mixture of heat-treated milk with milk, which has not been raised to a temperature of 63 °C or more.
- (e) a thermometer approved by the Permanent Secretary is installed in a suitable place in the apparatus where milk is processed.
- (f) all temperature charts or recordings of thermometers are dated and are kept for a period of not less than one year;
- (g) accurate daily records of -
- (i) the quantity, quality, nature and source of milk received at the plant; and
 - (ii) the quantity of pasteurised, sterilised or ultra heat treated milk and milk products leaving the plant; are kept for a period of not less than one year.
- (h) any record kept under paragraphs (f) and (g) are produced to an authorised officer on demand.

PART XXII - ICE-CREAM AND RELATED PRODUCT**309. Prohibition**

No person shall import, manufacture, process, pack, store, offer for sale or sell ice-cream unless it complies with the standards specified in regulations 310 to 318.

310. Definition of ice cream

Ice cream -

- (a) shall be the product obtained by freezing a mixture of milk with one or more of the following -
 - (i) milk fat;
 - (ii) vegetable fat;
 - (iii) cream;
 - (iv) butter; or
 - (v) sugar;
- (b) may contain other food;
- (c) shall contain not less than 10% of milk fat or vegetable fat or a combination of these;
- (d) shall not contain any farinaceous substance, other than gelatinised starch; and
- (e) shall contain any permitted colouring substance listed in the Eighteenth Schedule.

311. Definition of milk ice

Milk ice -

- (a) shall be the product obtained by freezing a mixture of milk with one or more of the following -
 - (i) water;
 - (ii) sugar;
 - (iii) glucose; or
 - (iv) fruit juice.
- (b) shall contain not less than 8% of whole milk solids; and
- (c) may contain permitted colouring as provided in the Nineteenth Schedule.

312. Microbiological standard

Ice-cream or milk ice shall comply with the microbiological standard in the Eighth Schedule.

313. Heat treatment of ice cream

Ice cream together with any ingredient used in the preparation of ice-cream shall be frozen after having been efficiently heat-treated by being kept at a temperature of not less than -

- (a) 69°C for at least 20 minutes;
- (b) 74°C for at least 10 minutes; or
- (c) 80°C for at least 10 Seconds.

314. Incorporation of air in ice cream

The volume of air incorporated in ice cream shall be such that the weight per unit of volume of ice cream in its frozen state is not be less than 0.51 calculated as gram per millilitre.

315. Level of gelatin permitted

The addition to ice cream of gelatin, sodium alginate, edible gum, pre-gelatinised starch and the mono or di-glycerides of fat-forming fatty acids is permitted either singly or in combination but in a total proportion not exceeding 1.4%.

316. Special labelling requirement for ice cream

- (1) No person shall import, manufacture, process, pack, store, offer for sale or sell any package of ice cream unless in accordance with regulation 3, the label complies with paragraph (2).
- (2)
 - (a) The label shall not bear the word "DAIRY" or any word of similar meaning if the fat content of the ice-cream is not derived solely from milk.
 - (b) Where the ice cream contains a fruit flavour, the label shall not indicate the flavour by the name of the fruit unless the ice cream contains more than 5% of that fruit or the juice of that fruit.
 - (c) The label shall not bear the picture of a fruit or any expression implying the presence of a fruit or fruit juice unless the ice cream contains at least 5 % of that fruit or fruit juice.

317. Dairy ice mix

Dairy ice mix -

- (a) shall be a mixture of foodstuff, the fat content of which consists only of milk fat, and which is used in the preparation of ice-cream;
- (b) may contain permitted stabiliser as provided in the Forty Fifth Schedule;

318. Ice cream prepared from dairy ice mix

Where dairy ice mix is used, according to written directions contained on its package, to prepare ice cream, the ice-cream shall contain not more than 5% of milk fat and not more than 1.4% stabilisers.