

DAIRY

Facts & Figures

Jamaica Dairy
Development Board
2002 - 2003

PREFACE

The year 2003 marks the fourth year since the inception of the Jamaica Dairy Development Board which was established as the primary instrument of the Government of Jamaica for conceptualising, implementing and maintaining cohesive policies for the development of a sustainable and internationally competitive local dairy sector.

In order to inform this process as well as to empower stakeholders, the Board since inception, has been collecting and analysing available information on the performance of the sector and disseminating this information principally through its annual publication of Dairy Facts and Figures.

This fourth volume attempts an introductory brief review of the sector over the past decade as well as stimulating participation in ongoing discussion and consultation on indicative policy measures. We have, however, largely retained the format of earlier volumes.

We hereby invite your questions and comments on the issues raised and any other relevant issues.

The Board acknowledges the continued assistance of STATIN, the Data Bank of the Ministry of Agriculture, Trade Board Ltd, The Customs Department, The Jamaica Livestock Association Ltd, The Jamaica Dairy Farmers Federation, Serge Island Farms/Dairies Ltd, Nestle JMP Ltd and other agencies who have truly been our partners in this publication.

Our shared, undiminished enthusiasm and confidence in the enormous potential of the Dairy Sector for national development remains our most potent tool in effecting its realization.

Paul Jennings, Ph.D.
Chief Executive Officer

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DAIRY FACTS AND FIGURES

JAMAICA DAIRY DEVELOPMENT BOARD

The year 2003 marks the fourth full year of operation of the Jamaica Dairy Development Board. The year under review reflects continued decline in the local production of milk, a situation that continues to challenge the Board to develop effective policies and strategies for the timely restoration of the local dairy-farming sector.

The mission of the Board continues to be:-

To ensure the creation of a policy environment, which will stimulate the orderly development of the Jamaican Dairy Industry in a sustainable and globally competitive manner for the benefit of the producers and consumers of milk in Jamaica.

In keeping with its mission of making the dairy sector globally competitive on a long-term sustainable basis, the Board continues to seek to:

- promote the interest of the dairy sector and assist in its development;
- increase efficiency in production and marketing;
- ensure a level playing field for all the players in the sector;
- promote policy, planning, analysis and monitoring the growth of the dairy sector through collecting, analysis and dissemination of reliable statistics.

ACTIVITIES OF THE DAIRY DEVELOPMENT BOARD

The major activities for the year 2002 included the following:

- Publication of Dairy Facts and Figure 2001/2002
- Cost of Milk Production Survey for 2002
- Contributed to drafting of Cabinet Submission proposing reform of Tariff Regime for Dairy Imports.
- Completed 2-year study at Serge Island on cost of producing grass.
- Collaborated with the Jamaica Dairy Farmers Federation in the planning and staging of a series of training workshops for Dairy Farmers, commencing with workshop at WINDALCO's Grove Place Station in March 2003.
- Prepared proposal for Ice Cream Production and Marketing on behalf of Jamaica Dairy Farmers Federation. Project to be funded by Agricultural Support Services Project (ASSP).

- Presented papers on (a) Cost of Milk Production in 2001, (b) Cost of Grass Production; at Jamaican Society for Agricultural Sciences (JSAS) Annual Conference held at Bodles in May 2002.
- Publication of two papers by Dr. Paul Jennings (CEO) in December 2002 volume JAGRIST
 - (a) Whither the Jamaican Dairy Industry? JAGRIST 14 (2): 2-13.
 - (b) Perspectives on the Jamaican Dairy Industry: The role of the Jamaica Hope in the National Milk Production Enhancement Strategy: JAGRIST 14 (2): 14-25.
- Medium Term Policy Framework for the Dairy Sector (In Preparation).

STATUS OF THE DAIRY SECTOR

Brief Historical Review

Following the recovery recorded between 1995 and 1999 when production reached 28 million litres, local production of milk has shown continued decline over the past three years falling to 20.4 million litres in 2002. Over the past decade farmers' have lost 45 percent of their share of the dairy products market.

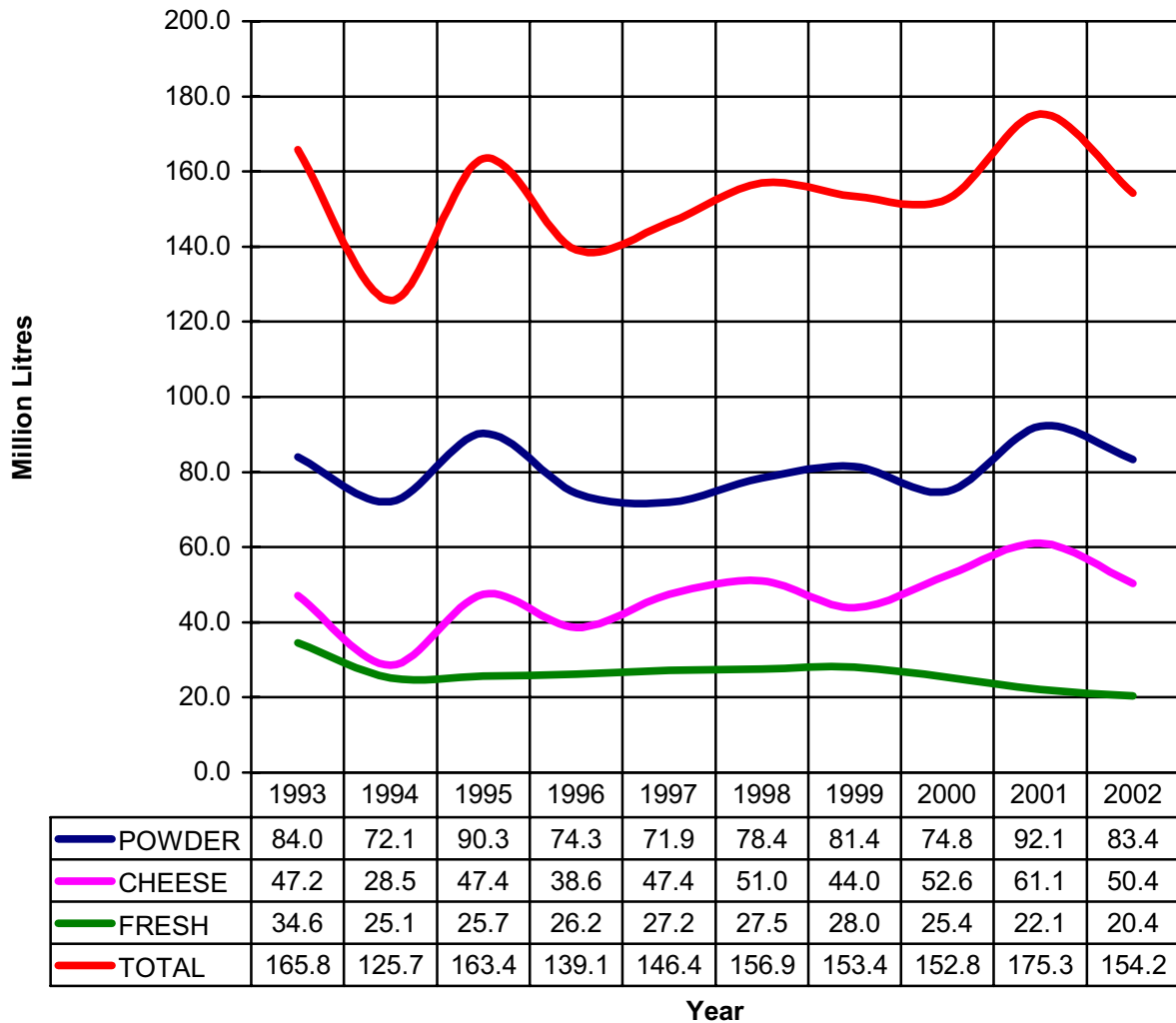
Imports in 2001 (20,374 mt.) were the highest for the past decade. The 7 percent decline in imports reported for 2002 gives little cause for optimism, as this was inconsistent with movements of prices of milk solids on the world market.

A review of the past decade shows that imports of whole milk powder have declined significantly below the levels of a decade ago (7891 mt in 1995) which coincided with aggressive export strategies by the EU to market whole milk powder in the face of shifts away from the consumption of butter. Consequentially there has been a replacement by skimmed milk powder, imports of this product expanding from a 1997 low of 644 metric tons to 6242 mt in 2001.

During the past decade daily per capita consumption of milk and dairy products averaged approximately 162ml., ranging from 132 to 185ml. These levels contrast with the WHO standard for minimum daily intake of 200ml. per person

The upsurge in imports of powdered milk following trade liberalization a decade ago has not been sustained, average imports for the last three years actually representing a 6 percent reduction in consumption in comparison to the period 1993-1995.

Figure 1: Sources of Milk Solids



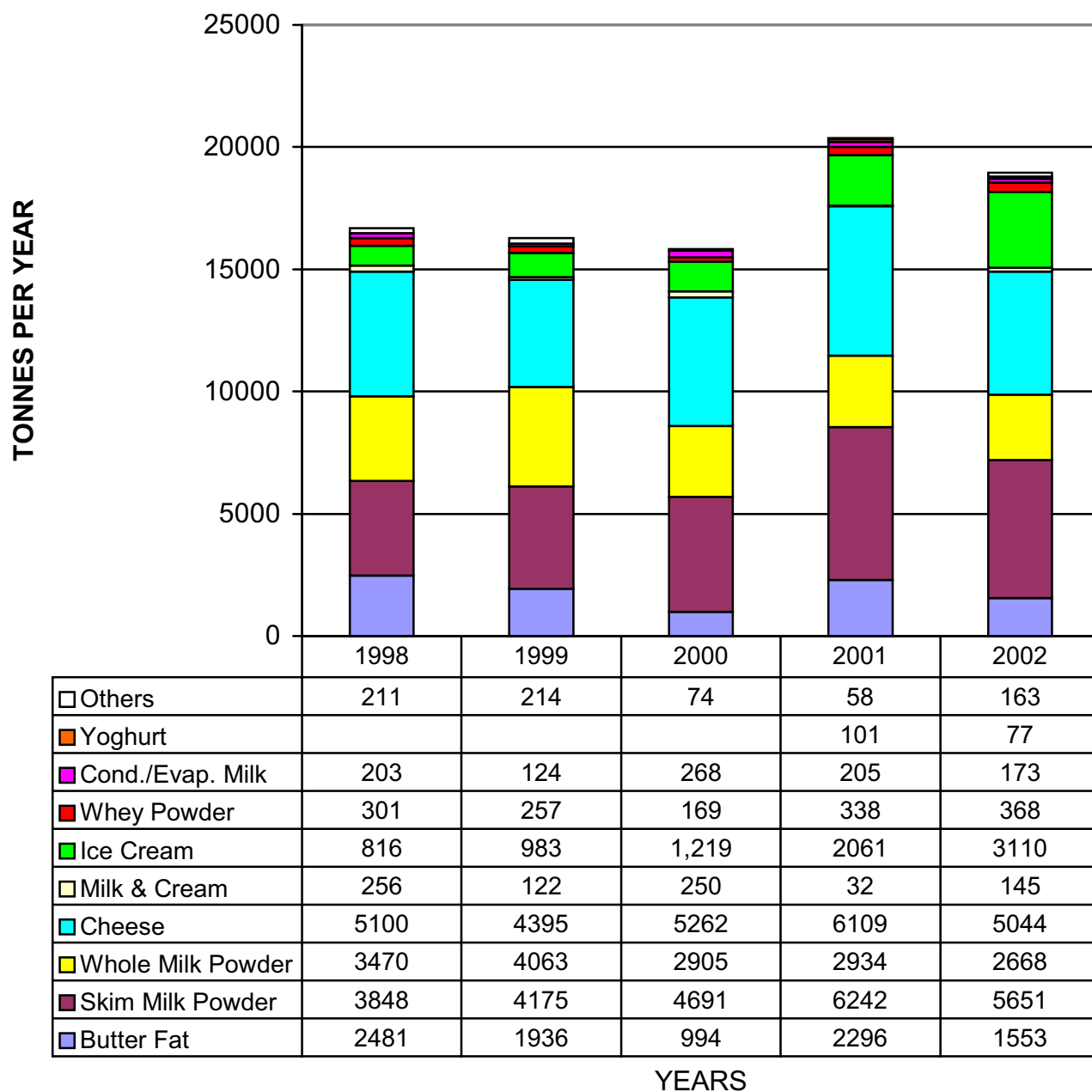
The only import reflecting a consistent positive growth over the past decade was ice cream, imports of which reflect compensation for reduced locally produced ice cream following the cessation of production by Nestle JMP in 2000.

The stagnation observed in per capita consumption and the decline in powder imports is largely a reflection of the negative impact of the very high margins, which have, characterized the local dairy trade. These have served to suppress demand, as the suppressed import prices have not redounded to the advantage of the Jamaican consumer.

The local milk producing and processing sector will need to take the lead in stimulating increased consumption of milk and dairy products through production and marketing strategies aimed at reducing the wide margin between farm gate and householder.

In concert with this, fiscal policy measures aimed at stimulating increased use of local milk by manufacturers, in preference to imports, will need to be implemented to procure a resurgence in local dairy farming and the exploitation of this enterprise for its undoubted potential for contributing to national development.

Figure 2: DAIRY PRODUCT IMPORTS



Current Dairy Situation

Imports of dairy products in 2002 (18,952 mt.) represented a 7 percent fall below the previous year but translate to a 16.5 percent increase in comparison to imports for the period 1998-2000 (see Table 1). Taken together the average imports of ice cream (2,585 mt.), cheese (5,576 mt.) and SMP (5,946 mt.) represent a distinct upward trend in comparison with the preceding three years, import levels increasing by 156%, 13.3% and 40.3% respectively. Imports of whole milk powder continued the

declining trend observed since 2000, a 9.0% fall in imports recorded for 2002 compared with the previous year.

Table 1: Annual Imports

Annual Import of Dairy Product (Kg)					
	1998	1999	2000	2001	2002
Milk & Cream	256,269	122,797	249,881	31,719	145,192
Skim Milk Powder	3,848,888	4,175,753	4,691,927	6,241,947	5,650,822
Whole Milk Powder	3,470,998	4,063,298	2,904,849	2,933,666	2,668,064
Condensed/Evap Milk	202,033	124,885	267,836	204,667	172,987
Whey Powder	301,763	257,436	169,211	337,678	367,726
Ice cream	816,328	983,381	1,219,198	2,061,170	3,110,243
Yoghurt				100,698	77,435
Cheeses	5,100,690	4,395,802	5,262,478	6,108,772	5,044,332
Butter Fat	2,481,744	1,936,929	993,632	2,296,295	1,553,113
Others	211,510	214,026	73,625	57,834	163,038
Total	16,690,223	16,274,307	15,832,637	20,374,446	18,952,056

Table 2: Value Of Annual Imports

Annual Value of Imports (US \$)					
	1998	1999	2000	2001	2002
Milk & Cream	459,875	184,892	584,498	71,039	282,439
Skim Milk Powder	6,548,093	6,122,434	8,069,559	14,364,756	10,048,595
Whole Milk Powder	6,771,265	6,710,659	5,440,283	6,775,969	4,480,202
Condensed/Evap Milk	323,078	158,940	353,869	492,294	240,005
Whey Powder	247,542	193,090	131,163	500,485	269,375
Ice Cream	1,630,663	2,200,218	2,562,182	3,952,259	5,455,626
Yoghurt				237,009	204,968
Cheeses	15,409,570	13,091,625	14,354,568	17,235,078	14,881,634
Butter Fat	5,811,540	4,368,593	1,654,174	4,546,202	2,713,621
Others	468,817	428,213	124,743	161,222	348,619
Total	37,670,443	33,458,664	33,275,039	48,336,313	38,919,954

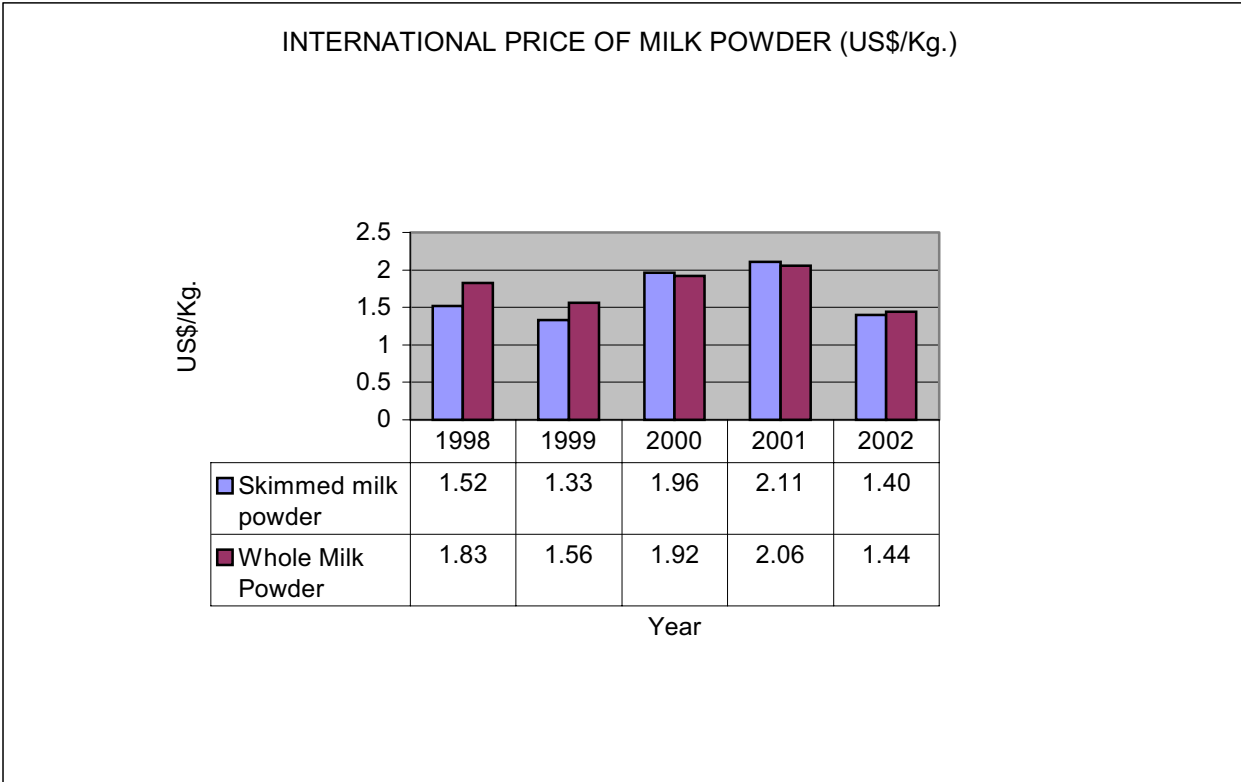
For the year in review a total of 18,952 tonnes of dairy product was imported at a value of US\$38.92 million (Table 2), a decrease in foreign exchange expenditure of 19 percent below 2001.

Ice cream imports increased by 51 percent over the 2001 level reflecting a slight slowing in growth as import levels approach the production volumes lost to the local manufacturing sector since 2000.

Importation of **yoghurt** became significant in 2001 (100.6 tonnes) but the year in review has seen a 23% decline to 77.4 tonnes.

The international price of powdered milk for 2002 continued to exhibit the volatility of the past five years, average price (SMP and WMP) of US\$1420/mt representing a fall of 32 percent below 2001. European SMP prices fell to a low of US\$1,220/mt in August 2002 (Fig 3) but recovered to US\$1,600/mt by year-end. WMP moved in lockstep at a marginally higher price (Table3).

Table 3: Trends In International Price of Milk Powder (1998-2002).



Source: USDA/FAS

VALUE OF THE INDUSTRY

The local sector continued to experience the attrition, which has marked the past decade, a number of herds being liquidated during 2001 and 2002. There was no new product introduced during the past year, the range of products being marketed remained largely those catalogued in Table 1.

The value of the Jamaican dairy products market for 2002 was estimated to be a minimum of J\$8.7 billion. Per capita expenditure on milk and milk products in 2002 was approximately \$ 2,600. The farmers' share of this market declined to J\$370 million or 4.2 percent. Local milk production attained a peak of 38.8 million litres in 1992 (or 24 percent of local consumption) but has consistently declined since. This bespeaks the need for an urgent review of national policy on dairying as well as the need for farmers to intensify their management strategies to enhance their competitiveness with imported milk solids.

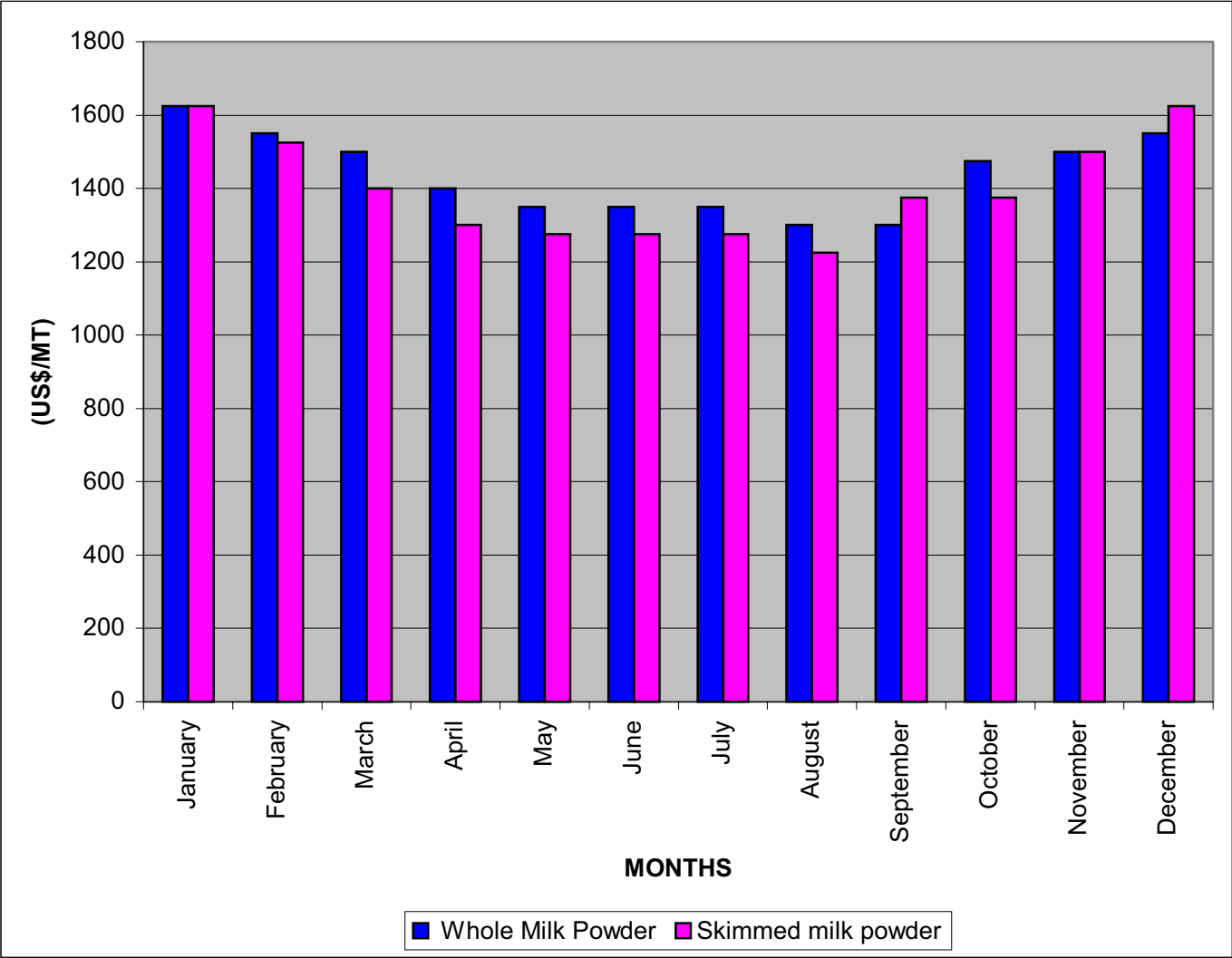
The per capita consumption of milk and milk products was equivalent to approximately 162.5 millilitres of milk per day a decrease of 12% below 2001.

WORLD MILK POWDER PRICES

The most significant feature of the international dairy market in 2002 was the continued suppression of prices due largely to the intensification of export and production subsidies among the major producing countries.

During the first half of 2002 European powder prices were down to US\$1,250.00/tonne (see Figure 3). After the initial decline in the price of both skimmed and whole milk powder (WMP) in the latter half of year 2002 a marginal recovery was recorded. However local imports of powder did not respond to the attractiveness of this temporary low price regime. The average price for European skimmed milk powder was US\$1,420 respectively (Source USDA, FAS).

FIGURE 3: WORLD MILK POWDER PRICES YR 2002



Source: USDA/FAS

CONSUMPTION OF MILK SOLIDS IN JAMAICA

Table (4) shows the mean per capita consumption of selected dairy products for Jamaica in 2002. The Kingston Metropolitan Area continued to be the major market with per capita expenditure 22 percent above the national average. Overall per capita expenditure on milk products declined by 4 percent below the 2001 level.

The partitioning of the consumer dollar for dairy products reflects a 7 percent decline in household purchases of liquid milk (in nominal terms). Householders also reduced their purchases of cheese (12%) food drinks (4%) other dairy products (16%) including yoghurt and ice cream as the major categories. Increased expenditure was recorded for condensed milk (2%) and powered milk (8.5%) while that for butter was maintained.

With respect to consumption patterns across wealth classes, the wealthiest quintile increased their share of total consumption of dairy products to 39.6 percent (up 4.6 percentage units) compared to 2001, while the consumption levels within the poorest quintile slipped from 9 to 8 percent. Looked at from another perspective consumption by the poorest 1/5th of the population represented 20 percent of consumption of milk products by the wealthiest quintile.

Strategies such as an expanded School Feeding Programme offer the opportunity to ensure increased nutritional levels among the more vulnerable segments of the population. It is noteworthy that powdered milk consumption was lowest among the poorest quintile of the population representing only 64 percent of the level of consumption of the wealthiest groups. This questions the validity of maintaining current policies with respect to tariffs on milk powder ostensibly to protect the most marginalized and suggests that alternative measures such as an expanded school milk programme might be a more cost effective in ensuring adequate nutritional levels among the more vulnerable segments of the population.

Intakes of condensed/evaporated milk, products largely manufactured from milk powder, further strengthen the above argument, consumption at the wealthiest end outstripping that by the poorest by a factor of 3.8 clearly reflecting that the principal intended beneficiaries of a cheap food policy have been unable to exploit these benefits.

It should be worth examining whether the increased revenues from a tighter tariff regime might not be effectively used to directly target the most vulnerable through the Food Stamps Programme to enhance nutritional levels among the poorest quintile.

It should be noted that the Survey of Living Conditions does not capture expenditure on food consumed away from home, which has been estimated at an additional 27% above the SLC average.

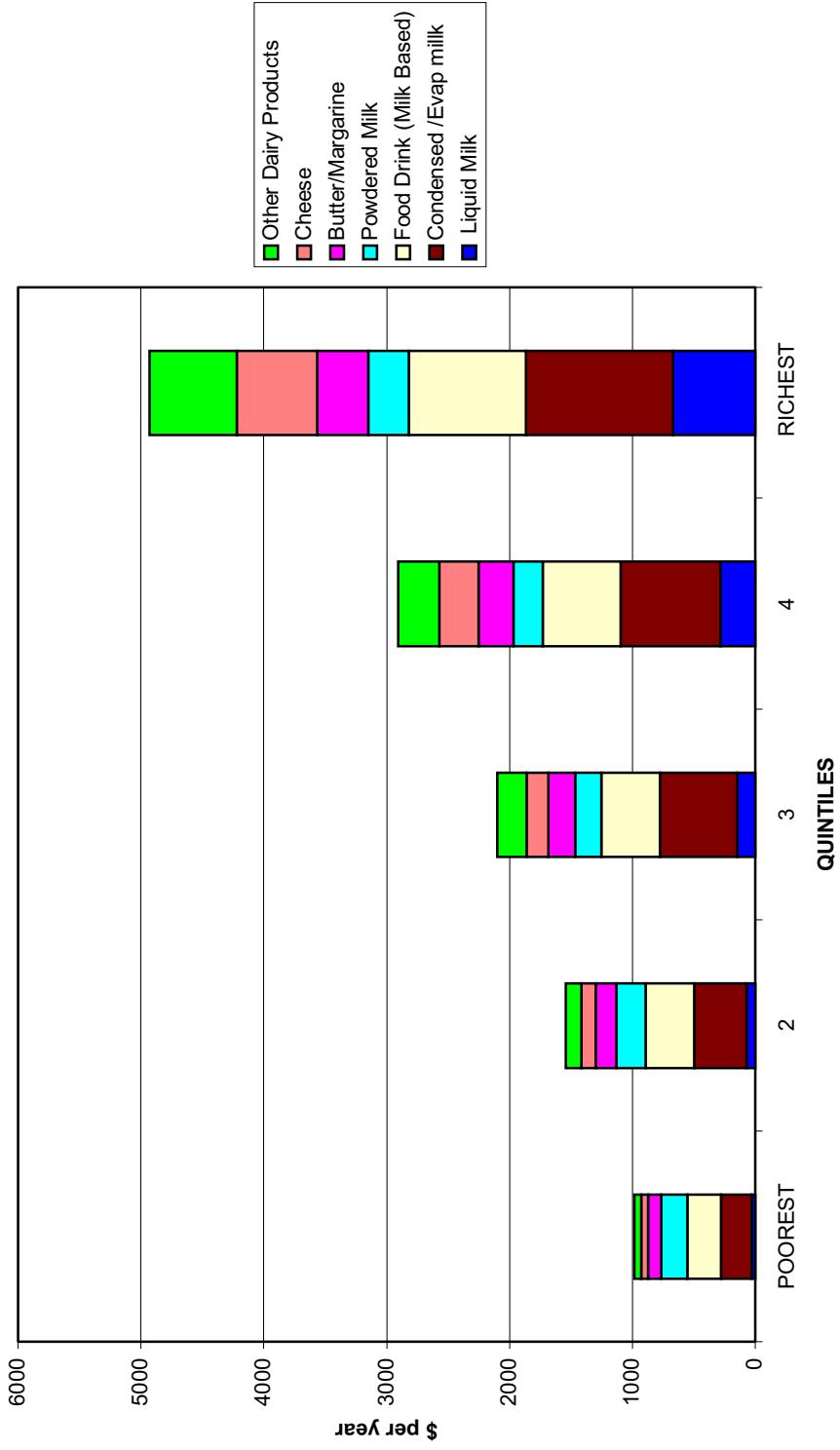
Table 4: Mean Per Capita Consumption of Selected Dairy Products.

Product	Jamaica (\$)	KMA (N=2806.01) (\$)	Other Towns (N=1517.75) (\$)	Rural Areas (N=4345.45) (\$)
1. Liquid Milk	271.4	409.33	300.23	183.52
2. Condensed/Evap. Milk	677.30	728.55	679.87	647.2
3. Food Drink	552.97	617.16	597.02	502.45
4. Powdered Milk	230.20	207.09	214.02	248.48
5. Butter or Margarine	244.10	280.57	229.60	227.81
6. Cheese	290.62	429.64	288.32	211.89
7. Other Dairy Products (yoghurt, ice cream)	331.45	487.57	323.78	244.64
Total	2598.03	3159.90	2632.84	2265.99

N= number of household members

Source: STATIN SLC (2002).

Figure 4: Mean Annual Per Capita Consumption of Dairy Products



LEVELS OF EXPORTS OF DAIRY PRODUCTS

Total export of dairy products declined significantly below the levels achieved in 2001 (53 percent) largely reflecting a sharp reduction in exports of condensed milk. Export of cheese continued the upward trend of the previous four years increasing by 39 percent, regaining its status as the most significant local dairy export.

Table 5: Annual Exports of Dairy Products

	Annual Exports of Dairy Products (kg)				
	1998	1999	2000	2001	2002
Milk & Cream	911	18461	0	624,014	270,877
Skim Milk Powder	0	194	9879	0	0
Whole Milk Powder	0	9606	298500	17	201
Condensed/ Evap Milk	54940	9606	0	2,372,481	326,410
Whey Powder	0	0	198315	0	0
Ice Cream	118	29069	206759	38,242	1,909
Cheeses	765472	794275	611788	891,015	1,235,793
Butter Fat	0	0	191	51	628
Others	0	0	611788	0	0
Total	821441	861211	1937220	3,925,820	1,835,818
	Annual Value of Exports (US\$)				
	1998	1999	2000	2001	2002
Milk & Cream	971	32671	0	885984	395,772
Skim Milk Powder	0	2083	12652	0	0
Whole Milk Powder	0	11935	367996	75	1,336
Condensed/ Evap Milk	70177	11935	0	2947696	478,551
Whey Powder	0	0	564990	0	0
Ice Cream	1254	69083	655201	113423	5,088
Cheeses	3741502	3955216	2606557	4346437	4,775,212
Butter Fat	0	0	250	218	3,054
Others	0	0	2736439	0	0
Total	3813904	4082923	6944085	8293758	5659013

Table 6: Import Duties and GCT Collected on Milk and Milk Products (\$US)

Value of Import duties collected

	1998	1999	2000	2001	2002
Milk & Cream	20142	330168	19364	4460	137246
Skim Milk Powder	212762	317998	384709	682449	253582
Whole Milk Powder	2528723	2081046	2439932	2664223	1552140
Condensed/Evap Milk	48103	32849	54776	39327	41651
Whey Powder	0	0	0	0	0
Ice Cream	392457	476166	175275	336086	453954
Cheeses	184035	196278	195207	112138	220597
yoghurt				45824	40641
Butter Fat	230976	189409	0	180579	141993
Others	22454	66123	0	379932	22600
Total	3639650	3690038	3269263	4445018	2864403
Value of GCT Collected					
	1998	1999	2000	2001	2002
Milk & Cream	3752	45329	861	199373	4761
Skim Milk Powder	2716	7738	30253	199446	337
Whole Milk Powder	214660	8191	12231	314	81369
Condensed/Evap Milk	15399	12509	22130	9374	41169
Whey Powder	19746	10360	5489	8802	37651
Ice Cream	297592	394584	161416	319772	876850
Cheese	368780	286602	424018	154097	605909
Yoghurt				40812	37339
Butter Fat	380265	326628	35100	394597	322441
Others	86079	60358	2217	25250	29536
Total	1388989	1152299	693715	1351837	2037363

The levels and distribution pattern of duties among the various imports (Table 6) reflect the difficulties in effectively enforcing the current multitiered duty regime. In aggregate, import duties collected in 2002 are the lowest since 1998 notwithstanding that 2002 imports in volume and value are at least on par with the average of the previous four years (refer to Tables 1 & 2). The major factor in the 2002 anomaly was the significant reduction in duties reported for milk powder (skimmed and whole) – 46 percent compared to 2001. The corresponding reported value of the products differed by only 31 percent.

It is anticipated that the revised regime which has been under discussion during 2002/2003 and ongoing review following its implementation, will result in an increased effectiveness in the licensing and subsequent tariff enforcement.

Reference to Table 2 suggests that imports for 2002 should have attracted a minimum of US\$ 4 million in duties.

Table 7: Grade “A” and “B” Milk Production 1998-2002

UNIT = LITRES

YEARS	MILK PRODUCTION		TOTAL
	A	B	
1998	25,068,906	2,502,815	27,571,721
1999	24,889,571	2,593,762	27,483,333
2000	23,772,538	1,686,610	25,459,148
2001	20,969,300	1,158,715	22,128,015
2002	19,692,380	771,726	20,464,106

(Source: Data Bank and Evaluation Division Ministry of Agriculture.)

Year 2002 was yet another difficult year for the Jamaican dairy farmer reflected in a 7.5 percent decline below the output achieved in 2001. The 33.4 percent reduction in the collection of B Grade milk indicates that small farmers were most severely affected by the declining market conditions and suggests the need for urgent remedial measures to arrest and reverse the erosion of a sector, which has traditionally contributed significantly to rural socio-economic stability.

COST OF PRODUCTION PER LITRE OF MILK IN JAMAICA IN YEAR 2002

Over the last decade, the importation of milk solids has remained essentially constant. It has become more important to find sources of cheap food for the poor. Milk in Jamaica is not competitively priced. It is therefore necessary to determine the cost of producing a litre of milk in Jamaica. A survey was conducted between January and February this year to accomplish this objective. It is important to find the true cost of production in order to determine our price competitiveness on a global basis.

A total of 26 farmers were randomly selected initially from across the island for the survey. However only 18 provided completed data set in the time allocated to the survey. Farmers' holdings ranged from less than 10 cows to greater than 100 cows, and included irrigated and non-irrigated farms ranging in size from 3.6 to 881 hectares.

Table (8) presents a comparison of the variable cost per litre among farm sizes. Small non-irrigated farms with very little overhead produced milk at \$12.34 per litre; medium non-irrigated farms, \$15.34; medium irrigated, \$20.68; large non-irrigated \$18.63 and large irrigated \$19.63.

Table 8: COMPARISON OF VARIABLE COST/litre AMONG FARM SIZES

Category	Farm Size/Ha.	Total No. Of Cows	Direct Cost/litre
SNI	2	7	9.95
SNI	.8	4	14.46
MNI	4	14	11.68
MNI	4.8	21	25.29
MNI	2.6	16	9.56
MNI	36	70	10.52
MNI	4	23	34.34
MI	10	52	17.55
MI	28.8	81	28.17
LNI	196	178	19.68
LNI	116	155	11.71
LNI	880.4	1860	15.05
LI	220	158	15.74
LI	182	172	22.84
LI	30.6	120	14.46
LI	408	1824	1124
AVERAGE			17.02

Footnote: Average direct cost \$17.02; farmers margin \$2.98, return on investment 18%. Comparison of Variable Cost/litre Among Farm Sizes.

Source: Cost of Production per Litre of Milk in Jamaica in Year 2002 (Ffrench, D. L.; Miller, R. C.; Jennings, P.G.)

The study suggested that organised farms with irrigation had higher cost of production per litre of milk, approximately \$20.16 per litre, a complete reversal of the previous year's performance. Non-irrigated farms had a mean variable cost of \$16.99, a 16 percent advantage over irrigated farms (Table 9).

Table 9: – COMPARISON OF AVERAGE DIRECT COST AMONG FARM SIZES

Category	Average Stocking Rate/ha	Average Direct Cost/litre
SNI	3.93	12.21
MNI	2.80	18.28
MI	3.43	22.86
LNI	1.84	15.48
LI	2.71	16.07

The data showed that the average variable cost of producing a litre of milk in 2001 was \$17.41; the margin to farmers was \$4.73 (a reduction of \$1.50) with a Return on Investment (ROI) of 21 percent (a 7% reduction). This translates to a variable cost of US\$0.38 to produce a litre of milk. Across the sector dairy farmers are surely losing the competitive edge they were achieving, income margin becoming less and return on investment declining significantly.

Table 10: COMPARISON OF AVERAGE GROSS MARGIN AMONG FARM SIZES

Category	Average Stocking Rate/ha	Average Gross Margin/litre
SNI	3.93	5.22
MNI	2.80	3.51
MI	3.43	-3.68
LNI	1.84	2.64
LI	2.71	4.50

Gross Margin: An average of the gross margin for the eighteen farms or the income above variable cost for each category was analysed (Table 10). In determining gross margin the farmers' best estimates or records available on the production of milk and the variable price received during year 2001, was used. Since total income per farm included sale of cattle (culls, bulls and heifers) and milk production: gross margin was directly proportional to these outputs. Average gross margin per litre was \$3.22 a reduction of 54 percent over the 2000 value, small non-irrigated farms showed the highest gross margin per litre \$5.22. Organized farms showed a notable variation in their gross margin ranging from \$3.61 to \$1.29 (Table 10). Among the farm units studied some categories were affected by negative contribution to fixed cost, but the majority of farms showed positive margins although in the main these were insufficient to cover fixed cost.

Table 11: COMPARISON OF AVERAGE DIRECT COST 2000, 2001 & 2002

ITEMS	2000	2001	2002
Average variable cost per litre	15.91	17.41	17.02
Irrigated farms	15.36	21.31	18.33
Small non-irrigated farms	8.00	12.34	12.21
Non-irrigated (organised)	18.30	18.83	17.23
Return on investment (RIO)	28%	21%	18%

The average variable costs per litre of milk from 2000 and 2001 have showed a 9% shift over the period. A 10% change in cost was projected for the year in review. The average inflation rate for the period was 8.7% (Statistical Digest, January 2002). For irrigated farms direct cost rose from \$15.39 to \$21.31, equivalent to the price paid for fresh milk last year (see Table 11). Small farmers, with very little overhead have experienced a \$4.34 increase from \$8.00 per litre. The return on investment (ROI) fell by 7-percentage points from 28 percent in 2000 to 21 percent in 2001. Farms that are leveraged will experience significant difficulties if the prevailing condition continues much longer.

SOME YIELD COMPARISONS BETWEEN AFRICAN STAR AND TIFTON GRASS PASTURES UNDER COMMERCIAL CONDITIONS

ABSTRACT

MILLER, R.C.; FFRENCH, D.L. and JENNINGS, P.G.
JAMAICA DAIRY DEVELOPMENT BOARD

In order to capitalize on pasture as an economical source of feed in Jamaican milk production some performance data must first be established. The decision was made to take a look at two of the more popular grasses. Work done on irrigated Tifton 85 Bermuda grass and African Star (*Cynodon nlemfuensis*) grass pastures at Serge Island Farms in St. Thomas, produced interesting results. Dry Matter yields of 25,584.57 kg and 13,999.04 kg per hectare per annum were recorded for Tifton and African Star respectively. Dry Matter consumption per cow was 5.58 kg and 3.06 kg per day for Tifton and African Star grass respectively. Pastures were fertilized at the rate of 353.1 kg N per hectare per annum in 9 applications. Grazing cycles were 18-21 days with a stocking rate of 4.38 cows per hectare.

The results of the study clearly show Tifton grass out-yielding African Star by 82.76 percent in dry matter. Additionally, cow preference was 82.35 percent in favour of the Tifton as indicated by the consumption levels.

It is an observation that whenever cows are allowed to graze the Tifton pastures immediately before grazing the African Star there is a noticeable drop in consumption of dry matter upon introduction to the African Star Grass pastures.