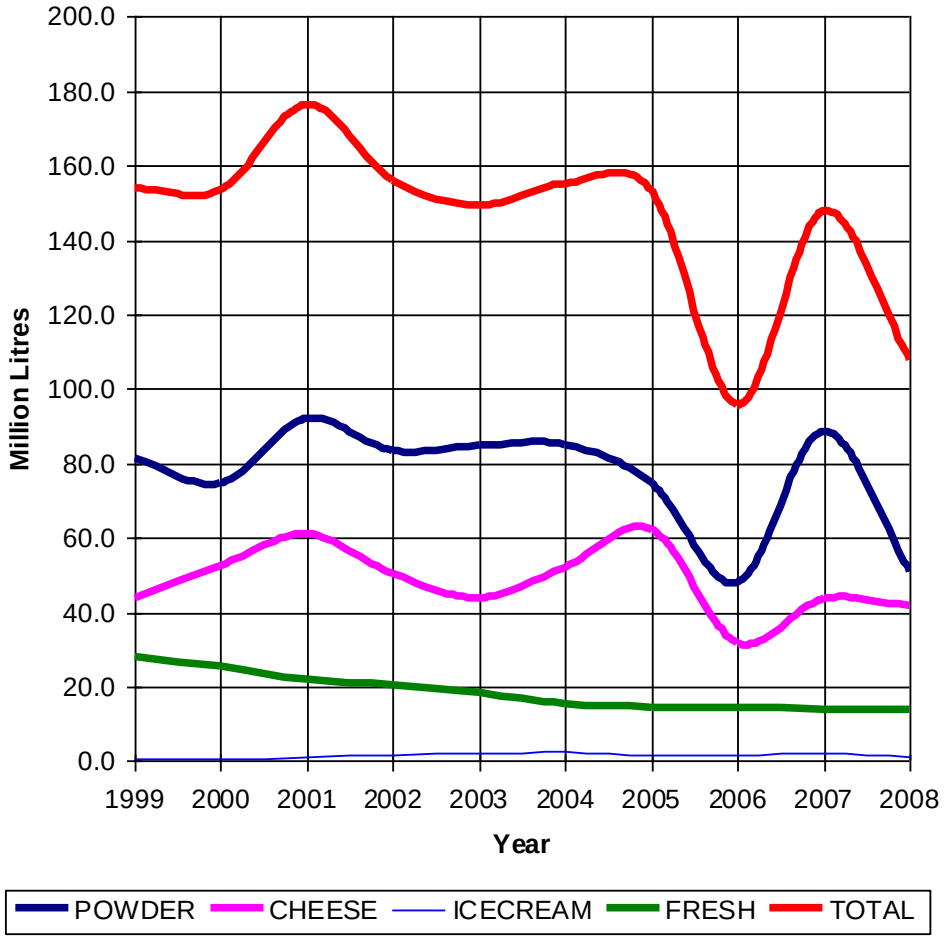
Jamaica Dairy Development Board

DAIRY

Facts & Figures

2008-09



PREFACE

We begin with an apology to regular readers for the late publication of the 10th volume of *Dairy Facts and Figur*es. As may be appreciated, we draw on information from various sources to frame the performance of the dairy sector within any given year. Protracted delay in the release of source data critical to our analysis therefore left us with no option.

The 10th volume of *Dairy Facts and Figures* highlights the continuing competitive disadvantage of the Jamaican dairy sector and the growing unsustainability of primary production. It stresses the critical need for improved efficiencies throughout, and the urgency of alignment of the value chain for the benefit of all players including, most critically, the consumer.

The Board acknowledges the continuing assistance of STATIN, the Data Bank of the Ministry of Agriculture, Trade Board Ltd., The Beef and Dairy Producers Association of Jamaica, The Jamaica Dairy Farmers' Federation, The Eastern Livestock Development Association, The Jamaica Livestock Association Ltd., Nestle Jamaica Ltd. and other organizations and agencies which continue to contribute to the compilation of this publication.

Paul Jennings, PhD
Chief Executive Officer
May 31, 2010

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1.0 Jamaica Dairy Development Board

The passage into law of the Jamaica Dairy Development Board Act, following the assent of the Governor General on March 10, 2009, has after ten years of operation, accorded the Board the legitimacy to effectively execute its mandate of modernizing the local dairy sector into an internationally competitive economic sub-sector. It is anticipated that this will allow for the transformation of the local dairy trade into one which affords growth room for the local milk producing sector to realize its long established but latent potential, to contribute significantly to improved national food security.

The Dairy Sector Revitalization Programme, introduced in fiscal 2008 provided, if nothing else, a significant psychological boost to the local dairy farming sector, as it gave clear indication of a public policy commitment to positively influence a turnaround in local milk production. The lynch-pin of the programme, a four-percent working capital support loan fund, was fully absorbed by farmers; $49.8 million of the $50 million fund, having been disbursed to 31 beneficiaries. The loan is targeted at supporting pasture and herd improvement primarily, but a range of asset upgrading activities were also supported. While very minimal immediate impact is expected, it is anticipated that the effect of this continuing intervention will become evident in improved productivity among beneficiaries, well into the medium term.

Any anticipated impact on overall national output has to be tempered by the reality of the oligopolistic structure of the local milk producing sector, whereby two large corporate entities account for more than 65 percent of national output. The inherent dangers of this reality are already evident in the precipitous decline in first-quarter (Jan – March 2009) production by WINDALCO, following the announcement of suspension of mining/alumina refining operations, its core business, by UC-RUSAL, the principal and managing shareholder in WINDALCO. A 46-percent decline in milk production, compared with first-quarter 2008, forebodes significant reduction in annual output, with potential serious implications for

availability and retail price of fresh milk. The situation speaks to a need for an urgent engagement with UC-RUSAL, by the Government of Jamaica with regard to options for the management of the invaluable assets of native cattle held by the company in an effort to avert an emerging situation which is clearly inimical to the national interest. It is suggested that the starting point is a renegotiation of the '*Management of Agricultural Assets Agreement'* which originated with ALCAN in 1978 and subsequently renegotiated with Glencore, the immediate predecessor to UC-RUSAL.

At the international level, calendar 2009 saw the re-imposition of export rebates on milk solids (February 2009), though selectively, by the European Union, following the free-fall in international prices through the latter half of 2008. This fall in prices was primarily the result of significant increases in output among the BRIC countries as well as a recovery in production by the US and Mexico. It is worth noting that under the terms of the CARIFORUM-European Partnership Agreement signed in 2008, the region may have, unwittingly, foreclosed opportunities to reclaim any significant share of a regional market which imports annually in excess of 500,000 tons of milk solids, the major portion of which originates with the European Union. The agreed option of indefinite retention of tariffs on milk imports, in addition to denying any real EU assistance in improving regional competitiveness also confers on the EU an implied reciprocal right to retain subsidies.

Cognizant of the inescapable imperative on public policy for facilitating the development of the efficiencies critical to the sustainable redevelopment of the local milk producing sector, the Jamaica Dairy Development Board continued during fiscal 2008/2009, to pursue its functions of policy analysis, information dissemination and identification of technical and financial resources for sector transformation. These functions included the following activities:

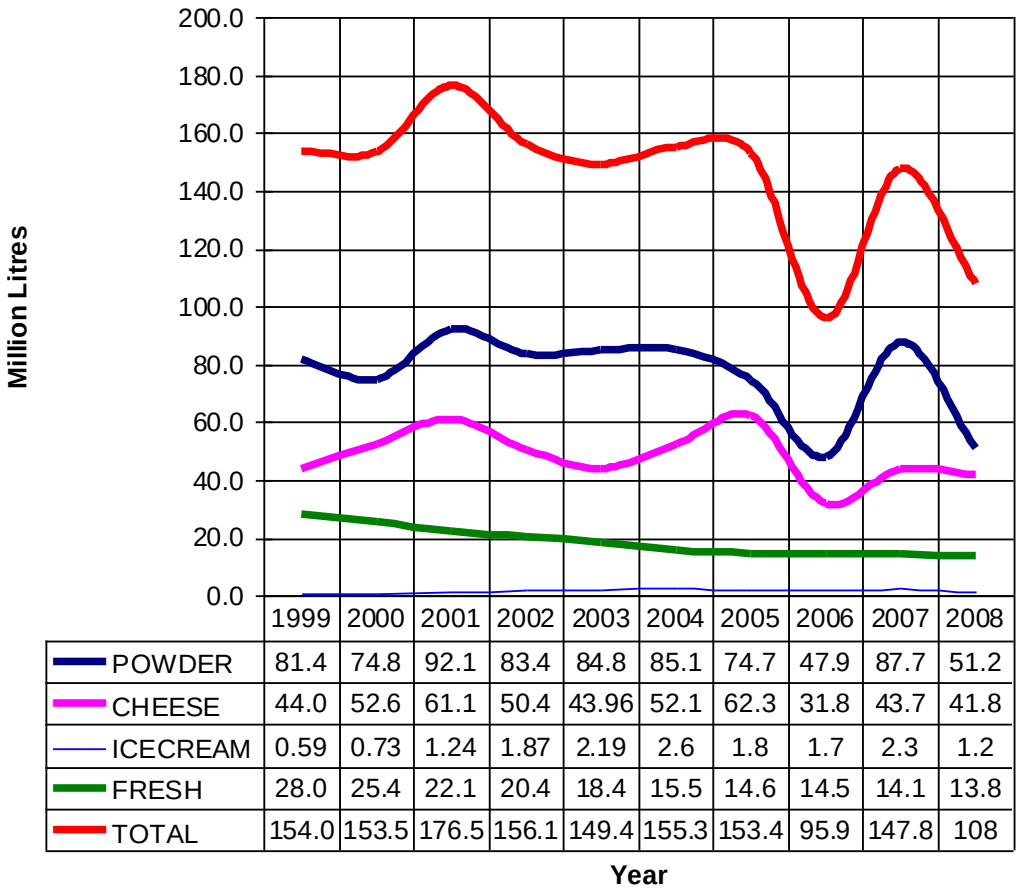
- Launch of Dairy Board Website – www.jddb.gov.jm
- Publication of the 9th volume of Dairy Facts and Figures – www.jddb.gov.jm
- Report of the 2007 Annual Cost of Production survey;

- Initiated post-graduate study of Jamaican pastures in collaboration with the Department of Food Production, Faculty of Science and Agriculture, UWI, St. Augustine;
- Developed business model for Restructuring the Management of the Bodles Research Dairy;
- Initiated Evaluation of Business Plan for the Milk Marketing Project, JDFF through EUBSP grant support. The evaluation confirmed the feasibility of applying a cluster model to rehabilitation of the small farm sector;
- Development of Operational Plan for Integrated Dairy Cluster/ Milk Processing Entity. Commissioned the services of an International Management Consultant under the aegis of the Dairy Sector Revitalization Programme;
- Collaboration with BDPAJ in obtaining FAO Technical Assistance in conducting study of the local Beef Value chain;
- Collaboration with BDPAJ in requesting FAO Technical Assistance grant for conduct of Dairy Industry Market Study.

1.1 The State of Jamaica's Food Security

Based upon data available from the 2008 *Survey of Living Conditions* conducted by the Statistical Institute of Jamaica, per capita expenditure on milk and dairy products increased nominally by 13.1 percent to $5471. Given an annual inflation rate of 16.8 percent in calendar 2008, real expenditure would have seen an actual decline of 3.7 percent. With respect to the most nutritionally vulnerable segment of the population, the JSLC data indicated a real decline in expenditure of 21.5% by the poorest 40 percent of the Jamaican population. Based upon an average retail price of fresh milk of $144.47 per litre, fresh milk equivalent consumption by the poorest forty percent of the population declined from 15.4 litres in 2007 to 14.7 in 2008. This converts to 40 ml daily compared to the WHO recommended minimum of 200 ml per day. Based on the combined levels of local production and imports (Figure 1), Jamaicans consumed, on average, 110 millilitres per day, on a **fluid equivalent** basis, a decline of 26.2 percent below the 2007 level of consumption.

Figure 1: Sources Of Milk Solids



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
POWDER	81.4	74.8	92.1	83.4	84.8	85.1	74.7	47.9	87.7	51.2
CHEESE	44.0	52.6	61.1	50.4	43.96	52.1	62.3	31.8	43.7	41.8
ICECREAM	0.59	0.73	1.24	1.87	2.19	2.6	1.8	1.7	2.3	1.2
FRESH	28.0	25.4	22.1	20.4	18.4	15.5	14.6	14.5	14.1	13.8
TOTAL	154.0	153.5	176.5	156.1	149.4	155.3	153.4	95.9	147.8	108

The data in Figure 1, taken in combination with the imputed decline in per capita consumption, clearly highlight the inherent vulnerability of import dependence as the underlying national strategy for nutritional assurance.

Milk powder imports declined by 41.6 percent in 2008 compared to 2007, coinciding with an average decline in year-end prices (FOB) of approximately 38 percent. This implies a manipulation of the market by the distributive trade to maintain the high margins which characterize the milk powder trade. This is confirmed by the fact of consumers being asked to pay a 2.4 per cent increase for an 80 gm sachet of whole milk powder in December 2008, compared with December 2007, a period which

saw European whole milk powder prices on the international market sliding from a December 2007 high of US$4700 to $2925 (high FOB) price in December 2008, a decline of 37.7 per cent (USDA – AMS).

The above clearly speaks to the need for a sustained effort aimed not only at significantly increasing local milk production as a medium-term strategy, but also at improving the efficiency of production so as to drive down costs to the consumer. The local milk producing sector has apparently settled for a niche market approach with an apparent equilibrium at approximately 14 million litres. A wholesale shift in philosophy will be required to serve a mass market. This will require not only an effort to reduce chain costs, but concomitantly, a focus on product diversification to compensate for the inescapable alignment of margins on fresh milk with those of our international competitors. An important added advantage would be a reduction in the exorbitant margins on the direct resale of powdered milk, which the trade has been able to sustain due to the high costs involved in the fresh milk chain, largely the result of grossly underutilized capacity.

Milk as the most basic of human foods, provides a fairly accurate index of the state of human nutrition in Jamaica. Interpolation from source data from the 2008 *Survey of Living Conditions* (STATIN) suggests that the poorest forty percent of the Jamaican population are restricted to a daily milk intake equivalent to one-fifth of the WHO minimum allowance. This level of sub-marginal nutrition gives cause for alarm particularly when juxtaposed against the unacceptable levels of under-achievement manifested at national Grade Four competency assessments. The role of School Milk programmes in improving attendance and cognitive performance globally is well documented. The rationalization of the National School Feeding Programme presents the dual advantage of an immediate fillip to local milk production, as well as contributing to improved scholastic performance.

A rationalized National School Feeding Programme, based upon the utilization of locally produced milk (and beef), provides a vehicle for implementing an effective social safety net, while simultaneously providing a market buffer for the sustainable

revitalization of the dairy sector. In conjunction with this, the Dairy Board again urges a revisit of its 2005 proposal for implementation of a Tariff Rate Quota regime, as a measure to stimulate increased use of locally produced milk as a manufacturing raw material. The re-imposition of rebates on European exports adds greater urgency to this plea.

1.2 The State Of Competitiveness of Jamaican Milk

The cost factors which determine the level of international competitiveness of the local milk producing sector have been quantified in the annual Cost of Production Survey conducted by the Jamaica Dairy Development Board since 2000. The relative changes in variable costs between 2004 and 2008 and the relative proportion of costs attributable to various inputs are summarized in Table 1 below.

Table 1. Cost of production and distribution of costs in the production of milk 2004-2008

	2004	**2005**	**2006**	**2007**	**2008**
Average variable cost (AVC)	19.13	22.32	23.70	30.56	38.59
Average farm-gate price	22.00	24.00	26.00	28.33	41.84
Major cost components as % AVC :					
Purchased Feed	39.0	39.0	29.9	33.1	35.9
Labour	13.0	13.0	24.3	16.9	22.5
Utilities	7.0	7.0	6.5	10.1	9.6
Pasture maintenance	4.0	4.0	5.4	2.3	1.7
Vet & Med	3.0	3.0	3.4	4.3	2.4

Source: Ffrench *et al* 2009

The vulnerability of the domestic milk producing sector to the spiralling costs of imported inputs is reflected in a doubling of average variable costs between 2004 and 2008 and in particular, the acceleration since 2006. This has posed serious threat to the sustainability of the average dairy farm as gross margins have shrunk from 15 to 8.4 percent between 2004-2008; most farmers actually absorbing operating losses in 2007.

Table 2, extracted from Jennings *et al* (2010), provides an international perspective on the relative efficiency of local production in comparison with New Zealand and the United States.

Table 2. Comparative efficiencies of milk production: Jamaica vs. US and New Zealand

	Jamaica[1]	**U.S**	**N.Zealand**
Average variable Cost (US$/L)	0.53	0.36[1]	0.26[7]
Farm gate price	0.57	0.41	0.37[1]
Indicative margin (%)	7.5	13.9	0.42
Stocking rate @ grazing (cows/ha)	2.1	2.3	2.7
Yield per cow (L/yr)	2363	7105[3]	3790[7]
Output per ha (L/yr)	4867	16,340	10,250
Feed price (US$/kg)	0.29[2]	0.20[4]	0.30
Milk: Feed Price ratio	1.96	2.05	1.23
Labour cost (US$/man hr)	1.87[2]	11.38[5]	8.0[8]
Electricity cost (US$/kWh)	0.32	0.12[6]	0.18[9]

1. Ffrench *et al* 2009
2. Miller *et al* 2009
3. McCall and Clark 1999
4. Gould, B. 2010
5. Anon. 2009
6. Michael Bluejay Inc 2009
7. N.Z. Agritech Inc. 2008
8. Kingston, C. 2005
9. www.meridian.co.nz

With respect to his US and New Zealand counterparts, the Jamaican dairy farmer is at a competitive disadvantage of 47 and 103 percent, respectively, as it relates to average variable cost. The resulting significant disadvantage in respect of gross margins owe much to the suboptimal lactation yields which currently pertain which represent an underperformance level of approximately 28 percent below the established potential of local dairy herds.

While efficiencies at farm level are clearly the starting point in improving the overall competitiveness of the local milk producing sector, the margins enjoyed *ex farm*, compared to those which characterize the international market, speak to the need for an alignment of the value chain to improve overall price competitiveness and

enhance the survivability of the primary producer. Compared to average US retail prices, locally produced milk at a 2008 average retail price equivalent to US$1.98 (J$144.38) per litre had a competitive disadvantage of 98 percent.

The following are indicated as key strategies to be adopted by the chain in attempting to improve international competitiveness:

- Improved management of pastures as the pathway to overall improved feed utilization;
- Adoption of Biogas as alternative source of electricity generation on farm;
- Focused competency improvement programme;
- Product diversification to spread trade margins

A rationalized National School Feeding Programme remains a key driver not only for increased local production, but critically, also for promoting product diversification. The Jamaica Dairy Development Board has proposed that a policy be adopted whereby only *semi-skimmed* liquid milk is allowed as school milk; primarily to obviate concerns regarding childhood obesity, but also to stimulate a widening of the product range, to cushion the reduced margins on liquid milk obligatory to accessing the School Milk programme.

The intimate linkage between the local state of food security and the international competitiveness of the domestic food producing sector, makes it imperative that the highest priority be given to raising efficiency levels. The level of vulnerability exposed by the price spirals of 2007 emphasises the strategic importance of the local dairy sector in the drive for improved nutritional assurance nationally. Policy focus therefore needs to be fixed on promoting strategies for sustained improvement in the efficiency of the domestic milk producing sector.

2.0 Status of the Dairy Sector

2.1 Overview

The fiscal year 2008/2009 was one of mixed fortunes for the domestic milk producing sector. The positive with arguably the most lasting impact, was the introduction of the Dairy Sector Revitalization Programme, funded by the Jamaican Government and managed by the Dairy Board. The programme is aimed at restoring productive capacity to the sector after more than a decade of continuous attrition. The major component of the programme was a working capital support loan made available to dairy (and beef) farmers at a highly concessionary interest rate of four percent. The fund is targeted primarily at catalysing pasture and herd improvement, but also enabled a modicum of retooling among the 32 beneficiaries. Other key interventions included the re-introduction of a National Herd Recording Programme in conjunction with The Dairy Records Management System (DRMS), an on-line facility made available through the North Carolina State University; as well as support for institutional strengthening to the Beef and Dairy Producers Association of Jamaica (BDPAJ) and the Jamaica Dairy Farmers Federation (JDFF).

On the negative side, the local dairy sector, from a an apparent misreading of trends in the international market, further injured its competitive potential with a 39.5-percent increase in farm gate price during fiscal 2008; made even more egregious by a consequential 28.2 percent increase in average retail price of fresh milk.

The passage of Tropical Storm Gustav in August 2008, further compounded the negatives as the level of production attained during the first quarter of fiscal 2008 was never regained subsequently. Consequently, milk production fell to 13.6 million litres (13.8M on calendar year basis), 2.2 percent below that of the preceding year.

At the international level, the dairy market experienced a post-summer free-fall in the prices of the major traded milk solids, largely in response to consumer resistance; manifested in secular declines in export volumes among the traditional market leaders and significantly increased production and export by Brazil and India. As examples, European whole milk powder and skim milk powder FOB prices, which had spiralled to highs of US$5700 and $5500 per ton respectively, closed 2008 at corresponding prices of $3600 and $2925. This free-fall since August 2008, prompted the resumption of export rebates by the European Union in February 2009.

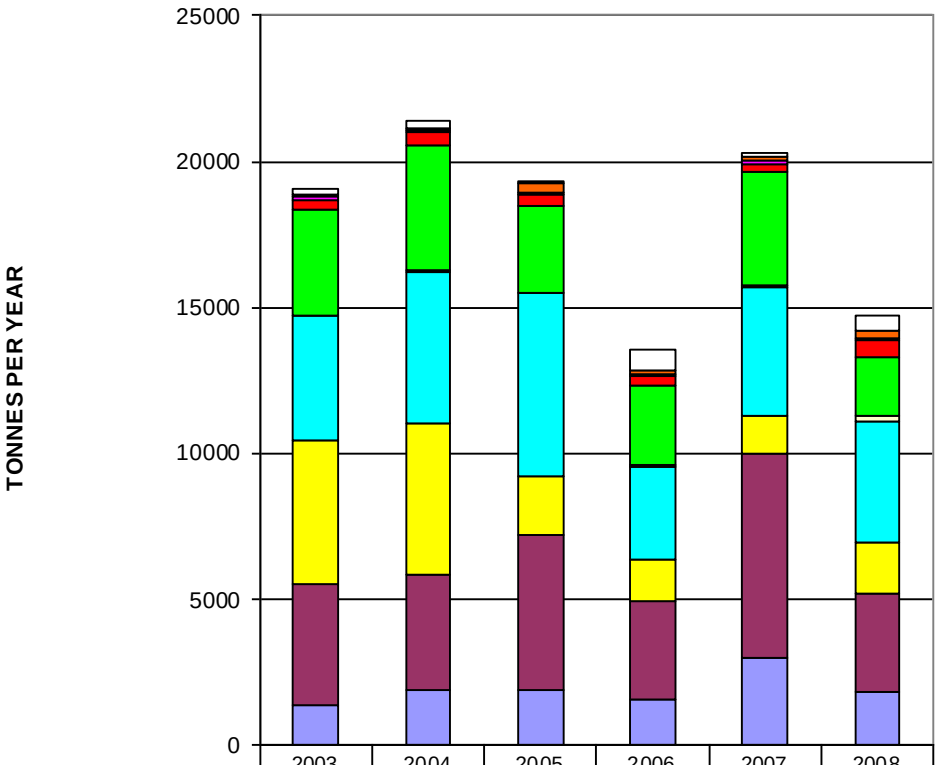
Given the intractable demand-supply imbalance in the world dairy market, the volatility of the past two years is seen as the first round in a protracted cycle of price swings likely to persist well into the medium term. The clear challenge to import-dependent countries such as Jamaica, with its latent potential for competitively producing milk, is to implement enabling policies to exploit this potential to significantly reduce the nutritional vulnerability of their populations.

2.2 Imports of Milk Solids

Imports of milk solids in **calendar 2008** fell 27.4 percent compared to the previous year, to 14,727 metric tons. Annual import volumes during the preceding five years averaged 18,673 metric tons and if the dip in 2006 at the onset of the market volatility is omitted; a relatively consistent 19,945 metric tons per annum (Fig 2). Against this average, the 26 percent drop in imports in 2008 appears anomalous, against a background of falling world prices.

The trends in the European FOB price of whole milk powder (WMP) provide a useful index of price behaviour among the other major traded solids (See Figs. 3&4). Average high-end price fell 12.7 percent between 2007 and 2008 to US$4150 per metric ton. Analysis of the data (AMS-USDA) however suggests that prices remained firm between $4600 and $4750 until the end of the summer, when they declined consistently thereafter from $4575 to a low of $2700.

Figure 2: Dairy Product Imports 2003-2008



	2003	2004	2005	2006	2007	2008
Others	163	254	114.6	710.9	140.7	541.9
Yoghurt	77	106	281.4	149.3	149.3	238.7
Cond./Evap. Milk	173	55	77.3	67.2	120	67.9
Whey Powder	275	438	372	345	246	564.2
Ice Cream	3633	4271	2986	2739	3872	2002
Milk & Cream	19	35	44.3	40.3	87.7	207.5
Cheese	4258	5209	6229	3177	4368	4175
Whole Milk Powder	4918	5205	2043	1428	1330	1692
Skim Milk Powder	4136	3950	5304	3319	7008	3424
Butter Fat	1414	1882	1900	1607	2974	1814

Years

Source: STATIN

The foregoing suggests a failure on the part of the local distributive trade to avail the consumer of the significantly reduced prices which entailed during the final third of the year. Alternatively local consumer resistance to the high priced product might have resulted in a build up of inventories combined with a reluctance to discount prices to the consuming public.

As a consequence per capita consumption of dairy products fell precipitously from 149 millilitres per day in 2007 to 110 ml in 2008.

Expenditure on dairy product imports increased by one percent over the declared value of imports in 2007, to an all-time high of US$60.1million (Table 3). To provide a compelling perspective to this level of outflow of foreign exchange, we have calculated that the 2008 outlay on imports of milk solids represents the opportunity cost of foregone investment in approximately 16 large-scale milk production clusters each of approximately 200 hectares and cumulatively milking 19,200 cows. This potentially represents an incremental output of 60 million litres annually and a conservatively estimated wealth creation potential equivalent to J$8.9 billion, based upon established multipliers.

Table 3. Annual Imports of Milk Solids by Value (US$'000) 2003-2007

Product	**2004**	**2005**	**2006**	**2007**	**2008**
Milk & Cream	52.14	104.39	81.64	313.6	666.9
Skim Milk Powder	8,368.39	12,561.85	7,724.38	15,082.21	12,334.36
Whole Milk Powder	10,975.58	4,926.71	3,947.31	5,181.60	7,626.71
Cond./Evap. Milk	2.27	127.27	142.38	295.69	210.30
Whey Powder	638.12	673.11	647.30	574.26	1,391.03
Ice Cream	5,774.27	5,559.96	6,062.73	5,988.75	7,845.08
Yoghurt	236.12	497.16	549.7	681.79	820.62
Cheeses	16,191.12	22,196.43	15,094.12	22,337.24	21,173.22
Butter Fat	4,893.11	5,531.95	3,689.56	5,951.03	8,969.29
Others	414.51	464.78	1,734.26	3,096.22	1,637.12
Total	**47,545.6**	**52,643.6**	**39,673.4**	**59,502.39**	**60,105.61**

Source: STATIN Import Database

At a declared CIF value of US$12.334 million, the imputed import cost (CIF) for skimmed milk powder, of approximately US$3602 per ton, compares with average high FOB price of European product of US$3379 per ton (Source: AMS – USDA, International Dairy Market News, Dec 2008). The corresponding figures in respect of whole milk powder were US$4508 and US$4150 (High FOB) per

ton. The differentials of 6.6 and 8.6 percent between declared CIF and quoted FOB prices for SMP and WMP respectively indicates substantial narrowing of the disparities of previous years.

2.3 Trends in the International Market for Milk Solids

Production of fluid milk by the world's leading producers, in 2008, increased 1.1 percent over the previous year to 432.483 million tons, a slight slowdown below the average annual rate of growth of 1.55 percent during the previous four years (Table 2). The downturn in production in Oceania and the continuing sluggish growth within the European Union was partially compensated for by increases of 4.2, 3.7 and 2.2 percent respectively by Brazil, India and the United States.

Table 4. World Milk Production, Consumption and Exports 2004-2008

	2004	2005	2006	2007	2008
Fluid Milk Production/Consumption (Million tons)					
Production - World	401.4	410.0	419.0	427.8	432.5
" - China	22.61	27.53	31.93	35.25	34.3
Consumption – World	155.4	159.3	162.7	160.5	163.2
" _ China	10.32	12.50	13.81	14.82	14.6
Exports (Million tons)					
Cheese	1.240	1.238	1.234	1.357	1.261
Butter	0.899	0.787	0.744	0.805	0.691
Skimmed Milk Powder	1.159	1.000	1.003	1.130	1.082
Whole Milk Powder	1.626	1.509	1.522	1.467	1.615
Total Exports (Fluid Equivalents)	45.34	41.75	40.50	44.18	42.98
Powder Imports – China (000' mt)	152	120	136	99	101

Source: USDA-FAS, Dec 2009

The emerging influence of Brazil on the international trade in milk solids is salutary for countries such as Jamaica, as it highlights the untapped potential of tropical countries to achieve sustainable competitive advantage in the production of milk. Table 5 summarizes the growth of the Brazilian dairy sector since 2004.

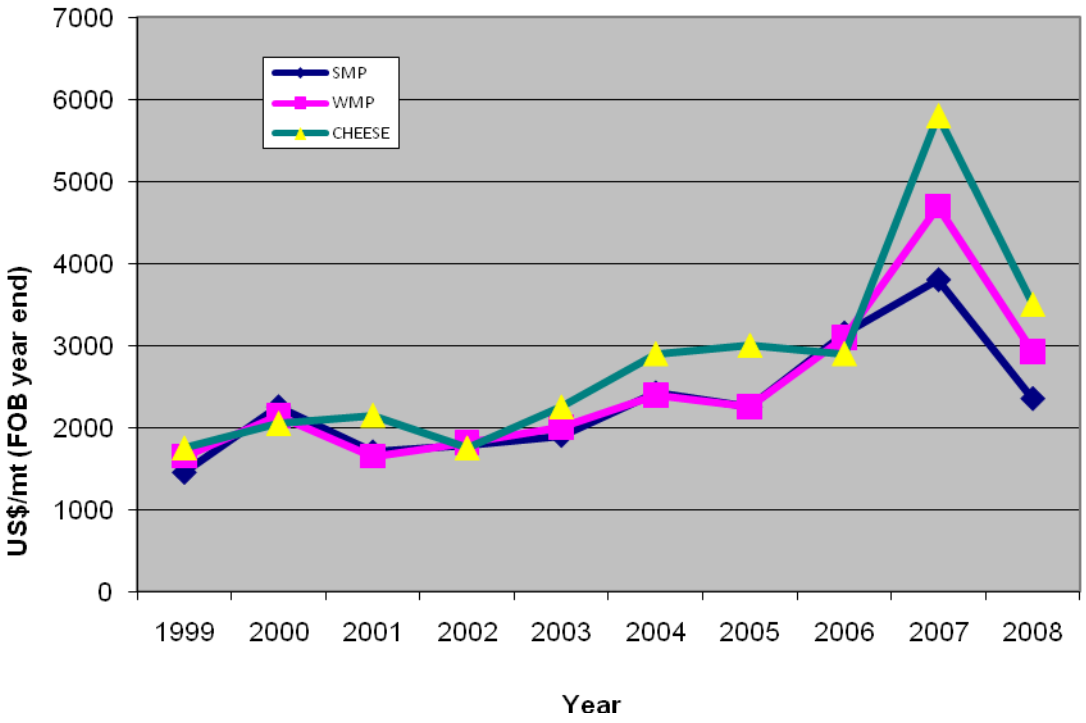
Table 5. Production and Trade Statistics 2005-2008 – Brazil (t'000)

Year	2004	2005	2006	2007	2008
Fluid Milk Production	23,320	24,250	25,230	26,750	27,820
Fluid Milk Consumption	12,740	13,400	13,750	10,170	10,680
Cheese Production	470	495	528	580	607
Butter production	75	77	79	82	84
WMP Production	420	440	465	526	572
WMP Exports	16	26	17	42	83

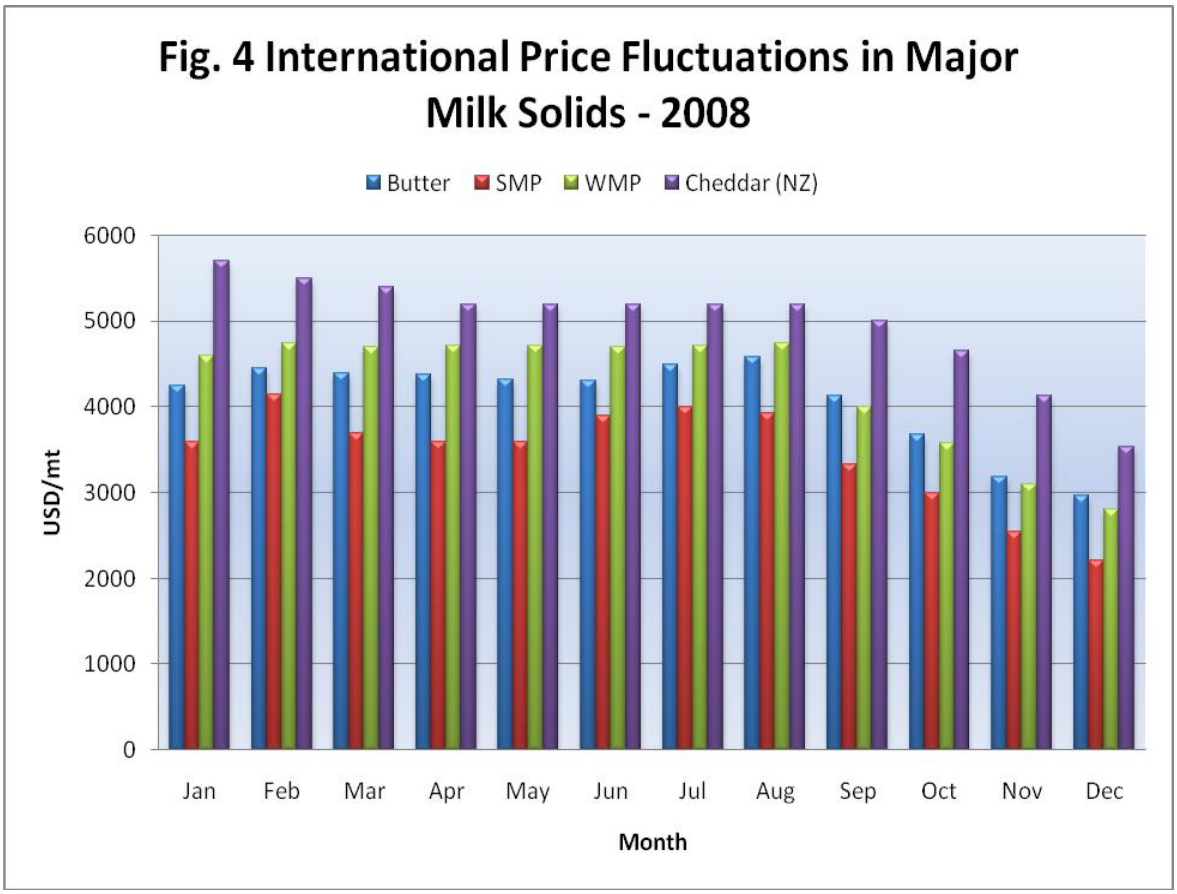
Milk production in Brazil increased by an annual 3.8 percent between 2004 and 2008, compared to a world five-year growth in fluid milk production of 1.5 percent per annum. The significant growth in value added products against a 16 percent reduction in domestic consumption of fluid milk, highlights the growing sophistication of the Brazilian consumer which has contributed to making their country into a significant competitor within the international export market for whole milk powder.

Figure 3 highlights the variation in closing FOB prices for powdered milks (ex EU) and cheese (Oceania) over the ten-year period to 2008 (www.ams.usda.gov). Prices as at December 2008 had reverted or approached closing prices in 2006; the onset of the two-year period of volatility. Most forecasts anticipate a repeating cycle of peaks and troughs for much of the next five years, before any equilibrium returns to the market. The extent to which this is truncated will depend on whether the emerging game changers such as the BRIC countries, can sustain the comparatively high rates of growth in milk and value-added production recorded over the past five years.

Fig. 3 Trends in International Prices of Milk Solids - 1999-2008



Prices of the four major traded milk solids held firm through to August 2008 but declined consistently thereafter (Figure 4). On average, closing prices represented a 36.5-percent decline below those prevailing in January 2008.



2.4 Consumer Expenditure on Milk Solids

Per capita expenditure on milk solids in calendar 2008 increased in nominal value, by 13.2 per cent over the previous year; for a national average of $5471 (Table 6). This corresponded to 5.7 percent of estimated national *per capita* expenditure on food and beverage, a significant decline below the 7.8 percent recorded in 2005. The implied adverse rationalization of perceived value by the consumer, suggests that the trade has incorrectly estimated the price-elasticity of milk products as well as the absence of effective consumer education.

Adjusted for the 16.8-percent inflation in calendar 2008, expenditure on dairy products would in reality have declined by 3.6 percentage points below the previous year.

The movement in the retail price of fresh milk provides a useful index of the general level of price changes in milk solids, as the retail prices of substitutes such as powdered milk are closely pegged to that of fresh milk. The 28 percent increase in the average price of fresh milk in calendar 2008 goes a long way in explaining the slippage in share of the consumer dollar by dairy products in general.

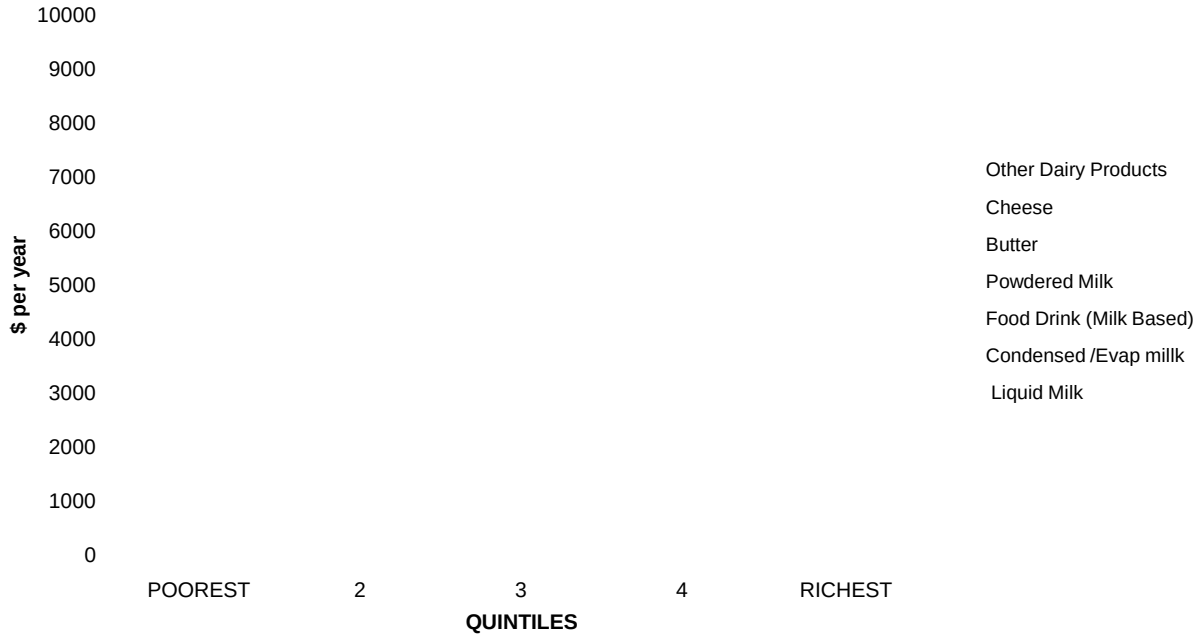
Table 6: Mean Per Capita Expenditure on Selected Dairy Products –2008 (J$)

Product	**Jamaica** (n=24209)	**KMA** (n=8013)	**Other Towns** (n=5457)	**Rural Areas** (n=10739)
1. Liquid Milk inc. flavoured	661.8	859.4	663.6	513.3
2. Condensed/Evap. Milk	1348.1	1486.3	1323.1	1257.7
3. Food Drink	689.4	730.4	732.1	637.3
4. Powdered Milk	718.9	683.0	818.8	694.8
5. Butter	402.9	406.8	400.1	401.3
6. Cheese	536.3	674.5	598.7	401.5
7. Other Dairy Products (yoghurt, ice cream)	739.4	1049.1	647.6	555.0
Total	**5096.8**	**5889.3**	**5183.9**	**4346.7**
Adjusted for Dairy Meals 'Away from Home'	**5471.0**	**6345.1**	**5663.9**	**4721.0**

n= number of household members
Source: STATIN SLC (2008) database

The disparity in *per capita* expenditure widened between the wealthiest and the poorest quintiles ($9100 vs. $1854) to a multiple of 4.8 compared to 4.1 in 2007 (Figure 5). It is a matter of concern that in terms of nominal prices, expenditure on milk products by the poorest 40 percent of the population fell by six percent below that of 2007. Contrastingly, *per capita* expenditure by the wealthiest quintile increased by 17.6 percent; effectively maintaining consumption levels and confirming that existing price levels for dairy products have moved beyond the reach of a substantial swath of the Jamaican population.

Figure 5: Mean Annual Per Capita Expenditure on Dairy Products Within Wealth Groups - 2008



Daily per capita consumption of dairy products in 2008 declined 26 percent below the previous year averaging 110 millilitres fluid-equivalents; 45 percent below the WHO recommended minimum daily intake of 200 ml *per caput*. On an inflation-adjusted basis, daily per capita expenditure by the poorest 40 percent of the Jamaican population translated to 40 millilitres fresh milk equivalent.

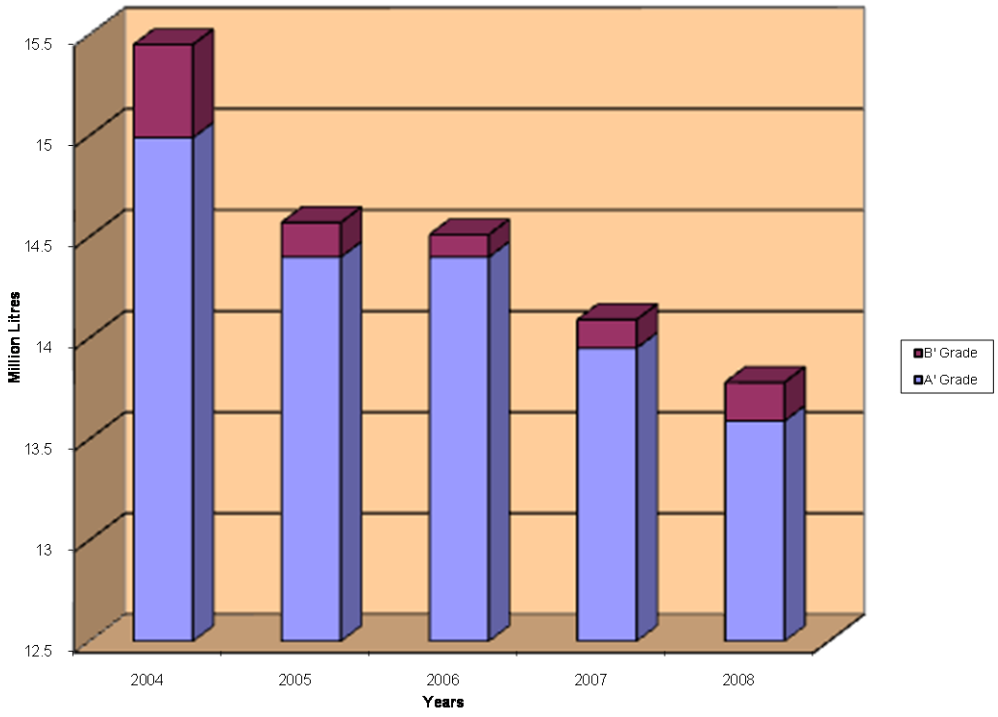
2.5 Value of the Industry

Based on the adjusted *per capita* expenditure of $5471 (Table 6), and an official population estimate of 2.67 million (STATIN), turnover by the dairy industry in 2008 is estimated at approximately $14.61 billion, in aggregate, an 11 percent growth over the imputed contribution to GDP in 2007. Gross returns at farm-gate of $576.5 million underscore the opportunity for significantly expanding market share by the domestic milk producing sector.

2.6 Local Milk Production

Milk production in 2008 declined 2.1 percent to 13.8 million litres, compared to the previous year (Figure 6). The industry was unable to recover sufficiently during the ensuing months, to offset the immediate adverse impact of the passage of Tropical Storm Gustav in August 2008.

Figure 6. LOCAL MILK PRODUCTION (million litres)



Notwithstanding a near-43 percent increase in Farm gate price to $41.84 per litre, non-irrigated farmers, approximately 85 percent of all farms (non-irrigated farms), continued to experience negative operating margins in calendar 2008. This speaks clearly to the need for an alignment of the value chain, in addition to concerted effort at raising on-farm efficiencies, if dairy farming is to remain a sustainable source of livelihood for the majority of farmers.

Retail prices averaged $144.47 per litre in calendar 2008, a 28 percent increase over 2007. Margins-over-farm-gate of the order 245 percent indicate the level of

disparity in the spread of margins throughout the chain. The survivability of the entire chain is patently threatened by this disparity.

3.0 Cost of Production Survey 2008

Summary of Findings

Average cost of producing milk in Jamaica during calendar 2008 was estimated from a survey of 14 farms during the period January to April 2009. There were no small farm participants in the current survey.

Farms were compared on the basis of variable costs in order to remove the effect of farm size and structure as they relate to fixed costs.

Output per hectare, at 4867 litres per hectare, fell 3.4 percent below that of 2007; likely a continuing impact of the price spirals which continued well into calendar 2008.

Mean variable cost of producing milk in 2008 was $38.59; 26 percent above that of the previous year. Average farm-gate price increased by 42.5 percent to $41.84 per litre for an overall contribution margin of 8.4 percent.

Fertilizer and electricity costs fell on a per unit basis by 24.3 and 12.0 percent, respectively, between the first and fourth quarters of fiscal 2008. However, given their relative contributions to variable costs, the reduction in cost of these inputs only partially compensated for a 29 percent increase in the cost of concentrate feed, the major cost item.

Relevant tables are attached for information.

Table 7: Comparison of Mean Stocking Rates and Production per Hectare among Farm Sizes

Category	**Stocking Rate (cows/ha)**	**Production (L/ha)**
Medium Non-Irrigated	1.91	3456
Medium Irrigated	2.05	2581
Large Non-Irrigated	1.56	3355
Large Irrigated	3.13	8915
Overall mean	**2.06**	**4867**

Table 8: Comparison of Local and International Costs of Producing Milk

Category	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
AVC Jamaica (J$)	17.05	19.13	22.09	23.70	30.56	38.59
" (US$)	0.29	0.31	0.35	0.36	0.44	0.53
Farm Gate Ja. (J$)	18.00	20.00	22.63	26.00	28.33	41.84
" (US$)	0.31	0.33	0.36	0.39	0.41	0.57
AVC USA (US$)	0.23	0.23	0.25	0.26	0.30	0.36
Farm Gate USA (US$)	0.28	0.35	0.34	0.29	0.43	0.41
Retail Price Ja. (J$)	68.00	71.37	76.00	81.00	118.17	144.38
(US$)	1.17	1.16	1.20	1.23	1.71	1.98
Mark-up (%)	277.78	256.85	235.84	215.40	287	245
Retail Price USA. (US$)	0.73	0.83	0.84	0.81	0.92	1.00
Mark-up (%)	161	137	147	179	114	144
AVC NZ (US$)	0.15-0.18	0.15-0.18	N/A	0.14	N/A	N/A

Table 9: Comparison of Average Direct Costs over the Past 7 Years on Medium and Large Farms

Items	**2004**	**2005**	**2006**	**2007**	**2008**
AVC. (J$)	19.13	22.32	23.70	30.56	38.59
Av Farm Gate Price (J$)	22.00	24.00	26.00	28.33	41.84
AVC Ja. (US$)	0.31	0.35	0.39	0.41	0.53
Irrigated Farms	25.51	18.42	20.25	27.91	38.00
Non-irrigated Farms	19.63	25.90	27.66	31.45	42.62
Gross Margin (%)	4.5	-3.0	11.0	-8.0	8.0

Table 10. Changes in Proportion of Variable Cost Due to the Various Input Categories

Category	**2004**	**2005**	**2006**	**2007**	**2008**
Feed	39.0	39.0	29.9	33.1	35.9
Utilities	7.0	7.0	6.5	10.1	9.6
Labour	13.0	13.0	24.3	16.9	22.5
Vet & Med	3.0	3.0	3.4	4.3	2.4
Pasture Maintenance & Fertilizer	4.0	4.0	5.4	2.3	1.7

ABSTRACTS/SUMMARIES/SYNOPSES

RECOVERING FROM THE TRAUMA OF LIBERALIZATION: THE JAMAICAN DAIRY INDUSTRY AS CASE STUDY

P.G. Jennings
Jamaica Dairy Development Board
Ministry of Agriculture, Kingston, Jamaica

ABSTRACT

Significant gains in Jamaican milk production achieved during 1987-1992, were reversed by the ensuing trade liberalization policy. The adoption of a *laissez faire*, market determined economic model, coincided with severe economic constraints, the foreign-exchange led inflationary spiral and escalating agricultural lending rates, precluding attainment of international competitiveness by the local industry. The confluence of proactive subsidy policies within the EU and the macro-economic dislocations from liberalization resulted in the exodus of over two-thirds of farmers from the formal market.

The gains pre-liberalization were mainly from investments by two large corporate entities, encouraged by a price-equating mechanism which made processors indifferent to fresh milk vs. imported milk powder, as raw material. Restrictions on the reconstitution/recombination of milk were also advantageous. The abrupt substitution of a 'soft' tariff regime plus the influx of dumped milk powder imports proved injurious to local milk production.

The incoming Government has enunciated a policy of **enhanced national food security** in which the dairy sector is assigned a strategic role.

Jamaica retains strategic advantages for recovery of its dairy industry to levels attained pre- liberalization. This requires consensus within a broader framework of **Food Sovereignty** to minimize the impact of abrupt shifts of policy and provide the consistency critical to attracting new investments in a competitive local dairy sector. The CSME provides an economic framework for a cooperative regional approach to investment in the Jamaican dairy sector.

Paper prepared for International Congress on Tropical Agriculture, UWI, St. Augustine,
Trinidad and Tobago, Nov. 30 – Dec. 05, 2008-10-23
"Overcoming Challenges to Developing Sustainable Agri-Food Systems in the Tropics"

Revitalization of the Jamaican Dairy Sector:
Strategies for Financing New Investments in Dairying

P.G. Jennings, R.C. Miller, D.L. Ffrench and B.G. Duffus[1.]
Jamaica Dairy Development Board &
Beef and Dairy Producers' Association of Jamaica[1.]

Abstract

The Jamaican dairy sector has undergone severe attrition, consequent to the adoption of a policy of trade liberalization in 1992, resulting in milk production declining 64 percent to current levels bordering on 14 million litres per annum.

The recent volatility in the international market for milk and dairy products, exposed the inherent weaknesses of over-reliance on imports to shape national food and nutrition policy. Consequently, the current political administration has positioned the revitalization of the dairy sector as a key plank of its policy for enhanced national food security.

The expansion of the local dairy sector, however, is constrained by high start-up capital cost requirements and marginal returns on traditional approaches to primary milk production which contribute to the difficulty in accessing capital financing from financial institutions. Therefore, novel approaches are required to finance dairy projects and to develop business models to lower barriers to entry, thus enabling the participation of small-scale farmers in the development process.

*The Beef and Dairy Producers' Association of Jamaica (BDPAJ) has advanced a model — **Large-Scale Cluster Dairy Farms** — professionally managed nuclear farms, to enable small farmers to invest cows in the cluster under terms of a long-term management contract. Participants would benefit from greater economies of scale than they would achieve, operating as stand-alone units, thus being able to rationalize the utilization of their limited holdings.*

Analysis of strategies for financing the implementation of the BDPAJ model indicates that consideration be given by local Development Financing Institutions to adopting lease financing as a means of enhancing financial viability.

Paper prepared for Conference on 'Food Security and Agricultural Development in the Americas', UWI, Mona Campus, Kingston, Jamaica, July 28-30, 2009.

ANNEXES

Annex 1. Annual Imports of Milk Solids

Annual Imports of Dairy Products (kg)		
	2007	**2008**
Milk & Cream	87,716	207,563
Skim Milk Powder	7,008,598	3,423,820
Whole Milk Powder	1,329,812	1,692,462
Condensed/Evap. Milk	174,160	67,866
Whey Powder	249,905	564,269
Ice cream	3,871,902	2,001,747
Yoghurt	149,294	238,740
Cheeses	4,368,135	4,174,705
Butter Fat	2,050,245	1,814,403
Others	1,009,593	541,871
Total (kg'000)	**20,295,360**	**14,727,446**

Source: STATIN

Annex 2. Per Capita Expenditure (J$) by Wealth Groups- 2008

	QUINTILES				
n=	4208	4215	4214	4217	4241
Product	**POOREST**	**2**	**3**	**4**	**RICHEST**
Liquid Milk	133	222	367	739	1430
Condensed/Evap Milk	570	871	1204	1634	2287
Powdered Milk	454	573	778	822	917
Food Drink (Milk Based)	205	397	584	795	1329
Butter	187	291	368	449	664
Cheese	109	230	374	632	1067
Other Dairy Products	195	413	580	836	1406
Dairy products ex home	36	78	167	690	1000
Total (Dairy products)	**1890**	**3075**	**4421**	**6596**	**10100**
Other meals ex home	8135	15140	22089	31418	62063

Source: STATIN-SLC 2008

Annex 3. Grade "A" and "B" Milk Production 2003 -2008

Year	Milk Production (litres)		Total
	Grade A	Grade B	
2003	17,665,431	732,519	18,397,950
2004	14,987,982	462,000	15,449,982
2005	14,404,797	169,000	14,573,797
2006	14,402,524	105,587	14,508,111
2007	13,954,328	139,568	14,093,896
2008	13,586,866	190,373	13,777,239