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.

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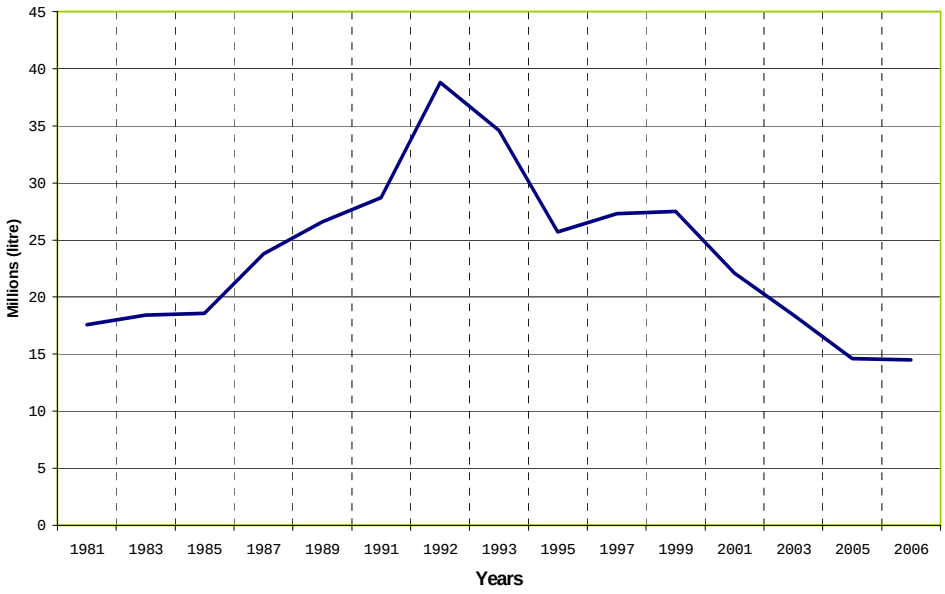
Introduction

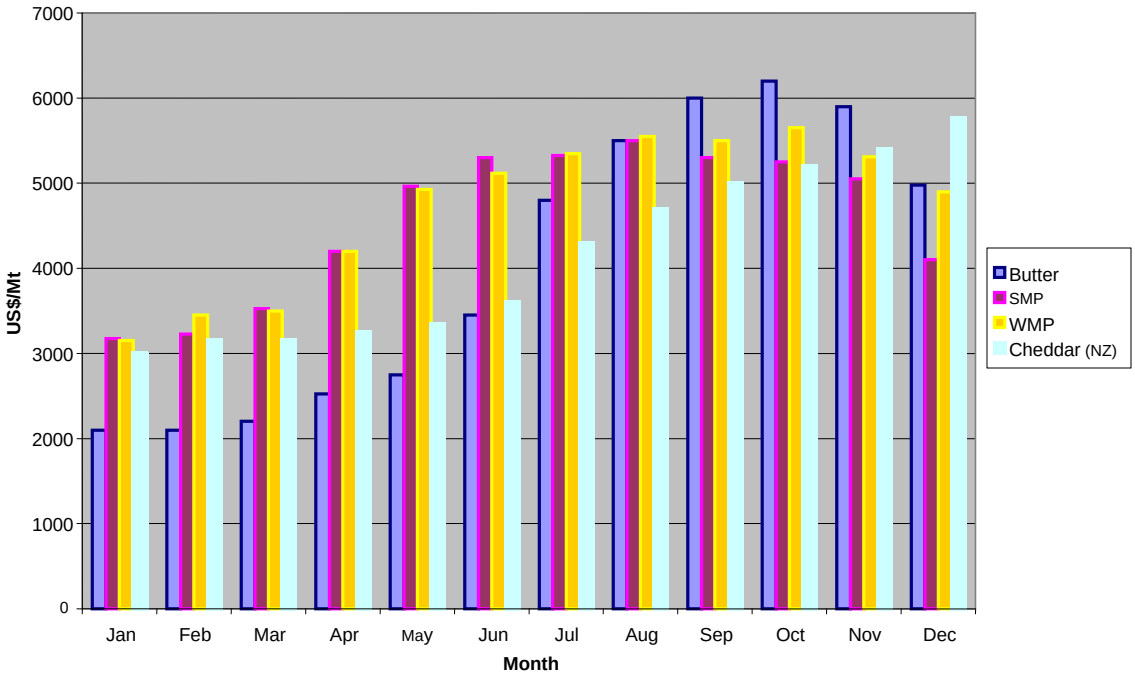
The marked volatility of the international dairy products market over the past two years has exposed the vulnerability of developing countries such as Jamaica, with respect to the nutritional assurance of their populations. Having achieved a self-sufficiency ratio of approximately 25 percent with production peaking at 38.8 million litres in 1992, the 15-year period since adopting a policy, virtually of *laissez faire* free trade, has seen milk production in Jamaica, falling precipitously to a 2007 output of 14.1 million litres; 9 percent of total consumption of dairy products (Figure 1).

Fig 1. Local Milk Production
1981-2006



The removal of export rebates on milk solids commenced within the European Union in July 2006, resulted in exponential increases in the international prices of milk solids, FOB quotes for whole milk powder, for example, peaking at US$5700 per metric ton, approximately 150% above year-end 2005 prices (Figure 2).

Fig. 2 International Price Fluctuations in Major Milk Solids- 2007 (USD/mt)



Source: USDA- AMS

Given the spiraling costs of imported substitutes, local milk producers enjoyed a transient competitive advantage, which was soon eroded by the concomitant escalations in the prices of petroleum and grain which resulted in a 39 percent increase in the average variable cost of producing milk on farms as determined by the Annual Cost of Production Survey conducted by the Jamaica Dairy Development Board (Ffrench, D.L. Pers. Comm.). The costs of key inputs such as fertilizers, concentrate feeds and electricity spiraled, forcing a 32 percent increase in farm gate prices in 2007 compared with year-end 2006. With milk powder prices closing 2007 at 15-23 percent below the September/October peak and currently stabilizing at between US$3500 – 4000 per ton, local processors have sought to absorb much of the increases in the price of raw milk in an attempt to minimize the erosion of the unprecedented competitive advantage to fresh milk; retail prices increasing by an average 10 per cent.

The negative impact on food security, of trade liberalization, and more particularly the recent upheavals in the international dairy and commodities markets, is typified in Table 1, which is adapted from the annual Survey of Living Conditions conducted by the Statistical Institute of Jamaica (STATIN). The table provides a comparison of per capita expenditure on milk and other dairy products between the poorest 40 percent and the wealthiest quintile of the population. Compared to a WHO recommended daily allowance of 200ml, the poorest segments of the population, already sub-marginal at liberalization, have been rendered even more nutritionally vulnerable.

Table 1. Per Capita Expenditure (Constant J Dollars) on Milk Solids within Wealth Groups 1994-2007

	1994		**2003**		**2007**	
	Poorest 40%	**Wealthiest 20%**	**Poorest 40%**	**Wealthiest 20%**	**Poorest 40%**	**Wealthiest 20%**
Liquid Milk	115	512	35	345	68.6	629
Condensed/Evap.	202	928	207	652	352.5	1104
Powdered Milk[1]	190	320	230	433	465.4	866
Butter	100	377	80	205	97.8	250
Cheese	58	402	46	320	101.3	626
Others[1]	60	339	66	534	184	1075
Total Expenditure	**725**	**2878**	**664**	**2489**	**1270**	**4550**
Fluid Milk Equivalent (litres/yr)	**22.8**	**90.6**	**21.5**	**80.4**	**15.4**	**55.2**
Equivalent daily per capita intake (ml)	**62**	**248**	**59**	**220**	**42**	**151**

Source: Statistical Inst. of Jamaica, *Jamaica Survey of Living Conditions* database

1. Adjusted for new classification 'food drink' introduced in 2003

While the reduced consumption of dairy products by the wealthiest quintile in 2007, might in reality be discretionary, the fact that as high as 40 percent of the population are consuming only one-fifth of the WHO minimum recommendation, speaks eloquently to the need for a refocusing of national nutritional policy toward one of unqualified **food sovereignty (**See declaration of Nyèlèni, Feb 27, 2007 at www.nyeleni2007.org)

Learnings from the Growth Phase of Jamaican Milk Production, 1985-1992

The new Jamaican political administration has enunciated a return to a policy of enhanced national food security and has espoused the goal of restoring the local dairy sector to a growth trajectory to mirror that of the period 1985-1992, when milk entering the formal market recorded annualized growth of 15.5 percent to reach 38.8 million litres.

An analysis of the factors which contributed to this level of growth is therefore critical to devising a strategic and policy framework to catalyze the revitalization of the local dairy sector.

Demographics of the Dairy Sector Pre- and Post-Liberalization:

The 1990 livestock census conducted by the Ministry of Agriculture (Anon.1991) revealed a total dairy population of 22,385 animals distributed among 753 farmers (Table 2). Small farms (<10 head) represented 81 percent of total holdings while accounting for only seven percent of the total dairy population, while 72.5 percent of the dairy population were concentrated on the large farms (>100 head) which represented only three percent of all farms.

Table 2. Comparative Demographics and Productivity of the Jamaican Dairy Sector (1990 vs. 2004)

Census/Survey	1990 (MinAg)	2004 (JDDB)	% Change
No. Farms	753	254	-66.3
Pasture Area (ha)	10,940[1]	5420	-50.4
Total Herd	22,385	18,510	-17.3
No. cows	11,780	10,063	-14.6
Est. breeding herd	13,748	11,440	-16.8
Effective Stocking Rate (au/ha)	1.5	2.1	+40.0
Milk output (litres'000)	31,250	15,450	-50.5
Imputed production per cow (Litres/year)	2653	1535	-42.0
Imputed yield/ha (L)	2856	2851	-0.2

1. Source: Jennings and Wellington, 1992

The attrition resulting from the negative impact of trade liberalization is emphasized by the exodus of farmers and the significantly reduced land area allocated to pastures, revealed by a 2004 survey conducted by the Jamaica Dairy Development Board (Jennings *et al*, 2004). This exodus was primarily of small and medium scale farmers (1-99 head) whose cumulative numbers had declined from 722 to 224 between 1990 and 2004. The significant reduction in the numbers of farms was not accompanied by the expected compensating increase in productivity; the 42 percent decline in output per cow, arguably a reflection of the response to escalating input costs. A major implicating factor has been the significant, simultaneous decline in the use of concentrate feeds and fertilizers. Information from the Data Bank of the Ministry of Agriculture (Anon 1992) indicated that the manufacture of cattle feed having peaked at approximately 24,000 tons in 1987, had declined to below 7500 tons by 2005 (Pryce, M, Pers. Comm.). Similarly, application of nitrogenous fertilizers to pastures, already low in 1994 at an estimated 80-90kg per hectare (McCatty, 1995), had fallen to an estimated 51.2kg per hectare by 2004 (Jennings, 2005).

Of even greater concern is the result of a recent canvassing of processors by the JDDB (Miller, R.C. Pers. Comm.), which indicated that current number of farmers in the formal trade has further dwindled to below 110, approximately 65 percent represented by small farmers supplying the Serge Island Dairies Ltd. in the easternmost parish of St. Thomas. The corresponding size of the breeding herd was estimated at below 7500 cows.

The foregoing speaks to the critical importance of significantly raising levels of technology application on dairy farms as a primary focus of any programme for restoring the levels of milk production attained prior to the liberalization of the dairy trade. Given current cow numbers, however, it seems highly unlikely that significant gains in milk production will be possible without recourse to cattle importation. The socio-economic implications of restoring and protecting the livelihood of the small farmer, gives equal weight to the need to

develop organizational strategies for sustainable small farmer participation within a global framework which gives increasing importance to issues of food safety.

Comparative Macro-Economic Environment Pre- and Post-Liberalization:

Jamaica's accession to successive structural adjustment programmes with the World Bank and the IADB in 1991 and 1992, respectively, radically altered the landscape for domestic agriculture and the dairy industry in particular. The agreements required, *inter alia*, the phased reduction of tariffs on agricultural products from as high as 150 percent to the extant CARICOM common external tariff (CET) of 30 percent, within five years. The dairy sector, which had no formal tariff regime in place, but instead a price-equating levy on skimmed milk powder administered by the parastatal, Jamaica Commodity Trading Corporation (JCTC), was forced into an immediate application of the 30 percent tariff (CET) rate. As a consequence, imports of milk powder surged from 7,222 tonnes in 1990 to 9,408 mt in 1993, a difference of 21.9 million litres in fluid equivalents or 56 percent of the fresh milk market in 1992. This influx coincided with the surge in the European manufacture of Whole Milk Powder, an attempt to reduce the European Union's 'butter mountain', buttressed by export rebates and other producer support equivalents accounting for as much as 78 percent of the FOB price. The inevitable trade distortions from the dumping of whole milk powder led, inevitably, to the massive exodus primarily of medium and small-scale milk producers.

Jamaica's accession to the World Trade Organization in 1995 essentially reinforced its pre-emption of the *laissez faire* conditionalities of membership. Having agreed with the rest of CARICOM to bound rates of 100 percent, pressures from farmers for a more protective tariff regime, including a successful case submission in 1995, to the then Anti Dumping Advisory Board appointed by Parliament, were resisted by the political administration in defence of its 'cheap food' policy. The recommendation by a 1996 mission from the Commonwealth Secretariat

(CFTC, 1997) for an across-the-board 50 percent tariff on all dairy imports - the incremental revenues to support industry development - as well as a 2005 recommendation by the JDDB for the adoption of a Tariff Rate Quota for milk powder imports were largely unheeded. Concessions were made by way of the imposition of an additional stamp duty on whole milk powder to a cumulative tariff of 50 percent. Any effect of this measure was soon erased by the widening of the five-percent concessionary duty on milk powder imported as raw materials, from Nestlè, the traditional purchaser of small farmer milk, to all *bona fide* manufacturers. This concession promptly resulted in a reduction in the proportion of powdered milk declared at Customs as consumer goods, from 35 to 5 percent.

Table 3 summarizes the major indicators of macro-economic policy which characterized the pre- and post-liberalization eras.

Table 3. Comparative Macro-economic Indicators Pre- and Post-Liberalization

Period	**1985-1990**	**1991-2007**
Inflation Rate (%)	8.4	80.2 (1992) 16.8 (2007)
Exchange rate (J$:US$)	5.49	12.85-71.85
Treasury Bill Rate (%)	19.63	49.8 (1992)
Agricultural Lending Rate	9.0	42.0 (1992) 7.8 (2007)

Source: Economic and Social Survey 1987, 1992. PIOJ

The table indicates the severe hurdles to any attempts at improving international competitiveness by Jamaican dairy farmers as a response to trade liberalization. The accompanying exchange-led inflation would have significantly impacted input costs, while prevailing agricultural lending rates would have restricted the opportunities for technology upgrade. It should be noted that the 1991

agreement with the IADB, required *inter alia*, that lending rates for agricultural development be pegged to current commercial bank savings passbook rate.

The reduced productivity evidenced in Table 2 is consistent with a technology shift to a low-input system of production; conditioned by the prevailing macro-economic environment. The significant reductions in the manufacture of concentrate feeds and in the sales of fertilizers, earlier cited, confirm this technology shift.

A series of annual surveys of cost of production conducted by the Jamaica Dairy Development Board (JDDB) since 2000 (Ffrench *et al.*, 2001-2007 – available at www.moa.gov.jm) highlights the need for a re-examination of the low-input strategy adopted by Jamaican dairy farmers as it is evident that in many cases, the strategy has reached the stage of being counterproductive with respect to its impact on unit cost of production. Jennings (2006) has provided a comprehensive review of existing technology with respect to the nutritional management of dairy cattle in tropical regions. A number of knowledge gaps are still clearly evident, including the need to more accurately define the influence of herbage allowance, under grazing, on milk production; a line of research initiated in sub-tropical Australia by the late Harry Stobbs (See: Stobbs, 1977). Resumption of this line of work within the range of improved grasses utilized in the Caribbean, is critical to clearly defining the conditions under which economic responses to concentrate supplementation to lactating cattle are likely to occur. Nevertheless, it is felt that the available body of knowledge on the nutrition of the dairy cow in the tropics is more than adequate to allow its integration into decision support systems, which would contribute to significantly raising current levels of milk production efficiency in countries such as Jamaica.

The cost of capital, even at current rates, continues to pose a significant hurdle to technology adoption by Jamaican dairy farmers. Out of recognition of the urgent need to raise international

competitiveness, the new political administration has recently introduced a loan fund to provide concessionary working capital support, up to a maximum of J$2.5million per farmer, for pasture improvement and herd expansion to increase levels of pasture management and utilization. It is anticipated that this will have a positive impact particularly among medium scale farmers.

Elements of the Positive Response to Policy Initiatives of the Pre-Liberalization Era:

In response to persistent lobbying by the local dairy sector for effective cushioning against the impact of heavily subsidized milk powder imports, the Jamaican Government, in 1987, implemented a policy of equating the wholesale price of milk powder, on a fluid equivalent basis, with the farm-gate price of fresh milk, in order to promote the use of local milk by processors. This was facilitated through the agency of the JCTC, the parastatal with a monopoly on the import and distribution of basic foods and other strategic commodities. Accompanying measures included:

1. A continuation of the subsidy paid to dairy farmers for milk supplied to processors;
2. Continuation of price controls with farm-gate price established by the Ministry of Agriculture (Discontinued in 1988 and replaced by a milk pricing index operated under the aegis of the Jamaica Livestock Association Ltd.);
3. Introduction of a 1987 trade order which prohibited the sale of reconstituted milk.

The implementation of the policy provided the catalyst for significant investment at both farm and factory levels resulting in a 63 percent growth in milk entering the formal market between 1987 and 1992 (Fig. 1). Major investments in herd expansion were made by the two largest corporate entities engaged in dairy farming, ALCAN Jamaica Company (ALJAM), a subsidiary of the Canadian aluminium multinational, and Serge Island Dairies Ltd, which became a subsidiary of ICD holdings, a local conglomerate, in 1988.

As part of its strategy of corporate citizenship, ALJAM had historically exceeded its minimum legal obligations for post-mining land reclamation, by direct investment in farming. Between 1985 and 1992 the company had expanded its dairy operations from 5 to 11 farms with more than 2,200 cows, primarily of Jamaica Hope breeding. Table 4 below summarizes the growth and accompanying productivity of this company's operations for the period 1982 to 1992. In addition to establishing new dairies on bauxite lands, ALJAM also took on the lease of two farms in St. Elizabeth (outside of its mining area), Goshen, a 180-hectare dairy farm formerly operated by the Agricultural Development Corporation and Pepper Dairy, a farm of similar size previously operated by a competitor, Alumina Partners Ltd. In addition ALJAM also entered into a ten-year management contract with the Ministry of Agriculture for the operation of Wallens Dairy, a mother/satellite farming operation including a central 105ha dairy farm with 40 contiguous satellite farmers settled on 1.8-hectare holdings.

Table 4. Production and Performance of the ALCAN Dairy Herd 1982-1992

Year	Pasture Area (ha)	Total Herd	Cows	Cows Milked	% Cows In Milk	Herd Ave L /day	Litres /ha/yr	Total Prod ($L^{'000}$)
1982	743	2044	971	747	76.9	8.5	4069	3023.21
1985	890	2549	1283	919	71.6	7.6	3978	3540.68
1986	1518	3538	1708	1256	73.5	7.3	2998	4551.78
1987	1518	3697	1862	1442	77.4	7.7	3451	5238.62
1988	1518	3865	2079	1606	77.2	7.3	3661	5558.00
1989	1518	4091	2137	1644	76.9	8.0	4089	6207.09
1990	1518	4313	2334	1712	73.4	7.8	4365	6626.29
1991	1518	4245	2156	1717	79.6	8.2	4232	6424.34
1992	1618	4129	2054	1692	82.3	8.7	4053	6557.76

Source: S. Mc Daniel, WINDALCO, unpublished mimeo.

It should be pointed out that ALJAM's dairy operations, with the exception of the Goshen, Pepper and Wallens Dairies were managed under rain-fed conditions.

In 1993 the company concluded its expansion programme with the opening of the Rio Hoe dairy, its second 350 cow dairy in the parish of St. Ann.

The lead-up to and subsequent transfer of ownership of the ALJAM operations, first to Glencore in 2001 and subsequently to RUSAL since April 2007, has been marked by substantial disinvestment in cattle production. Annual output of milk from the former ALJAM (now WINDALCO) dairy operations has averaged below 3.6 million litres from 5 farms, over the past four years**. It is considered that the more favourable competitive position of dairying in Jamaica currently, could provide the Jamaican Government with a framework for engaging the Russian conglomerate in a joint venture approach to new investments in dairying. It is suggested that a recurrent investment strategy based upon outsourcing the management of the farming operations to competent professionals and eventual divestment after capital recovery, might improve the financial viability and sustainability of future investments.**

The Serge Island herd remains, arguably, the most efficient dairy farming operation in Jamaica consistently topping the league in the JDDB annual cost of production survey, at internationally competitive unit production costs. In continuing an expansion programme which commenced in 1982, the company had doubled herd size by 1992 to 2200 cows plus followers on 510 hectares of irrigated pasture. The levels of productivity of the Serge Island herd between 1993 and 1994 are summarized in Table 5, extracted from Jennings and Clayton (1995).

Table 5. Comparative Performance of Friesian and Jamaica Herds at Serge Island 1993-94

	Friesians	**Jamaica Hope**
Milk Yield per Cow (L/yr)	3552	2944
% Cows in Milk	81.5	77.5
Concentrate Feed Use (t/cow/yr)	2.21	1.56
Stocking Rate (cows/ha)	4.4	4.6
Margin (over conc.)/ha (J$)	132,528	120,668
Litres/ha/yr	15,629	13,542

Total output at Serge Island Farms Ltd. peaked at 7.2 million litres in 1992. Within two years of liberalization, however, the company had undertaken a disinvestment programme of substantial herd liquidation leading to a 35 percent reduction in milk production.

In addition to expanding its farm operations, Serge Island had in 1990, also invested in a new state-of-the-art UHT milk processing plant, consolidating its earlier vertical integration strategy. The company had also initiated in 1988, with assistance from USAID and CIDA, a satellite Small Farmer Dairy Development Scheme, which by 1992 had supplied approximately 770,000 litres of milk (Jennings, 1994). The scheme, which had 275 small farmers registered in 1992, has been significantly reduced to a current registration of approximately 70 farmers. The current owners of Serge Island Dairies have an interest in exporting into CARICOM and have been confronted with the difficulties of achieving HACCP certification without substantial expenditure to establish a separate processing line for milk collected from its small farmer scheme.

The Serge Island operations have since April 2006, initiated an expansion programme under new ownership by another Jamaican conglomerate. Their recent acquisition of the neighbouring Belvedere property and subsequent investment in a state-of-the-art milking parlour provides a well needed confidence booster to a chronically depressed dairy sector. Milk production for 2008 is projected to exceed 5.3 million litres.

In addition to private investment by the two corporate entities outlined above, the Jamaican government intervened in the incorporation of the St. Elizabeth Dairy Farmers' Cooperative in 1988, guaranteeing a USAID Loan which provided for the acquisition of bulk cooling equipment, bulk milk transporter and the establishment of two milk collection-cum-farm shop/office sites at the Luana and Cabbage Valley districts. This catalyzed the successful operation of a cooperative engaged in the purchase and distribution of milk to processors as well as input supply among the 36 medium-scale farmers originally settled under an earlier USAID programme, in addition to members recruited from among other neighbouring farms. Membership peaked at 50 farmers with corresponding milk production of approximately 2.3 million litres in 1993 (Jennings 1994).

The St. Elizabeth Dairy Cooperative later provided the inspiration for and much of the leadership of the Jamaica Dairy Farmers' Federation (JDFF) established under the aegis of the Jamaican Government, as the vehicle for vertically integrating the small and medium scale farmers who comprised the majority of milk producers. Its listed membership at inception in 1998 stood at 220 members, accounting for approximately 60 percent of national output. The JDFF initiative was an outcome of the 1997 recommendations of the aforementioned COMSEC study undertaken at the behest of the Jamaican Government, in response to the successful case submitted for the imposition of countervailing duties against dumped whole milk powder. The commencement of processing operations by the JDFF in 2001, enabled by a US$10 million loan from the Jamaican government was, in retrospect, inadequate and too late to halt the precipitous slide in milk production attendant on liberalization. Currently less than 30 members supply milk to the JDFF, which since inception, has been unable to command the membership loyalty to guarantee optimal throughput and financial performance. It is the view, however, that the objective of facilitating vertical integration of small and medium scale farmers remains a social imperative in any strategy for the revitalization of the Jamaican dairy sector. **Strategies for insulating the commercial operations of any successor, vertically integrated farmer-based entity, against the dysfunctionality which has bedeviled the JDFF, will need to be carefully devised.**

During 2001-2002, Nestlé, which had maintained at increasingly unaffordable cost since 1945, a fixed-route ('milk run') churn collection system, established four milk chilling centres to afford small farmers easy access to cooling while facilitating bulk collection. The expectation of the farmers was that this would have provided them access to A-Grade classification on the basis of milk testing upon delivery, as against the *a priori* B-grade classification which had operated hitherto. The failure to apply a system of payment on the basis of quality of milk supplied, citing Public Health regulations, placed the farmers at a severe financial disadvantage after the deduction of a cooling station fee, and in many cases the cost to transport milk from remote

districts. The reduction in the collection of B grade milk from over 2.5 million litres in 1999 to approximately 150,000 litres in 2007 speaks to the massive shut-out of small farmers from the formal market.

The sustainable participation of the small farmer in the formal dairy trade will require strategies that will provide the advantages of economies of scale as well as compliance with the food safety assurance requirements increasingly critical to both the domestic and export food trade. Strategies currently being assessed by the JDDB in association with the Beef and Dairy Producers Association of Jamaica (BDPAJ), an advocacy NGO incorporated in 2005, include a cluster model which incorporates cow leasing, which would allow small farmers to participate as equity holders and contract input providers in large-scale intensively managed dairy operations established on underutilized state lands.

The oligopolistic nature of the Jamaican dairy industry over the past two decades, whereby two corporate entities accounted for as much as 50 percent of national output, has in retrospect, proved at once, a strength as well as a source of great vulnerability. This speaks to the critical need to diversify the ownership base of the industry through focused investment promotion. Current imperatives suggest that policies aimed at promoting regional joint venture investment in sustainable rapid expansion of the Jamaican dairy industry are worth pursuing. The medium term prognosis for a prolonged period of price instability at the international market provides further economic justification for such an approach.

Confronting the Challenges of National and Regional Food Security

Characteristically, national output of milk has exhibited a cyclical pattern of peaks and troughs coinciding with the changes in political administration since political independence in 1962.

Given the severe contraction of the dairy industry since 1992, it is unlikely that the elements of the growth strategy which entailed during the pre-liberalization period would be adequate to restore growth rates and output to the levels of the 1987-1992 period. Furthermore, any significant new investments in dairying will materialize only within a policy framework which provides an adequate planning horizon and guarantees against the cyclical policy shocks which have historically plagued the sector. **A pre-requisite to any meaningful recovery of the sector is therefore posited as a national consensus, not merely on *Enhanced National Food Security* but moreso on the higher order goal of *Food Sovereignty*.** This goal would need to be based upon a recognition of:

1. The right to affordable, nutritious food as a basic human right;
2. The obligations of the state in facilitating the legitimate exercise of this right
3. The responsibility of the state in the protection of the livelihood of its citizens;
4. (Given global imperatives), the role of the state in facilitating the attainment of sustainable competitive advantage in food production.

Agreement on the goal on Food Sovereignty as outlined above, would engender the necessary public policy framework of fiscal and technology interventions and the requisite planning horizon specific to the protracted gestation period of dairy investment programmes. With respect to the strategic approach to expansion of the local dairy sector, a recent evaluation conducted by the Jamaica Dairy Development Board in collaboration with BDPAJ (Jennings *et al*, 2008) concluded that *de novo* investments in dairy farming will be financially viable only if pitched at scales in excess of 400 milking cows per production unit. At a capital absorption rate in excess of J$750,000 (US$10,450) per hectare, the considerable investments required for large-scale dairy farming, are unlikely to be recouped before six to seven years, the typical period for attaining peak efficiencies on new dairy farms. This highlights the need for political consensus as a *sine qua non* for sustainable growth of the Jamaican dairy sector.

Jamaica's accession to the CARICOM Single Market and Economy (CSME) in 2006 provides a market framework for attracting regional corporate and public partners into significant expansion of the dairy sector to contribute meaningfully to regional food security. CARICOM, expanded with the inclusion of Haiti and Suriname to a population of over 13 million, represents a market in excess of 900 million litres; a compelling rationale for regional investment in dairying. With over 490,000 ha (51 percent of Jamaica's agricultural land area) classified as best suited to the production of improved pastures (CRIES, 1982), Jamaica retains a strategic advantage for regional expansion of the dairy industry. The levels of productivity achieved, both under irrigated and rain-fed conditions suggest that average levels of productivity in excess of 7000 litres per hectare could be sustained. **Assuming that one-tenth of the area deemed highly suited to pastures, is allocated to new investments in dairying, Jamaica could potentially achieve levels of production adequate not only for full national self-sufficiency (150 million litres) but also to supply, within the medium term, over 200 million litres annually to its CARICOM partners.** It is suggested that this potential demands serious analysis by the regional private and public sectors as well as agreement with its CARIFORUM partner, The Dominican Republic, for an integrated approach to regional food security.

Summary and Conclusion

The significant gains in national milk production in Jamaica during the seven year period to 1992 were completely reversed by the policy of trade liberalization initiated during 1991-1992. The adoption of a *laissez faire*, market determined economy coincided with (or arguably resulted in) severe economic constraints, the foreign exchange-led inflationary spiral and the escalation in agricultural lending rates precluding the attainment of international competitiveness by the local dairy industry. The confluence of proactive subsidy policies within the EU with the macro-

economic dislocations attendant on liberalization resulted in the exodus of more than two-thirds of farmers from the formal dairy trade.

The gains during the pre-liberalization period were largely the result of significant investment by the two largest corporate entities engaged in dairying, stimulated by a policy which provided a cushion to local dairy farmers, primarily through a price-equating mechanism which made the processor/manufacturer indifferent to fresh milk vs. imported milk powder as raw material. This was buttressed by restrictions on the reconstitution/recombination of milk offered for sale. The abrupt replacement of this price-equating mechanism with a formal tariff set at the 30 percent CARICOM CET rate and the immediate influx of dumped whole milk powder, proved particularly injurious to local milk production.

The new political administration of September 2007 has enunciated a policy of enhanced national food security in which the dairy sector has been assigned a strategic role.

It is concluded that Jamaica retains strategic advantages which could be exploited for recovery of the dairy industry to the levels attained prior to liberalization. This, however, will require political consensus within a broader framework on Food Sovereignty which would minimize the impact of abrupt change of policy with change of political administration and so provide the consistency of policy, critical to attracting new investments in a local dairy sector which is projected to continue to enjoy improved international competitiveness within a radically altered international market, well into the medium term.

The establishment of the CSME is held, further, to provide an economic framework for a cooperative regional approach to investment in the Jamaican dairy sector to engender significant contribution to regional food security.

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