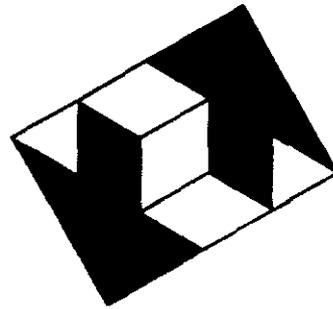


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**Partners of the Americas  
Guyana Dairy Development Project  
(GDDP)**

**Final Report  
(March 1, 2001 – February 29, 2004)**

**PARTNERS  
OF THE AMERICAS**



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## ACRONYMS

CARESDA	Caribbean Research and Development Associates
CARICOM	Caribbean Community Secretariat
CARTF	CARIFORUM Agribusiness Research and Training Fund
CMCCAC	Mexican Comm. for Coop. with Central America and the Caribbean
COM	Committee of Management
DCFA	District Cattle Farmers Association
ECAG	Central American Livestock School
ECD	East Coast of Demerara
FAO	Food and Agriculture Organization
FTF	Farmer to Farmer
GGAVATT	<i>Grupos de Ganaderos de Validación y Transferencia de Tecnología</i>
GMC	Guyana Marketing Corporation
GO-INVEST	Guyana Office for Investment
IICA	Inter-American Institute for Cooperation in Agriculture
LDFCSL	Lusignan Dairy Farmers Cooperative Society Ltd.
MFCL	Ministry of Fisheries, Crops and Livestock
MMMPCSL	Mahaica Mahaicony Milk Producers Cooperative Society Limited
MOE	Ministry of Education
MPU	Milk Processing Unit
NCFA	National Cattle Farmers Association
NPC	National Project Coordinator
NDDP	National Dairy Development Program
PD	Project Director
POA	Partners of the Americas ("Partners")
RCFA	Regional Cattle Farmers Association
SSCA	Saint Stanislaus College Association
SSCF	Saint Stanislaus College Farm
SSTC	Saint Stanislaus Training Center

## **A. Executive Summary**

Over the last three years, Partners of the Americas (Partners) in partnership with the Central America and the Caribbean Agriculture Rural Economic Sustainable Development Action (CARESDA), formerly the Caribbean Research and Development Associates, built the capacity of the Guyanese dairy industry to address the critical issues of poverty, food insecurity and malnutrition in the country.

Partners *Guyana Dairy Development Project (GDDP)* aimed to:

- Strengthen the production, processing, and distribution of milk systems and organizations active in the sector;
- Improve the quality, variety and accessibility of dairy products to Guyanese consumers;
- Improve children's nutrition by increasing their consumption of dairy products; and
- Increase the capacity of local institutions and organizations to address the challenges faced by the dairy sector now and in the future.

To achieve these objectives, Partners and CARESDA emphasized citizen participation throughout the conception, implementation and evaluation phases of the initiative. By including representatives of the Guyanese government, private and civil society organizations, Partners and CARESDA ensured that all stakeholders in the country were active participants in the successful implementation and sustainability of the initiative. The respective March 2001 – February 2004 Work Programs were all arrived at through consultations that included:

- USAID Guyana;
- Ministry of Fisheries, Crops and Livestock;
- National Cattle Farmers Association;
- National Agricultural Research Institute;
- National Dairy Development Program (NDDP);
- Inter-American Institute for Cooperation in Agriculture (IICA);
- Saint Stanislaus Training Center (SSTC);
- Saint Stanislaus College Farm (SSCF); and
- Guyana-Mississippi Partners and its Agricultural and Health Committees.

The Guyana Dairy Development Project (GDDP) achieved its program goals. Over the three-year implementation period, interventions were made on ten model farms. More than 7,000 cattle farmers have been exposed to new dairy development technologies during interaction at various countrywide exhibitions and during contact at district or regional level meetings or at community based discussions. In addition, it is estimated that at least 50,000 persons observed or sampled milk products during the three-year period. As is customary, GDDP displayed, offered a taste, and promoted locally made cheese, yogurt and sweet meats primarily at functions sponsored by the Ministry of Fisheries Crops and Livestock (MFCL) and the Guyana Marketing Corporation (GMC). During the period under review GDDP continued to encourage and support Cattle Farmers Associations at the national, regional and district levels.

## **Objective 1: Strengthening the Production, Processing and Distribution of Milk Systems and Organizations Active in the Sector**

### **Production**

GDDP's activities pertaining to Objective 1 have made a tremendously positive impact. For example, with respect to increased milk production per cow per unit area, the following have been observed:

- **Average milk production per cow per day** increased from 4pts/cow/day to 10.8pts/cow/day (May - December 2002) and on to 13.1 pts/cow/day. Overall increase was more than 300%.
- **Avg. no of cows milked per day** increased from 6 to 8 and average quantity of milk per day increased from 52 to 87 pints.
- **Number of improved milking facilities:** 3 facilities.
- **Average lactation period:** 305 days (close to ideal)

The Saints Stanislaus College Farm / Saints Stanislaus Training Centre (SSCF/SSTC) served as the location for demonstrations on haymaking, silage making, the rotational grazing system, organic fertilizer production, the protein bank concept, machine milking of animals, and milk cooling and the manufacture of milk products.

Ten (10) model farms representing five (5) different production systems (the Rotational Grazing and Cut and Carry System, the Cut and Carry Intensive System, the Intensive Rotational Grazing System, Extensive Grazing, and Extensive Rotational Grazing) were developed during the project life. At the close of the project these remain as a legacy to the dairy farming community as a testimony of USAID's and Partners' contribution to improving dairy production in Guyana.

### **Processing and Distribution**

Project activities pertaining to processing and product development revolved around the following: the manufacture (cottage industry level) and promotion of cheeses, yogurts and other milk based products; the establishment of a Dairy Products Unit of the SSCF; support for the reorganization of Dantzig Dairy (now Whitegate Dairy); and support for the establishment of a Region 6 Milk Processing Unit (Moogoodies Dairy Plant). At the end of the project all three of these plants were in production.

Over 20 different products were market tested and had received varying levels of acceptability. The major products on the market were liquid and solid yogurt, plain and flavoured pasteurized milk and a mozzarella type cheese. Prior to mid-2003, no dairy products were being manufactured in Guyana. By the end of the project, at least 60 gallons per day were being processed across all the factories. This is poised to triple within the next year.

### **Organizational Strengthening**

During the life of the project, GDDP provided support to several dairy farmers' cooperatives or associations at various levels in an effort to get them to increase their own capacity to better serve their members. The groups were generally plagued by "people issues" (sociological/ anthropological/ relationships issues). Inputs were provided directly by GDDP's Cooperative

Consultant and indirectly through Partners' USAID Farmer to Farmer (FTF) Program (Federation of Southern Cooperatives and University of Vermont - Community Development/ Farm organization Specialist) as well as by CARESDA's Sociology Expert.

The collection, processing and subsequent distribution of pasteurized milk by the Mahaica / Mahaicony Milk Producers Cooperative Society Ltd (though short-lived) is testimony of some growth among farmers who had never operated as a group. The need for further efforts at strengthening this and other groups is very great.

As a result of the untiring efforts of the Cooperative Consultant, the Lusignan Dairy Farmers Cooperative Society (LDFCS) eventually got formal permission to use about 50 acres of land as a communal pasture. This permission was granted about 18 years after temporary permission was given to the Coop to use the land. This marked a proud moment for the GDDP/ Partners team; as it was a tangible, positive result of the time and effort spent with farm organizations.

Further to the above, as a result of the GDDP input (Cooperative and other consultants), the Urban Cattle Farmers Association received technical assistance from the Ministry of Works and benefited from the preparation of drainage device designs and an estimate for infrastructure works associated with their 600-acre portion of land.

### **Training**

There were numerous training initiatives during the three-year period. Tables 1 and 2 show the nature and extent of the courses by target region as well as by number and type of beneficiary.

**Table 1: Major Milk Products Courses Offered by GDDP**

<b>Name of Organization</b>	<b>Location</b>	<b>Number and Type of Beneficiary</b>
Guyana Federation of Women's Institute	Regions 4 (Sophia)	9 female members
Farmers of the Limlair – No. 35 Cattle Farmers Association	Region 6 (Tarlogie)	12 dairy farmers
Individuals from various villages on the island	Region 3 (Wakenaam Island)	30 farmers and members of their families, housewives and public servants
Windsor Forest Women's Group	Region 3 (Windsor Forest)	22 female members
Leneora Women's Group	Region 3 (Leneora)	35 female members
Individual women from various villages along a 15 mile radius of the Northern Essequibo Coast	Region 2 (Lima-Coffee Grove)	25 female

**Table 2: Other Major Training Activities / Courses Offered by GDDP**

Type of Training Activity / Course	Target Region	Number and Type of Beneficiary
Data collection	Regions 3, 4 and 5	15 NDDP Supervisors and Technicians
Data collection	Regions 3	4 NDDP Technicians
Training of Model Farmers		
Record keeping	Regions 3, 4 and 5	10 dairy farmers (model farms)
Cooperative Management.	Regions 3, 4, 5 and 6	6 Cattle Farmers Associations
Training in manufacture of Molasses Urea Block	Region 6	10 dairy farmers
Extension methodology	Regions 3, 4, 5 and 6	11 NDDP Supervisors and Technicians
Dairy production	Regions 3 and 5	12 dairy farmers and NDDP technicians
Mexican / Costa Rican Study Tour (see Annex 13)	Regions 4, 5 and 6	5 dairy farmers
Agricultural Education Program	Regions 2, 3, 4, 5, and 6	1200 School Children
Artificial insemination	Region 4	5 dairy farmers

### **Outreach**

Over the life of the project, GDDP supported the production and publishing of six (6) issues of the *COWTALK* Newsletter. In addition, GDDP participated in three (3) sets of Agriculture Month (October) activities in collaboration with the MFCL, NCFA and the NDDP. Agriculture Month events included: World School Milk Day (2), World Food Day (3), Guyana Night (3), Essequibo Night (2), Farm Walks (3) and Cattle Sales and Shows (3).

### **Credit Facility**

At program close, eight (8) loans valuing about US\$21,700 were approved; six (6) valued at US\$13,000 were disbursed; two (2) valued approximately US\$1,800 were fully repaid and seven (7) applications valued approximately US\$30,000 were under consideration. The expansion of the target area was responsible for the increased number of applicants. The clients of the withdrawn loans cited poor social and economic conditions as their reason for withdrawal.

## **Objective 2: Improving the Quality, Variety and Accessibility of Dairy Products to Consumers**

### **Product Development and Marketing Initiatives**

Product development and marketing initiatives were undertaken at four levels during the project life. These were as follows: the manufacture (cottage industry level) and promotion of cheeses, yogurts and other milk based products; the establishment of a DPU at the SSCF; support for the reorganization of Dantzig Dairy (now Whitegate Dairy) and support for the establishment of a Region 6 Milk Processing Unit (Moogoodies Dairy Plant).

Activities to support these initiatives included: the promotion of fresh locally manufactured dairy products, country-wide dairy products manufacturing training courses; support for the establishment of the Dairy Products Unit of the SSCF; support for Whitegate Dairy Plant; support for Moogoodies Dairy Plant; and collaboration with a number of dairy cooperatives and groups as well as with a number of public and private sector agencies.

### **Objective 3: Improving Children's Nutrition by Increasing their Consumption of Dairy Products**

Components of the activities related to Objective 3 included: the development and implementation of a local milk promotion and consumption plan which embraced the production of educational materials on local milk/ milk product consumption, the promotion of local milk as a complete food for all ages, tasting sessions and the distribution of recipes and a milk supplementation study (see Annex 12 for copy of initial plan).

*New products, greater longevity, and large-scale exposure.* Highlights of the several achievements include the following: an increase in shelf life from a few hours for raw milk to 7-14 days for pasteurized milk (all three plants). Ghee will last several months and the SSCF DPU guarantees the shelf life of a range of Good Morning products up to 20 days and some cheeses for several months; the number of products offered to consumers has increased from raw milk only to pasteurized (plain and flavored), yogurt (liquid and solid), soft cheese (plain and flavored), eggnog, pera, fudge, vermicelli cake and sawine. More than 20 different products have been offered to consumers; the number of persons tasting new dairy products and/or observing displays is estimated to be at least 50,000 (2001-2004); and GDDP participated in about 16 major national level exhibitions/displays.

*Remarkable improvement in child nutrition.* As part of the Milk Supplementation Study (Annex 2), 252 students from three (3) nursery schools received a 250-ml pouch of milk per day. GDDP sourced the milk for this study from the Dantzig Dairy Plant of the Mahaica Mahaicony Milk Producers Cooperative Society Limited. The most important finding of the study was that the daily supplementation of a child's diet with 250 ml of flavoured sweetened local milk had significantly reduced malnutrition and generally improved the nutritional status of the study population. There was a 69% reduction in malnutrition rates when the group was assessed by the weight for height indicator and there was a 75% reduction when the assessment was conducted with the weight for age indicator.

Other important findings and observations were:

- There was a reduction in casual absenteeism;
- Parents collected milk when children were absent;
- The milk was generally well tolerated by children;
- The milk was enjoyed and readily consumed; and
- The strawberry flavor was a favorite.

*GDDP wins Caribbean-wide Nutrition Award.* In addition to the above, GDDP won first prize in the prestigious Caribbean Food and Nutrition Institute's (CFNI) 2002 Nutrition Promotion Awards Competition. The annual awards competition is organized by the Caribbean Food & Nutrition Institute of Jamaica. GDDP won First Prize over the entire Caribbean. The presentation was made in November 2002 in Georgetown.

#### **Objective 4: Increasing the Capacity of Local Institutions and Organizations to Address Challenges of the Dairy Sector**

The impact of GDDP's activities, as they pertain to Objective 4, has not been as dramatic as in the other three objective areas. In fact the results do not as yet reflect the level of input in the area of strengthening farm organizations. It is perceived that much more time is required to allow for long-term group development and growth. This area should certainly be an important component of any follow-up phase to this project. Notwithstanding the challenges, the land title obtained by the proud members of the Lusignan Dairy Farmers Cooperative Society after 18 years is testimony of the value of group effort (See Objective 1: Organization Strengthening). Reference has also been made to the Urban Cattle Farmers Association and the designs and estimates for infrastructure works that they now have in their possession. Further, the NCFA and some of the RCFAs seem more committed to execute programs for the benefit of their membership.

In addition to the above, the Mahaica Mahaicony Milk Producers Cooperative Society, despite severe challenges, achieved tremendous success as a result of a range of project activities. Raw milk from farmers of the Cooperative was collected, processed into plain and flavored pasteurized milk and subsequently distributed to among others, three nursery schools in the general area. Albeit with support from the GDDP, FAO, NDDP and MFCL, it was a first for any farming group in Guyana. This sub-project of the GDDP eventually won first prize at the prestigious Caribbean Food and Nutrition Institute (CFNI) 2002 Annual Awards Competition. It was the first time that Guyana has won a first prize at such a competition.

#### **Implementation Issues**

During the period under review, GDDP continued to have a high level of collaboration with all of the major players at the levels of administration as well as implementation. Project implementation has been characterized by frequent, open meetings to which all stakeholders have been invited to attend and to provide input during. Contact has been maintained with the US Embassy in Georgetown; USAID in Guyana; CARESDA; the Guyana-Mississippi Partnership (particularly the Agricultural Committee); the Ministries of Health and Education; the Inter-American Institute for Cooperation on Agriculture (IICA); the Saint Stanislaus College Association (SSCA); the NCFA/ RCFAs/ DCFAs; SSCF/SSTC; the MFCL and the NDDP.

Further to the above, during the review period, GDDP hosted several dignitaries and officials at its headquarters location at Sophia. These included: US Ambassadors, USAID Directors, Charge d' Affairs US Embassy, Partners Chief Finance Officer, Partners Vice President for Programs, Partners Vice President for Partnership Development, Partners FTF Coordinator, several CARESDA personnel, Minister of Fisheries Crops and Livestock, Presidents Guyana-Mississippi Partnership (Northern Chapter), GTZ (German Technical Assistance) Representative

to Guyana, Regional Chairman Region 5 and Program Manager of Sectoral Programmes of CARICOM.

## **B. Project Purpose and Objectives**

Partners and CARESDA committed to *four project objectives*:

- **Objective 1:** Strengthen the production, processing, and distribution of milk systems and organizations active in the sector;
- **Objective 2:** Improve the quality, variety and accessibility of dairy products to Guyanese consumers;
- **Objective 3:** Improve children's nutrition by increasing their consumption of dairy products; and
- **Objective 4:** Increase the capacity of local institutions and organizations to address any challenges faced by the dairy sector now and in the future.

Partners and CARESDA targeted approximately 5,000 small and medium-size farmers that produce milk in Regions 2, 3, 4, 5 and 6. The goals included training 800 farmers and others each year in sustainable dairy farming practices; identifying 10 model farms to showcase throughout the identified Regions; promoting the establishment of five Regional Cattle Farmers Associations and creating a revolving fund to make loans available to dairy producers.

To achieve these goals and objectives, Partners and CARESDA have continued to emphasize citizen participation at all stages of implementation. After three years, it is clear that the project has achieved a high level of success. This is the final report for the project and covers the entire project implementation period.

## **C. Activities, March 2001 – February 2004: Results Achieved Against Project Objectives**

**Objective 1: Strengthen the Production, Processing and Distribution of Milk Systems and Organizations Active in the Sector.**

### **Impact highlights**

GDDP's activities pertaining to Objective 1 have produced a tremendously positive and measurable impact. With respect to increased milk production per cow per unit area, the following have been observed (Please see Annex 3 for these and other results and indicators):

- *Milk produced per cow per day:* Average increased from 4 pts to 11 pts (May- Dec 2002) and then on to over 13 pts. Overall increase of more than 225%.
- *Cows milked per day:* Average increased from 6 to 8 (33%).
- *Quantity of milk per day:* Average increased from 52 to 87 pints (67%).
- *Extra acres under pasture (two farms):* 24 additional acres, or 77% more than before.
- *Improved milking facilities:* 3 facilities.
- *Lactation period:* Average of 305 days (close to ideal).

## **Production**

### ***Saint Stanislaus College Farm***

The SSCF / SSTC was the main Demonstration Unit. The SSCF/SSTC served as the key location for demonstrations on haymaking, silage making, the rotational grazing system, organic fertilizer production, the protein bank concept, machine milking of animals, milk cooling and the manufacture of milk products. Annex 3 shows the impact of some of GDDP interventions. For example, the calving interval is one per year; open days have decreased to an average of 90, and the average number of services per conception from 1.65 to 1.50.

Support to the SSCF, SSTC and SSCA during the life of the project included:

### ***Milk purchase and promotion***

- The purchase of milk from suppliers for the manufacture of dairy products;
- Advertisements on fresh milk consumption;
- Use of promotional material prepared by the GDDP;

### ***Infrastructure development***

- Follow-up on plans for—and construction of—Dairy Products Unit (GDDP/ CARESDA);
- Installation of 110V Electrical Fencer, ear-tagging of animals and establishment of a Cattle Walk;
- Re-introducing humus production and subsequent expansion of humus production enterprise from six boxes to 24, roofing change from zinc sheets to palm leaves (photos included in previously submitted semi-annual report);
- Preparation and implementation of Integrated Fish and Duck Farming Project for SSCF, pond stocked with Tilapia;

### ***Responding to critical needs***

- Hay cutting and baling (emergency activity as a result of unusually long dry weather – served as demonstration for farmers);
- Irrigating forage plots to promote growth for “cut and carry” (emergency activity as a result of unusually long dry weather – served as demonstration for farmers);

### ***Targeted technical assistance***

- Input by Technology Transfer Technician (protein bank, humus production);
- Input /advice by joint GDDP/ CARESDA team on possible funding for SSTC activities;
- Input by FTF Integrated Rural Tourism Specialist;
- Pasture management trials – analysis of forage fed to animals and feed supplementation study;
- Extraction of heifer rearing data for analysis;

### ***Leonora Demonstration Unit***

Leonora Demonstration Unit located at St John’s Community High School was set up with three cows, a pregnant heifer and a calf. Despite challenges, the Unit produced and sold milk on a daily basis over several months. With assistance from the GDDP, higher valued Organic

Fertilizer was also produced from low-valued fresh cow-dung. A lack of sustained interest by the Ministry of Education eventually caused GDDP to formally withdraw from any further support for the project. The Humus production component of the project was subsequently transferred to two other model farms in the Region 3 area.

### ***Model Farms***

Ten (10) model farms were established during the life of the project. Depending on the stage of the intervention, one visit per week or one visit per month per model farm was made during project implementation. Economic and technical analyses of the model farms were done throughout the project life. Interventions made on each farm are indicated in Table 3.

### ***Milking Machines, Hay Balers, Hay Driers and Cheese Presses***

GDDP promoted demonstration equipment that served to show the relevance of improved technology. The focus was on locally-made equipment in order to show farmers that they could produce the equipment themselves and that it was not very intricate. In the case of the milking machine (the most sophisticated of the equipment listed), the equipment was selected with ease-of-servicing through local machinists. The first locally fabricated milking machine began operation in November 2001. A total of four (4) milking machines were fabricated. A farm level cooling system was also fabricated and is in use. Further, the construction of hand-operated hay balers (wood and metal) and a hand-operated metal-framed hay drier were completed. These were used at various demonstration sessions. In addition, local cheese presses were also fabricated. Several have since been bought for use at the household level.

**Table 3: Model Farms: Interventions and Activities**

No.	Model Farm and Region	Activities / Remarks
1.	<i>Seudial's Dairy Farm – Region 3 (Rotational Grazing and Cut and Carry System)</i>	<ul style="list-style-type: none"> <li>• Cow pen completed with milking parlor, milk room, silage bins and feed bond;</li> <li>• Three (3) acres ploughed and planted with antelope grass and brizantha forage species;</li> <li>• Protein bank established;</li> <li>• Hay and silage making practices were introduced as a source of alternative feed for the low forage production during the dry season;</li> <li>• Machine milking now done without calves;</li> <li>• Clean milk production observed;</li> <li>• Legume nursery established;</li> <li>• Records being kept in accordance with GDDP recommendations;</li> <li>• African Star nursery established</li> </ul>
2.	<i>Deeroop's Dairy Farm – Region 3 (Cut and Carry Intensive System)</i>	<ul style="list-style-type: none"> <li>• Repair of cow pen completed;</li> <li>• Feed trough installed;</li> <li>• Clean milk production in practice;</li> </ul>

		<ul style="list-style-type: none"> <li>• Records being kept in accordance with GDDP recommendations</li> </ul>
3.	<i>Kiritpal's Dairy Farm – Region 5 (Intensive Rotational Grazing System)</i>	<ul style="list-style-type: none"> <li>• Floor completed;</li> <li>• Milking parlor completed;</li> <li>• Clean milk production in practice;</li> <li>• Single churn milking machine repaired and working;</li> <li>• Solar electric fence established and functional;</li> <li>• Two (2) plots antelope grass sub-divided fro rotational grazing;</li> <li>• Protein bank (600 glyrecida, leucaena and mulberry plants) established;</li> <li>• Advice provided on how to home mix feed for milch cows;</li> <li>• Record keeping system introduced</li> </ul>
4.	<i>Doodnauth's Cattle Farm – Region 5 (Intensive Rotational Grazing System)</i>	<ul style="list-style-type: none"> <li>• Eight (8) acres ploughed and planted with antelope grass;</li> <li>• Pasture over-grazed in dry season was replanted;</li> <li>• Record-keeping system introduced</li> </ul>
5.	<i>Hiralall's Dairy Farm - Region 3 (Extensive Grazing)</i>	<ul style="list-style-type: none"> <li>• Cow pen upgraded;</li> <li>• Machine milking introduced;</li> <li>• One and a half (1.5) acres of land planted with brizantha;</li> <li>• Record keeping system introduced</li> </ul>
6.	<i>Chee-a-Tow's Dairy Farm - Region 3 (Cut and Carry Intensive System)</i>	<ul style="list-style-type: none"> <li>• Humus production component;</li> <li>• Record keeping system introduced</li> </ul>
7.	<i>Indhal's Cattle Farm - Region 6 (Rotational Grazing)</i>	<ul style="list-style-type: none"> <li>• Forty (40) acres cleared;</li> <li>• Four (4) acres planted with Antelope Grass as a result of too dry conditions;</li> <li>• Animals ear-tagged;</li> <li>• Record keeping system introduced</li> </ul>
8.	<i>Matheson's Cattle Farm (Region 6)</i>	<ul style="list-style-type: none"> <li>• A one-acre nursery was first planted with Antelope Grass;</li> <li>• Four (4) acres were subsequently ploughed and planted with Antelope Grass;</li> <li>• Record keeping system introduced</li> </ul>

9.	<i>Dhanraj's Cattle Farm (Region 6)</i>	<ul style="list-style-type: none"> <li>● Total of seven (7) acres planted;</li> <li>● Protein bank established;</li> <li>● Rotational grazing management system in place;</li> <li>● Record keeping system introduced</li> </ul>
10.	<i>Jaddhu's Dairy Farm (Region 3)</i>	<ul style="list-style-type: none"> <li>● Concrete feed trough built;</li> <li>● Record keeping introduced;</li> <li>● Protein bank introduced</li> </ul>

### **Processing and Distribution**

Due in large part to the activities of GDDP, Guyana now has progressed from zero (0) to three (3) active dairy processing plants. At the end of the project, all three plants were in production. Project activities pertaining to processing and product development involved the following:

- Manufacture (cottage industry level) and promotion of cheeses, yogurts and other milk based products;
- Establishment and/or support for the establishment of three processing units:
  - Establishment of a Dairy Products Unit of the SSCF;
  - Support for the reorganization of Dantzig Dairy (now Whitegate Dairy); and
  - Support for the establishment of a Region 6 Milk Processing Unit (Moogoodies Dairy Plant).

Over 20 different products were market tested and had received varying levels of acceptability. The major products on the market were liquid and solid yogurt, plain and flavored pasteurized milk and a mozzarella type cheese. Prior to mid-2003, no dairy products were being manufactured in Guyana. By the end of the project, at least 60 gallons per day were being processed across all the factories. This is poised to triple within the next year.

### **Organizational Strengthening**

#### ***Sondeo –Implementation plan***

GDDP had assisted the NCFA in the preparation of two project proposals: “Strengthening the Marketing Capability of the Cattle Industry in Guyana” and “Improving Guyana’s Cattle Information System”. Initial indications were that the latter project would have been funded by the Mexican Government; but information received towards the end of March 2003, suggested that IICA Mexico had agreed to finance the travel and per diem costs associated with bringing two technical experts to Guyana. The onus was therefore on the Government of Guyana through the Ministry of Fisheries Crops and Livestock to seek alternative additional funds to meet the other costs. At the end of the project funds had not yet been identified by Ministry of Fisheries Crops and Livestock to pursue this activity. In the event that funding is identified, GDDP in collaboration with the NDDP has already designed a questionnaire for use in the SONDEO and this questionnaire is in the hands of NDDP.

## ***Help for Farm Organizations***

### ***Collaboration with the Mahaica/Mahaicony Milk Producers Cooperative Society Ltd and with Farmers of Region 5***

GDDP continued to help farmers in Region 5 to alleviate the following major constraints: poor marketing systems (collection, processing and distribution systems); weak farmer organizations; inadequate consumption of local milk and milk products; inadequacy of the approach by dairy farmers to alternative business choices; and low levels of production and poor milk quality. GDDP specifically engaged the input of CARESDA and received assistance from the FTF Program (University of Vermont Expert) in helping to address "people issues" (sociological/ anthropological/ relationships issues) pertaining to the MMMPCSL.

Support to the MMMPCSL during the life of the project included:

#### ***Milk purchase and promotion***

- The purchase of milk for the School Supplementation Study;
- Advertisements on fresh milk consumption;
- Use of promotional material prepared by the GDDP;
- Advice on overall business management and marketing;
- Advice on reorganization / rehabilitation of Dantzig Dairy (now Whitegate Dairy);
- Preparation of project proposal for financing a distribution vehicle for submission to CANADA Fund;

#### ***Targeted technical assistance***

- Input by the cooperative, nutrition and credit consultants;
- Input by Technology Transfer Technician (model farm establishment/ monitoring, clean milk production);
- Input by FTF Program / Vermont University Community Development/ Farm organization Specialist;
- Input by Integrated Rural Tourism Specialist
- Input by Secretary Greater Georgetown Fishermen's Cooperative Society Ltd;
- Input by CARESDA Associate Sociologist;
- Input by credit consultant and credit facility;
- Hay baling demonstration

### ***Lusignan Dairy Farmers Cooperative Society –Acquisition of title to Land***

As a result of the untiring efforts of the Cooperative Consultant, the Lusignan Dairy Farmers Cooperative Society eventually got formal permission to use about 50 acres of land as a communal pasture. This permission was granted about 18 years after temporary permission was given to the Coop to use the land. This marked a proud moment for the GDDP/ Partners team, as the positive results of the time and effort spent with farm organizations are often not very visible in the short term.

### ***Urban Cattle Farmers Association***

As a result of the GDDP input, the Urban Cattle Farmers Association received technical assistance from the Ministry of Works and benefited from the preparation of drainage device designs and an estimate for infrastructure works associated with their 600-acre portion of land.

### **Training**

#### ***Milk Products Courses***

A one-day Cheese Making Course was held in March 2002 in the office of the Regional Administration on the Island of Wakenaam, Essequibo River, Region 3. About 30 persons comprising farmers and members of their families, housewives and public servants attended the course. They learned how to make soft cheese and the use local milk for the preparation of local sweet meats was promoted. The objective was for milk-producing communities to make their own soft cheese for consumption within the communities.

A two-day Milk Products Course was held in November 2002. Nine (9) women from the Guyana Federation of Women's Institute (all from Region 4) attended the course, which was held at the SSTC. They learned how to make soft cheese and yogurt. Similar courses were held in: Region 6 for farmers of the Limlair – No. 35 Cattle Farmers Association and residents of the area; Region 3 for 22 members of the Windsor Forest Women's Group and 12 members of the Leonora Women's Group; and Region 2 (Lima-Coffee Grove) for about 25 women from various villages along a 15 mile radius of the Northern Essequibo Coast.

#### ***Training of Supervisors and Technicians***

Fifteen (15) NDDP supervisors and technicians, from Regions 3, 4 and 5, benefited from a two-day training/exposure in data collection. It was perceived that the data to be collected would facilitate the further development of a database of technical, biological and financial coefficients. The overall objective was that the data would eventually be collected from 60 additional dairy farms, having used the initial 10 GDDP model farms as a guide.

Lecture topics included: a review of the production chain, developing a farm profile, type of data to be collected and data collection instruments. The exercise was one of collaboration between GDDP, NDDP, SSCF and SSTC. A one-day post-experience session was held about three months after the first 'field day' for the four technicians that had started the data collection exercise.

#### ***Training of Model Farmers***

GDDP project staff and consultants periodically met with farmers who hosted the "model farms" as a group, in an effort to impress on them the need for an improved level of record keeping and the benefits of keeping the records (technical, biological and economic). The sessions were also used to discuss the impact of the interventions date and the possible introduction of additional interventions where practical. Farmers benefited from shared experiences. These group meetings supplemented individual on-farm contact.

### ***Training for Cattle Farmers Associations***

GDDP coached NGOs such as the MMMPCSL, the LDFCSL, Urban Cattle Farmers Association, West Berbice Cattle Farmers Association, RCFA (Region 3) and NCFA in general areas of Cooperative Management. Representatives from various farmer groups attended an FTF seminar on Cooperative Management that was facilitated by FTF Volunteers from the Federation of Southern Cooperatives. This represented efficient collaboration between two major Partners programs in Guyana.

### ***Dairy Training Manual***

The project team conceptualized that a manual for the training of dairy technicians, students and farmers, would assist not only to satisfy one desirable output of the project but more importantly it would ensure that on completion of the project there would be adequate, additional material available for use by stakeholders and others. The training manual is therefore a group effort by the project staff and consultants. At the end of the project life the manual was completed but not yet duplicated (see Annex 11 for manual and training agenda). This would be a follow up activity for any subsequent project in conjunction with the NDDP.

### ***Training in Manufacture of Molasses Urea Block***

Ten (10) persons from the No. 35-Limlair Cattle Farmers Association (Region 6) learned how to make molasses urea blocks (feed supplement).

### ***Technical Support to NDDP***

In July 2001, GDDP provided technical support and assistance in training 11 technicians of the NDDP. They were trained in Extension Methodology. The technicians were from Regions 3, 4 and 5 and are responsible for servicing about 3000 farmers.

Several other training initiatives, both formal and informal, were undertaken. A six-day dairy production course was conducted in December 2001. Twelve (12) dairy farmers and NDDP technicians from Region 3 and 5 attended the course. Areas of emphasis included pasture management, breeding and reproduction, animal health farm economics, farm management practices and milk products production.

### ***Mexican / Costa Rican Study Tour***

Through the initiative of the GDDP, five (5) dairy farmers affiliated to the NCFA were able to take part in a study tour to Mexico and Costa Rica in November/December 2001. The study tour was organized in collaboration with the Mexican Co-operation Commission of Central America and the Caribbean (CMCCAC), the Ministry of Fisheries Crops and Livestock of Guyana, IICA-Guyana, IICA-Mexico, the NCFA, GDDP and the Central American School for Livestock (ECAG). See Annex 13 for a report on the Study Tour.

On their return to Guyana, the team expressed that they had a better insight into what was possible. They also had a stronger conviction of what was needed to help them make a difference and to move the industry forward. One year after the historic Study Tour, the GDDP Program Director and NPC met with the five-person team along with the President of the NCFA. The NPC asked a number of questions which led to the conclusion that the most obvious lesson learned on the study tour was that the Latin American Farmers gained so much more working

collectively as opposed to working as individuals. The view was that such action should be emulated by farmers in Guyana.

### ***Agricultural Education Program for School Children***

About 1200 students from various primary and secondary schools of Regions 2, 3, 4, 5, and 6 benefited from an agricultural educational program, which was started in February 2002. It was done in collaboration with the SSCF, SSTC, NDDP and the Ministry of Education. The students were exposed to various aspects of livestock production including dairy management, breeds of cattle, pasture management, poultry and small ruminant production. The lectures were done at the SSTC and the training included a tour of various enterprises of the SSCF.

### **Outreach**

#### ***Cowtalk***

GDDP supported the production and publishing of the *COWTALK* Newsletter. A total of six (6) issues were produced (see Annex 4 for copies) during the project implementation period, providing the farming community with reading material that was specific to their day-to-day operations. Farmers were able to identify themselves or other farmers in the publications. Some issues carried "how to" instructions for specific tasks, such as dairy product production. The goal to have a greater number of farmer submissions to the newsletter was a challenge, as farmers and technicians had little writing experience.

#### ***Agricultural Month Activities 2001, 2002 and 2003***

Agriculture Month (October) activities were programmed in collaboration with the MFCL, NCFA and the NDDP. GDDP participated in the following October Month events: World School Milk Day, World Food Day, Essequibo Night, Farm Walks and Cattle Sales and Shows.

#### ***Cattle Sale and Show***

The NCFA with support from the GDDP and NDDP, successfully hosted three Cattle Sales and Shows in October of 2001, 2002 and 2003. Five (5) different breeds of animals were exhibited. There were 10 categories of animals and more than 25 different cattle farmers from Regions 3, 4 & 5 registered for the events. The exhibitions were well attended by farmers and secondary school children. Attendance averaged about 300 persons for each of the three days.

#### ***Farm Walks in Regions 3 & 5***

In October 2002, about 30 cattle farmers and technicians from Region 3 visited four farms (three model farms – Sieudial's Dairy Farm, Deeroop's Dairy Farm and Harold's Beef Fattening Enterprise and a demonstration center – St. John's Community High School) in that Region. In addition, cattle farmers of Regions 3, 4, 5 and 6 numbering ninety, were afforded the opportunity of visiting the Dantzig Dairy, Bishundial's Cattle Farm and Kiritpal's Dairy Farm.

The farmers observed pasture management, rotational grazing, electric fencing, ear tagging, approved milking parlours, feeding supplements, cut and carry feeding, hay bales, silage, milking machines, forage chopper etc. They discussed the economics of various practices, pricing, group initiatives, AI, breeding bulls, improved breeds etc. In October 2003, about 60 farmers and technicians from Regions 5 and 6 were afforded a similar opportunity.

### ***Guyana Night 2001-2003***

GDDP participated in Guyana Night in each of the three project years. The national exhibition of local manufactured products was held at the Everest Club Ground in Georgetown (Region 4). GDDP displayed and promoted soft cheese and yogurt and collaborated with the NDDP in this venture. GDDP also participated in a number of other promotional events, over the last three years, throughout the country, these included; Essequibo Night, Linden Night and Berbice Night.

### ***Week of Agriculture***

The fourth Caribbean Week of Agriculture (CWA) was hosted by the Government of Guyana between October 5-12, 2003. The CWA took place under the aegis of the Alliance for Sustainable Development of Agriculture and the Rural Milieu. There were several activities during the week and GDDP participated in the Trade Show. As customary, GDDP provided yogurt and cheese for sampling and display and promoted the use of appropriate technologies through the display of posters, equipment and exhibits. It is estimated that about 20,000 persons would have been exposed to the GDDP both during the four-day period.

### ***Horticulture Show***

In September 2003, GDDP in association with the SSCF participated in the Annual Horticultural Exhibition, which was held at Umana Yana in Georgetown, in late September. On display was humus produced at the SSCF. Handouts were distributed and the GDDP technical team provided additional information to those interested. All humus taken to the show was sold and the promotion created an immediate increase in demand. By the end of the project, the demand was sustained and the SSCF was contemplating expanding this enterprise.

### ***Credit Facility***

Partners and CARESDA in association with the International Consultants of the Americas (ICAS) developed and implemented the GDDP Credit Facility. A total loan capital of US\$60,000 was available to be disbursed. The main objective of the Credit Facility was to provide loans to small and medium size operators in the dairy industry. It was designed as a three-year (2001–2004) program to support the technology transfer activities administered by the wider Guyana Dairy Development Project (GDDP).

The Credit Operations Manual was completed in May 2002 and the MIS software was purchased on July 28, 2002 (see Annexes 6 and 7 for credit manual and promotional materials). By July 31, 2002, office systems were in place and credit promotion, education, training, field visits, and networking all began simultaneously. The first loan was disbursed in late November 2002.

The target area for the loans was determined to be the Region 5 area in closest proximity to the then Dantzig Dairy Plant; as this was the area in which the Mahaica Mahaicony Milk Producers Cooperative Society Ltd. was most active. The idea was to saturate one geographical area with activities related to all four objectives of the project. In addition, disbursements were going to be geared to increase the supply of milk to the Dantzig Plant. Challenges with the management of the Milk Cooperative prevented the much-anticipated growth in sales of dairy products and as a result, the pull for more raw milk did not materialize. As such, there was little demand for credit

for dairy expansion purposes, thereby leading to a slow disbursement rate. In January 2004 the Credit Facility was expanded to include other forms of livestock and non-traditional crops.

At program close, eight (8) loans valuing approximately US\$21,700 were approved; six (6) valuing about US\$13,000 were disbursed; two (2) valuing approximately US\$1,800 were fully repaid and seven (7) applications valuing approximately US\$30,000 were under consideration. The expansion of the target area was responsible for the increased number of applicants. The clients of the withdrawn loans cited poor social and economic conditions as their reason for withdrawal.

Description	No.	Value (G\$)	Value (US\$)
Loans Approved	8	4,335,560	21,700
Loans Withdrawn	2	1,700,000	8,500
Loans Disbursed	6	2,635,560	13,000
Loans Repaid in Full	2	360,000	1,800
Loans in Arrears	0	0	0
Applications Pending	7	6,000,000	30,000

The project period was very short to achieve 100% disbursement of the US\$60K capital and maintain a quality loans portfolio. The NDDP failed to provide the required field support for project identification and supervision. The collapse of the Dantzig Co-op significantly reduced the target population. Finally, while access to capital remains one of the most important financial issues for small and medium size businesses, the prevailing local economic and social conditions (in the face of no increased demand for raw milk) had a significant negative impact on the decision by potential clients to borrow.

Despite the challenges, short operation time frame, and loans portfolio position, a foundation has been laid upon from which to build future micro-credit projects.

## **Objective 2: Improve the Quality, Variety and Accessibility of Dairy Products to Consumers**

### **Impact highlights**

GDDP's activities pertaining to Objective 2 have led to a greater diversity of milk products. The following have been observed (Please see Annex 3 for these and other results and indicators):

- *New products to market:* Flavored milk and other dairy products are now available in the market in limited quantities.
- *Extensive product exposure:* A wide range of products were exposed to and/or sampled by an estimated 50,000 persons over the three-year period. Products include: yogurt, eggnog, soft cheese and a range of local sweet meats.
- *Market testing:* More than 20 different dairy products including several flavors of some products have been market-tested with varying degrees of acceptability. The most acceptable products to date include: liquid and solid yogurt, flavoured milk, plain pasteurized milk and a mozzarella type cheese.

### **Product Development and Marketing Initiatives**

During the first six months of the program, in keeping with the market driven approach of the program, GDDP management held discussions with all of the major potential buyers and consumers of dairy products. The objective was to increase awareness of major industry users of dairy products and determine their willingness to collaborate with GDDP in dairy product development and marketing. There was a 100 percent verbal commitment to collaborate with the GDDP and Guyana's dairy farmers. In July 2001, a study of the supermarket industry was undertaken in an effort to assess the supermarkets as potential outlets for dairy products. An informative document entitled, "An Assessment of the Types, Brands, Packaging and Price of Milk and Dairy Products Sold at Major Supermarkets in Georgetown", was prepared and was used in guiding the market-related initiatives that were subsequently taken.

Product development and marketing initiatives were undertaken at four levels during the project life. These were as follows: the manufacture (cottage industry level) and promotion of cheeses, yogurts and other milk based products; the establishment of a DPU at the SSCF; support for the reorganization of Dantzig Dairy (now Whitegate Dairy) and support for the establishment of a Region 6 Milk Processing Unit (Moogoodies Dairy Plant). On the input supply side, GDDP followed-up relevant input suppliers of milk processing and related equipment.

### ***Manufacture and Promotion of Dairy Products***

See Objective 1, Processing and Distribution.

### ***Collaboration with the MMMPCSL and Dantzig Dairy***

See Objective 1, Collaboration with the MMMPCSL.

### ***Manufacture and promotion of dairy Products***

See Objective 1, Saints Stanislaus College Farm.

See Objective 1, Collaboration with the MMMPCSL.

See Objective 1, Processing, Milk Products Course, Cattle Sale and Show, Farm Walks.

Further to the above, GDDP collaborated with NDDP and farmers of No. 35 – Limlair Coop in a Milk Products promotional activity at Central Corentyne High School in Region 6. Over 100 students participated in the exhibition/ promotion.

***Cheese Making in Wakenaam***

See Objective 1, Training.

***Dairy Products Unit of SSCF***

See Objective 1.

***Support for Whitegate Dairy Plant***

GDDP advised the new management on the following: the need for a detailed inventory of stock to be acquired in the take-over, packaging and labeling, possible linkages with schools, the possible use of the “Findings of the Milk Supplementation Study” (Annex 2), the need for cream separation, milk quality and sourcing chocolate and other flavours. Advice on improved milk quality and packaging was also provided.

***Support for Moogoodies Dairy Plant***

GDDP advised on milk quality and milk cooling requirements and loaned Moogoodies a small cooling system for a short period of time.

***Cheese Making at Leonora (Region 3) and Tarlogie (Region 6)***

A one-day Cheese Making Course was held in May 2003, at Leonora, Region 3. Some 35 members of the Leonora Women’ Group attended the course. In addition, later in the year, about 12 persons participated in a similar course that was held in Region 6 (members of the No. 35 Limlair Coop and their friends). They learned how to make soft cheese and the use of local milk for the preparation of local sweet meats was promoted. The objective is that milk-producing communities could make their own soft cheese for consumption within the communities.

***Cheese and Yogurt Making in Region 2***

A two-day Cheese and Yogurt Making Course was held in July at Lima, Essequibo Coast, Region 2. About 25 persons, mainly women from different villages along the Northern Essequibo Coast attended the course. As in previous courses the objective was to promote the utilization of local fresh cow’s milk for the manufacture of simple dairy products of benefit to the families, particularly those living in dairy producing areas.

### **Objective 3: Improve Children's Nutrition by Increasing their Consumption of Dairy Products**

#### **Impact highlights**

GDDP's activities pertaining to Objective 3 have led to an increase in the quality of dairy products. The following have been observed (Please see Annex 3 for these and other results and indicators):

- *Increase in shelf life:* From a few hours for raw milk to 14 days for pasteurized milk (Whitegate Dairy). Ghee will last several months. SSCF DPU will guarantee the shelf life of a range of products up to four weeks.
- *Demand based on quality:* Regular requests for more product.
- *Number of products offered to consumers:* The SSCF DPU is offering 16 different products to consumers, including raw milk, pasteurized milk (plain and flavored), yogurt (liquid and solid), soft cheese (plain and flavored), eggnog, pera, fudge, vermicelli cake and sawine.
- *Exposure:* Over 50,000 persons exposed to new products from 2001-2004.
- *Regular presence at events:* GDDP has participated in 16 exhibitions/displays.

Between February and December 2002, GDDP's Nutritionist led the implementation of a local milk promotion and consumption plan (see Annex 12 for copy of original plan). Components of the plan included the production of educational materials on local milk/ milk product consumption; the promotion of local milk as a complete food for all ages; tasting sessions, distribution/ exchange of recipes, poster competitions etc.

#### **Promotion of Fresh Milk Consumption**

Promotional material (brochures and posters), which had been previously developed was utilized at appropriate functions by stakeholders. Radio promotions, which were started in January 2002 were continued to November 2002 (see Annex 8 for radio spots used).

It is estimated that at least 50,000 persons observed/sampled milk products during the project life. Locally made soft cheese, yogurt (plain and fruit-flavored) and sweet meats along with Dantzig Dairy pasteurized milk (plain, strawberry and vanilla) were displayed /promoted primarily at the MFCL/GMC sponsored Essequibo Night. At the end of the project, there continued to be growing interest in the locally made products and in the utilization of local milk for the manufacture of traditional sweet meats.

#### **Summer Milk Promotion Program**

In collaboration with the MMMPCSL, Dantzig Dairy and the NDDP, GDDP spearheaded a milk promotion campaign during the July/August period of 2002. The general objective of the Milk Promotion Program was to increase the consumption of local pasteurized milk. The specific objective was to promote Dantzig Dairy Milk at specified agencies through the provision of samples for specified periods of time with the intention that after the trial period that the beneficiary businesses/ organizations would want to (a) purchase Dantzig Milk (e.g. Canteens,

other eating places), (b) recommend that Dantzig Milk be purchased (e.g. Ministry of Education, GDF, Red Cross), (c) agree to fund or support the funding of projects geared to purchase Dantzig Dairy Milk (International Organizations).

Agencies contacted by a joint GDDP/NDDP team included: St Joseph's Mercy Hospital (private canteen and hospital administration), Woodlands Hospital (private canteen and hospital administration), Food for the Poor, Guyana Red Cross, UNICEF, PAHO and the Ministry of Education. Some of the initial effort has already born positive returns in terms of orders for increasing quantities of pasteurized milk. The Program was however suspended after a few weeks to allow the Milk Plant to better organize for collection, processing and distribution and its overall management capacity.

### ***Presentation of Findings of Milk Supplementation Study***

The Milk Supplementation Study, which was started in February, 2002 came to an end in December (see Annex 2 for study, and Annex 9 for selected related articles). Two hundred and fifty two students from Novar Nursery School, Airy Hall Nursery School and Cottage Nursery School received a 250ml pouch of milk per day. GDDP is sourced the milk for this study from the Dantzig Dairy Plant of the Mahaica Mahaicony Milk Producers Cooperative Society Limited, which is located at Dantzig, Mahaica on the East Coast of Demerara.

The most important finding of the study was that the daily supplementation of a child's diet with 250 ml of flavoured sweetened local milk had significantly reduced malnutrition and generally improved the nutritional status of the study population. There was a 69% reduction in malnutrition rates when the group was assessed by the weight for height indicator and there was a 75% reduction when the assessment was conducted with the weight for age indicator.

Other important findings and observations were:

- There was a reduction in casual absenteeism;
- Parents collected milk when children were absent;
- The milk was generally well tolerated by children;
- The milk was enjoyed and readily consumed; and
- The strawberry flavor was a favorite.

The "Presentation of Findings" Ceremony was held on Tuesday, February 25, 2003, at Novar Nursery School, Mahaicony (see selected articles in Annex 9 for related press coverage). Nutrition Consultant, GDDP, Ms. Yvette DeFreitas was the presenter but the following persons shared the brief program: Mrs. Iris Joseph, District Education Officer (Nursery) Region 5, Mr. Edward Caesar, Chief Education Officer, Ministry of Education, Mr. Joseph Farinha, President of MMMPCSL, Mrs. G. Morrison, Headmistress of Airy Hall Nursery School as well as the PD and NPC of GDDP

### **Caribbean Nutrition Promotion Award**

GDDP won first prize in the Caribbean Food and Nutrition Institute's 2002 Nutrition Promotion Awards Competition (see Annex 10 for press release). As a result of the work done in the area of nutrition, GDDP had applied for a 2002 Caribbean Nutrition Promotion Award. The annual

awards competition is organized by the Caribbean Food & Nutrition Institute of Jamaica. GDDP won First Prize over the entire Caribbean. The presentation was made in November 2002 at the Guyana Pegasus. The prestigious CFNI Trophy is housed at the GDDP office in Sophia.

The Caribbean Food and Nutrition Institute (CNFI) is a specialized Center of the Pan American Health Organization and the World Health Organization. Established in 1967, CNFI works to forge a regional approach to the solution of the nutritional problems of the Caribbean. Each year it uses its Nutrition Promotion Awards to recognize outstanding projects in the Caribbean that: demonstrate impact at the community and/or national level; display creativity and originality; possess transferable value; and demonstrate scientific accuracy and validity. The GDDP was the first Guyanese project to win a CNFI first prize award.

### **World School Milk Day**

By virtue of its involvement in the Milk Supplementation Study, GDDP was asked by the Ministry of Fisheries Crops and Livestock to coordinate World School Milk Day Activities in Guyana. World School Milk Day was celebrated for the first time in Guyana on Wednesday October, 2002 and subsequently in October 2003.

The idea of a World School Milk Day came out of deliberations at a series of meetings on the theme of school milk. These meetings were coordinated by the Basic Foodstuffs Service of the United Nations Food and Agriculture Organisation's Commodities and Trade Division. The Commodities and Trade Division has become a world-recognized centre for information and advice on school milk programmers. World School Milk Day is celebrated internationally on the last Wednesday of September or any day designated by the appropriate national authority that falls as close as possible to that day. In keeping with on-going worldwide activities, Guyana participated for the first time in World School Milk Day Activities. This happened to be the third world school milk day.

The goal of World School Milk Day is to provide a particular day when attention is focused on this issue and thereby promote such programmers. Importance is lent to the event by the fact that other countries are doing the same thing, on the same day, and that FAO is supporting the activity. On that day in Guyana, nursery school students, from the three collaborating schools (already referred to above) along with their parents and invitees will each get a 250ml pouch of pasteurized milk.

For World School Milk Day 2002, the Minister of Fisheries, Crops and Livestock gave the feature address at Novar Nursery School (at which all three schools were represented by teachers and students). Other participants on the brief program were the PD and NPC of the GDDP, Chairman of the Neighbourhood Democratic Council, District Education Supervisor Nursery of the Ministry of Education of Region 5, Headmistress of Calcutta Nursery School and the Headmistress of Novar Nursery School. World School Milk Day 2003 was celebrated at Mae's Schools in Region 4 and GDDP, NDDP, Moogoodies Dairy Plant and the Ministry of Health participated on the program.

## **Promotion of Fresh Milk Consumption**

Promotional material (brochures and posters) that had been previously developed was utilized at appropriate functions by GDDP and other stakeholders (see Annex 5 for assorted promotional materials). It is estimated that at least 50,000 persons observed/sampled milk products during the period under review. Locally made soft cheese, yogurt (plain and fruit-flavored) and sweet meats were displayed /promoted at the MFCL/GMC sponsored Guyana Night. There continues to be growing interest in the locally made dairy products.

## **Objective 4: Increase the Capacity of Local Institutions and Organizations to Address Challenges of the Dairy Sector in the Future.**

### **Impact of Activities**

The impact of GDDP's activities, as they pertain to Objective 4, has not been as dramatic as in the other three objective areas. In fact the results do not as yet reflect the level of input in the area of strengthening farm organizations. It is perceived that much more time is required to allow for long-term group development and growth. This area should certainly be an important component of any follow-up phase to this project.

- Notwithstanding the challenges, the land title obtained by the proud members of the Lusignan Dairy Farmers Cooperative Society after 18 years is testimony of the value of group effort (See Objective 1: Organization Strengthening). Reference has also been made to the Urban Cattle Farmers Association and the designs and estimates for infrastructure works that they now have in their possession. Further, the NCFA and some of the RCFAs seem more committed to execute programs for the benefit of their membership.
- In addition to the above, the Mahaica Mahaicony Milk Producers Cooperative Society, despite severe challenges, achieved tremendous success as a result of a range of project activities. Raw milk from farmers of the Cooperative was collected, processed into plain and flavored pasteurized milk and subsequently distributed to among others, three nursery schools in the general area. Albeit with support from the GDDP, FAO, NDDP and MFCL, it was a first for any farming group in Guyana. This sub-project of the GDDP eventually won first prize at the prestigious Caribbean Food and Nutrition Institute (CFNI) 2002 Annual Awards Competition. It was the first time that Guyana has won a first prize at such a competition.
- Exposure of five dairy farmers to dairy farmer group activities in Costa Rica and Mexico has made them more resolved to build their groups despite the absence of tradition of strong rural farm groups.
- Owner / managers of the three dairy plants have met on a few occasions and intend to form a Dairy Processors Association which will represent their common interests.

### **Support for Farmer Organizations at all Levels**

The NCFA was officially launched on October 21, 2001, well ahead of the anticipated schedule. During the project life, GDDP continued to support the activities of the NCFA and to maintain contact with farmers at all levels: the NCFA, the RCFAs and several DCFAs including the LDFCSL, MMMPCSL, the Leonora Dairy Farmers Association, the Windsor Forest Dairy Farmers Association, No. 52-66 Cattle Farmers Association (Manabarasi), No. 67-74 Cattle Farmers Association, West Berbice Cattle Farmers Association, the Limlair-No. 35 Cattle Farmers Association, Rotterdam Cattle Farmers Association and the Urban Cattle Farmers Association. The Regions visited included Regions 2, 3 (including Leguan Island and Liberty Island), 4, 5, 6 and 10. Through the input of the Cooperative Consultant, GDDP continued to seek to strengthen the organizational capacity of the NCFA, the DCFAs and the RCFAs. GDDP benefited from the input of CARESDA, and the University of Vermont through Partners' FTF Program. It was envisaged that a "people oriented" facilitator should be assigned to work along with the MMMPCSL of Region 5.

### ***Cattle Sale Centre (Region 6)***

Drawings of a permanent cattle/ livestock sale/auction center in Region 6 along with a materials estimate have been completed by an engineering consultant.

### ***National Cattle Farmers Association***

About 12 meetings were held during the project life.

### **Program Implementation**

Apart from an initial Meeting of Stakeholders in June 2001, GDDP hosted Annual Meetings of its Stakeholders in February 2002 and 2003. The meetings discussed primarily Work Plans for upcoming years and Achievements for previous years. Possible GDDP Phase II activities were discussed during the final year. Stakeholders were high in praise for the achievements under the project. In general, project management received valuable guidance from stakeholders on how some aspects of the program could be better implemented.

Further in an effort to mobilize other resources for the benefit of the cattle industry, GDDP maintained contact with a number of agencies and is actively pursued several initiatives. The agencies included: CMCCAC of Mexico, ECAG of Costa Rica, the German Embassy of Trinidad and Tobago, CARTF of Trinidad and Tobago, LEAP – an EU funded Guyana – based project, Volunteer Services Overseas and CANADA Fund.

During the project life, GDDP had a high level of collaboration with all of the major players at the levels of administration as well as implementation. Contact has been maintained with the US Embassy in Georgetown; USAID in Guyana; CARESDA; the Guyana-Mississippi Partnership (particularly the Agricultural Committee); the Ministry of Fisheries, Crops and Livestock (MFCL); the Ministries of Health and Education; the National Dairy Development Program (NDDP); the Inter-American Institute for Cooperation in Agriculture (IICA); the NCFA/ RCFAs/ DCFAs; Saint Stanislaus Training Center (SSTC); Saint Stanislaus College Farm (SSCF) and Saint Stanislaus College Association (SSCA). Further to the above, GDDP management team had several meetings with the Minister of Fisheries Crops and Livestock in an effort to keep the Government of Guyana informed of POA activities in Guyana and to seek the

required support. In addition, the project benefited from the input of several CARESDA personnel during the period.

In addition to the above, during the program period GDDP hosted several dignitaries and officials at its headquarters location at Sophia. These included: US Ambassadors, USAID Directors, Charge d' Affairs US Embassy, Partners Chief Finance Officer, Partners Vice President for Programs, Partners Vice President for Partnership Development, Partners FTF Coordinator, several CARESDA personnel, Minister of Fisheries Crops and Livestock, Presidents Guyana-Mississippi Partnership (Northern Chapter), GTZ (German Technical Assistance) Representative to Guyana, Regional Chairman Region 5 and Program Manager of Sectoral Programmes of CARICOM.

#### **D. Financial Report**

Please see next page. Also, please see Annex 1 for a summary of the POA matching contribution included in the Financial Report totals.

Partners of the Americas Inc.  
 Closing Financial Summary for the Period: March 1, 2001 to February 29, 2004  
 Award No. PCE-G-00-01-00006-00

Prepared: June 15, 2004  
 Total Award: \$700,000  
 Obligated: \$700,000  
 Term: 01 March 2001 / 29 February 2004

	BUDGET YEAR ALL YEARS			3-1-01 Inception to Date			UNEXPENDED BALANCES:		
	AID	POA	Total	AID	POA	Total	AID	POA	Total
Other Direct Costs	550,704	101,000	651,704	563,154	240,625	803,779	(12,450)	(139,625)	(152,075)
Indirect Costs	149,296		149,296	136,846		136,846	12,450	0	12,450
<b>TOTAL</b>	<b>\$700,000</b>	<b>\$101,000</b>	<b>\$801,000</b>	<b>\$700,000</b>	<b>\$240,625</b>	<b>\$940,625</b>	<b>\$0</b>	<b>(\$139,625)</b>	<b>(\$139,625)</b>

**Notes:**

1. Please refer to separate financial report for complete information. For comparison purposes, the information on this page is provided in the same format as the financial reports in the USAID Semi-Annual reports previously submitted.
2. The total unexpended balances shows a large surplus due to the larger-than-required match provided by POA to the GDDP project.
3. Please see the POA match summary that follows for details.

## IN-KIND / CASH CONTRIBUTION / COST SHARING

No.	Item	US\$	Match With
<b>1.</b>	<b>St Stanislaus College Farm</b>		
	Training /exposure for secondary school and university students [ 4 persons * 17 sessions * \$100]	6800	Production and Milk Quality
	Demonstration to farmers on hay production, machine milking etc [2 persons * 17 sessions * \$100]	3400	Production and Milk Quality
	Input by Fairfield Farm – irrigation of pasture [7days * \$200]	1400	Production and Milk Quality
	Input by NDDP – hay baler [10days * \$100]	1000	Production and Milk Quality
<b>2.</b>	<b>St Stanislaus Training Centre</b>		
	* Rent of facilities [17sessions * \$100]	3400	Production and Milk Quality
	* Staff for conducting training sessions 2[36 sessions * \$100]	7200	Production and Milk Quality
	* Facilities for training students and farmers [36 sessions * \$100]	3600	Production and Milk Quality
<b>3.</b>	<b>IICA Guyana</b>		
	* Office and conference room [6mths - \$1500 + 14mths- \$1500]	3000	Office and Other Supplies
	* Secretarial service [\$15/mth * 20mths]	2125	Production and Milk Quality
	* Administrative support (clear imported seeds, equipment etc)	4800	Demonstration Equipment
	* Transportation [1st 6mths - \$500 + next 14mths \$500]	1000	Local travel
	* Phone, fax and e-mail service	1300	Office and Other Supplies
<b>4.</b>	<b>ECAG (Central American School of Livestock)</b>		
	* Design of equipment [10 days * \$300]	3000	Demonstration Equipment
	* Advice on Milk Products Unit and recommendations on dairy products [24 days * \$300]	7000	Processing and Product Development
	* Sourcing forage seeds, yogurt culture, other ingredients and posting [4 days * \$300]	1200	Production and Milk Quality
	* Hosting SSCA Member and organizing visitation program in Costa Rica	500	Processing and Product Development
<b>5.</b>	<b>Production Oriented Activities</b>		
	* Collaboration with MMMPCSL - Input by Gr. GT Fish/men Coop Soc [2 days * \$200] - Input by FTF/ Vermont Univ [6 days * \$400]	400 2400	Production and Milk Quality
	* Input by Model Farmers - Sieudial, Deorooop, Kiritpal, Doodnauth – improved facilities [G\$5.0Million / 200] - Hiralall, Chee-a-Tow, Latchman, Indhal, Matheson, Dhanraj, Jaddhu – improved facilities [G\$1.0Million / 200]	25000 5000	Production and Milk Quality
	* Outreach		

	- Cowtalk – input by NDDP [input of three staff]	1200	Publication
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No.	Item	US\$	Match With
	<b>* Outreach</b>		
	- Agriculture Month Activities <i>Cattle Sale</i> NDDP staff input etc 2[4 staff * 30 days * \$50 + 10 staff * 30 days * \$10] NDDP direct cash support NCFA input by members 2[12 farmers * 5 days * \$25] <i>Farm walks</i> Regions 3, 5 farmers NDDP staff input	18000 5500 3000 1750 900	Production and Milk Quality
	<b>* Training</b>		
	- Milk Products Courses	600	Production and Milk Quality
	- Training for farm orgs. – transp and time	3000	Production and Milk Quality
	- One year anniversary – time input	200	Production and Milk Quality
	- Training for NDDP Technicians and sups. NDDP Staff SSTC Staff Facilities	3600 1200 600	Production and Milk Quality
	- Training for Model Farmers	600	Production and Milk Quality
<b>6.</b>	<b>Quality Oriented Activities</b>		
	<b>* Product development and mkt Initiatives</b>		
	<b>* Dairy products Unit</b> Input by SSCA/SSCF [Actual] Input by CARESDA [Estimate] German Embassy [Actual] CARTF [Actual]	23000 2600 10000 21600	Processing and Product Development
	<b>* Dairy Products Promotion</b> Input by NDDP and NGOs	1350	Processing and Product Development
	<b>* Cheese making _ Wakenaam</b> Input by NDDP staff Input by RDC facilities	300 100	Processing and Product Development
	<b>* Tasting Session SSCA</b>	800	Processing and Product Development
	<ul style="list-style-type: none"> <li>• Processing</li> <li>• Indhal's input [Estimate]</li> <li>• Whitegate Dairy [Estimate]</li> <li>• Moogoodies Dairy [Estimate]</li> </ul>	3500 20000 25000	Processing and Product Development
<b>7.</b>	<b>Nutrition Oriented Activities</b>		
	<b>* Milk Supplementation Study</b>		
	* Input by Ministry of Education Staff [50 days * \$50 * 15 staff] Facilities	3750 300	Nutrition
	* Input by Ministry of Health		

	Nutritionist and support staff	1000	Nutrition
	<b>* Presentation of Findings Seminar</b>		
	* Input by Ministry of Education Staff [1 day * \$200 * 2 staff + 1 day * \$50 * 7 staff] Facilities	750 100	Nutrition
	* Input by Ministry of Health Staff [1 day * \$200 * 2 staff]	400	Nutrition
	* Input by NDDP Staff [3 days * \$50 * 5 staff]	750	Nutrition
	* Input by MMMPCSL	50	Nutrition
	* Input by CFNI (Awards)	3000	Nutrition
	<b>* World School Milk Day</b>		
	* Input by Ministry of Education Staff [1 day * \$50 * 7 staff] Facilities	350 100	Nutrition
	* Input by Ministry of Health Staff [1 day * \$200 * 1 staff]	100	Nutrition
	* Input by NDDP Staff [3 days * \$50 * 5 staff]	750	Nutrition
	* Input by MMMPCSL	50	Nutrition
	* Input by MFCL [1 day * \$200 * 2 staff]	400	Nutrition
<b>8.</b>	<b>Organizational Strengthening Oriented Activities</b>		
	NCFA (Meetings) – time and transp 3/5 meetings * \$50 * 4 persons]	3000	Farm Organization
	DCFA's (Meetings) - time and transp 3/2 * 4 meetings * \$25 * 8 persons]	4800	Farm Organization
	<b>TOTAL</b>	<b>240,625</b>	

### SUMMARY

Budget Item	Value
Production and Milk Quality	\$103,675
Processing and Product Development	108,250
Nutrition	12,600
Farm Organization	7,800
Publication	1,200
Local Travel	1,000
Demonstration Equipment	4,800
Office and Other Supplies	1,300
<b>Total (\$USD)</b>	<b>\$240,625</b>

**GUYANA DAIRY DEVELOPMENT PROJECT**

**PARTNERS OF THE AMERICAS**

**THE EFFECTS OF MILK SUPPLEMENTATION ON THE  
NUTRITIONAL STATUS OF NURSERY SCHOOL CHILDREN OF  
THREE SCHOOLS IN REGION FIVE GUYANA**

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**February 2003**

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## **EXECUTIVE SUMMARY**

Over the period February – December 2002 The Guyana Dairy Development project, a collaborative effort between *Partners of America and the National Dairy Development Programme (NDDP)* conducted a milk supplementation programme and nutrition study at three nursery schools located in Novar, Airy Hall and Calcutta Region 5 Guyana. The broad aim of this activity was to decrease malnutrition among children and increase dairy production through increased utilization of locally produced milk.

The most important finding of the study was that daily supplementation of a child's diet with 250 ml of flavoured sweetened local milk had significantly reduced malnutrition and generally improve the nutritional status of the study population. There was a 69.4% reduction in malnutrition rates when the group was assessed by the weight for height indicator and there was a 75% reduction when the assessment was conducted with the weight for age indicator.

Other important findings and observations were:

- The milk was generally well tolerated by children.
- The milk was enjoyed and readily consumed.
- The strawberry flavour was a favourite.
- Parents collected milk when children were absent.
- There was a reduction in casual absenteeism.

## INTRODUCTION

Malnutrition continues to be a significant problem in Guyana. In 2001 the energy-protein malnutrition rate was 14% for children under 5 years old (MOH Guyana). Meanwhile, within the past eight years, there has been a drastic decline in the availability of fresh cow's milk, a relatively cheap source of high quality protein. Recent studies show that powdered milk a more expensive alternative is now being utilized by most Guyanese. The Ministry of Health Micronutrient study of 1997 revealed that approximately 80 % of milk users consume powdered milk and the majority (46%) only used it 2-3 times per week. In the CFNI study entitled "Young child feed in Guyana" only 19.4 % of mothers reported feeding their children fresh cow's milk on a regular basis.

This study was in keeping with one of the recommendations of the "Local Milk Consumption Promotion Plan" that free or subsidized cow's milk be provided to children as part of the effort to improve the nutritional status of Guyana's children while increasing the consumption of local cow's milk.

Objectives of the study were:

1. To determine if nursery school children on a Danzig milk supplementation programme will experience improvements in nutritional status.
2. To identify other positive results of supplementation with Danzig.

## METHODOLOGY

In February 2002 a nine months milk supplementation programme, which utilized locally produced sweetened, flavoured pasteurized milk from the Danzig Pasteurization Plant, was introduced at three Region 5 nursery schools – Novar, Airy Hall and Calcutta Nursery. These schools were selected because of the high number of malnourished cases reported by the health centre serving the area and their proximity to the Region 5 Danzig Dairy Plant.

Each school day during the nine-month period Feb. 2002 – Dec. 2002 a 250-ml pouch of milk was given to each child present at school. The total number on register at each of these schools was Novar 112, Airy Hall 65 and Calcutta 75. Schools participating in the survey were also provided with educational material in the form of leaflets and posters. These materials outlined the value of milk and promoted its use. During this period television and radio messages on the value of milk were also aired.

In keeping with WHO recommendations for the assessment of supplementary feeding programmes, one of the methods utilized to monitor the nutritional impact of this programme was frequent collection of anthropometric data. During the nine months period of the project data collection was done 4 times. The first was done in February before the commencement of the project, thereby providing base-line data. The second and third were collected in June and September respectively, June being the end of the Easter school term and the beginning of two months of Summer vacation and September because it is the end of the two months vacation. The fourth was collected in December just before the end of the feeding programme. Data concerning sex, age, and weight were collected on each occasion. In addition heights were

collected at the first and fourth data collection sessions i.e. in February and December. Height was not collected on the other occasions because it is not as sensitive to change over short periods neither is it reversible. The collected data was summarized and presented as three nutrition indicators:

- Weight for age
- Height for age
- Weight for height

Sample sizes varied from 224 to 118. This difference was due primarily to promotion to primary schools at the end of the June term, migration, and transfers. A control was not used as the Ministry of Education had reported that all schools were in receipt of milk and biscuit supplements from another source. However, data was compared with the WHO international reference population, the reference population utilized as the standard in the Caribbean growth chart. A comparison was also done using the rate of improvement during the non-feeding period (June- Sept) and the rate of improvement during the school term or feeding period.

The second tool in the survey was interviews with teachers. These interviews provided qualitative information regarding the following accepted signs of good nutrition:

- Vitality
- Attention span
- Bouts and severity of illness

## **RESULTS**

### **Calculation of Nutritional levels**

In presenting data on nutritional status various cut-off points can be used to determine levels of nutrition. In general, values of the three indicators weight for age, height for age and weight for height are considered "low" when they fall below the minus one standard deviation ( $-1$  S.D) i.e. the nutritional status of these children is considered sub-standard. According to WHO recommendations indicators below minus two standard deviation values ( $-2$  S.D) are considered definite signs of malnutrition.

Table 1. Distribution of nutrition indicators before and after 9 months feeding

Nutritional level	Indicators					
	Weight for age		Height for age		Weight for Height	
	Before	After	Before	After	Before	After
Number examine	221	119	221	119	221	119
Number below - 1 S.D	78	34	57	23	70	25
Percentage below -1 S.D	35.2	28.8	25.4	19.3	31.6	21.1
Number below - 2 S.D	22	5	13	7	13	4
Percentage below - 2 S.D	10.0	4.2	5.8	5.8	5.9	3.4

Table 1 provides a summary of relevant data collected at the start of the programme and after nine months of supplementary feeding. It shows both the number and percentage of students falling below the -1 S.D and -2 S.D cut-off points. This data is expressed as the indicators weight for age, height for age and weight for height. With the exception of height for age the indicator values after feeding were generally lower.

Table 2. True prevalence of malnutrition before and after 9 months of milk supplementation. (Expresses as a percentage in excess of expected values)

Malnutrition level	Indicators					
	Weight for age %		Height for age %		Weight for Height %	
	Before	After	Before	After	Before	After
Excess below -1 S.D	19.3	12.9	9.5	3.4	15.7	5.2
Excess below - 2 S.D	7.6	1.9	3.5	3.50	3.60	1.1

Table 2 represents a *true* measure of the malnutrition problem before and after the nine months of supplementary feeding i.e. the percentage malnutrition above the expected or reference WHO population. In the WHO reference population against which this data is compared the proportion of children falling below the -1 S.D and the -2 S.D are 15.9% and 2.3% respectively. The values shown in Table 2 were therefore obtained by subtracting 15.9% and 2.3% from the appropriate raw values in Table 1.

Table 3. Reduction in prevalence of malnutrition or effectiveness of the feeding programme  
(Expressed as a percentage of initial prevalence calculated at Table 2)

Malnutrition level	Indicators		
	Weight for age %	Height for age %	Weight for Height %
Percentage below -1 S.D	33.1	64.2	66.8
Percentage below - 2 S.D	75	0	69.4

Table 3 illustrates the general effectiveness of the programme in reducing malnutrition. Effectiveness is expressed as a ratio in which the numerator is “the reduction in the measure of the true prevalence of malnutrition due to feeding” and the denominator is “a measure of the prevalence of malnutrition that should be reduced” (WHO). For example, using the weight for age values at the -2 S.D in Table 2:

- the numerator =  $7.6 - 1.9$   
= 5.7
- the denominator = 7.6
- effectiveness =  $\frac{5.7}{7.6} = 75\%$

Fig.1 Malnutrition Statistics (WAZ -2SD)  
Feb-Dec. 2002

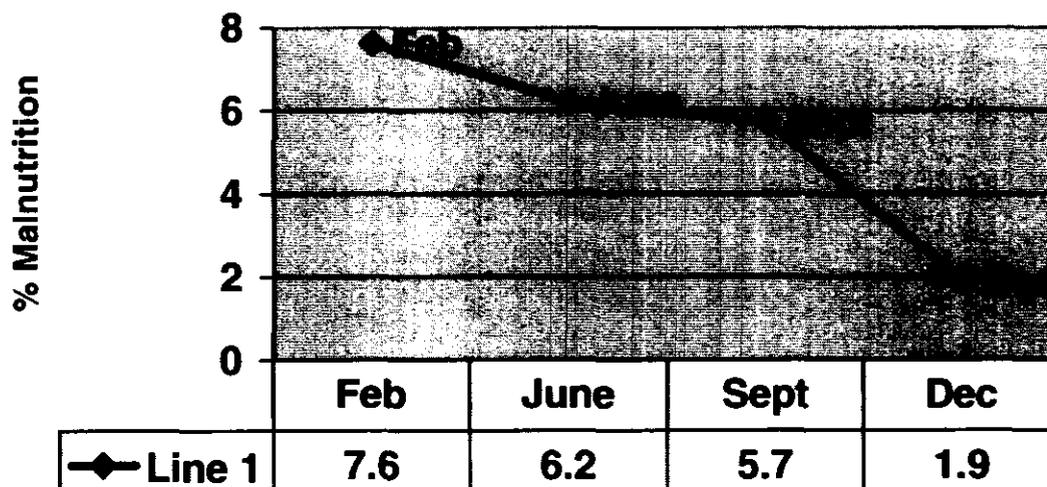
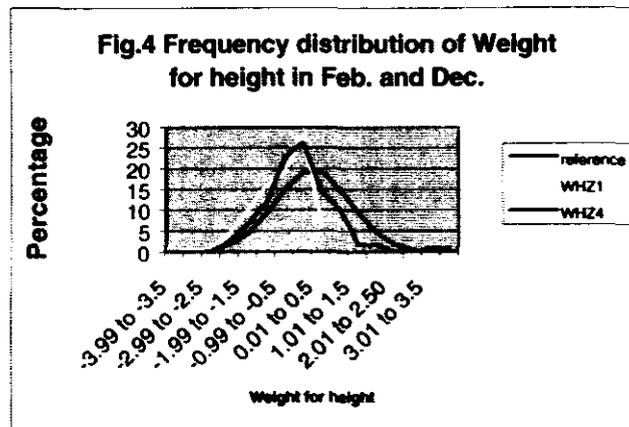
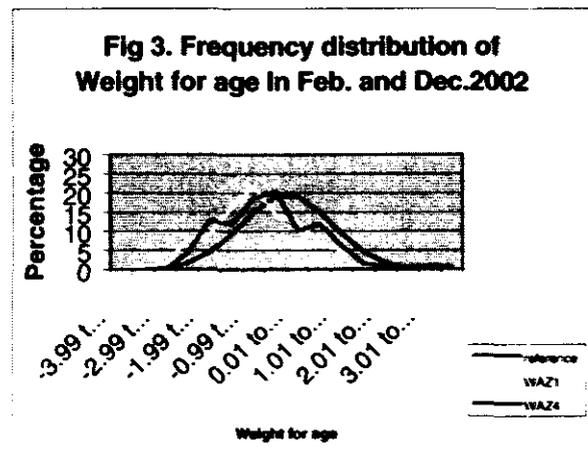
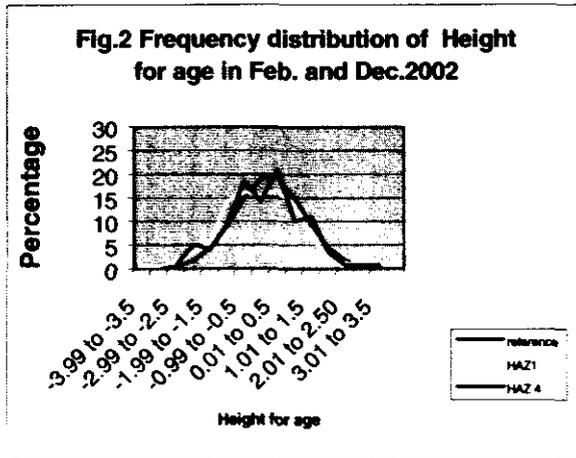


Fig.1 allows for a quick overview of the malnutrition rates over the nine months of supplementary feeding. The figures used in this table are *true* weight for age percentages at the -2S.D cut off point. This Figure shows that in February, before the initiation of feeding the *true* malnutrition rate was 7.6%. By June, five months into the project the malnutrition rate had dropped to 6.2%. During the non-feeding period June to September there was a further marginal reduction of the malnutrition rate and by the end of the project the *true* malnutrition rate was 1.9%.



An examination of the distribution curves in Figures 2, 3 and 4, shows that by the end of the project there was a right shift in the distribution of indicators, especially in the distribution of the indicator weight for height and weight for age. However a statistical analysis (paired T test) of the mean values of each indicator revealed that for all three indicators, the change in means was not statistically significant.

## DISCUSSION OF RESULTS

### *Quantitative*

In general the data collected in this study suggest that supplementation with Danzig milk, a sweetened flavoured local product, in the manner outlined above was quite effective at improving the nutritional status of nursery school children particularly those who were classified as malnourished ( $< -2$  S.D). As seen in Table 3 the improvement was most striking when the weight for age indicator was examined (75% reduction) but it was equally impressive when assessed by the weight for height indicator (69% reduction)

The poor height for age results indicated that while malnourished children gained significant amounts of weight, this increase did not result from major increases in height. Contrary to appearances, this does not indicate a failure as research has shown that supplementation programmes that are under one year in length are usually not long enough to impact low height for age. In addition, in situations where the prevalence of height for age is low i.e.  $< 20\%$ , most children with low height for age are genetically short, and it is inappropriate to assume that these children are stunted

The right shift of the bell-curves in Figs. 2, 3 and 4 towards the reference distribution curve indicates that improvements in nutritional status were not only experienced by the malnourished, but by the entire study population.

Fig.1 shows that while there was generally a continuous reduction of malnutrition rates among the study population, there was only a very slight improvement during the non-supplementation period June – September. It should also be noted that the measurements taken in June, were formerly scheduled for the mid July (the true start of the non-feeding period) but because attendance is usually poor in the last few weeks of the school term they were taken earlier. As such the slight improvement seen in the non-feeding period can be attributed to the two or more weeks of feeding that were actually included in the non feeding period.

### *Milk supplementation and its impact on qualitative parameters.*

At all of the three schools under surveillance, teachers reported significant improvements in the vitality of student as early as one month after feeding began. The attention span of students was also reported as much improved. As a result there were also reports of improved participation in class and consequently improved academic performance. A noticeable improvement was also reported in attendance rates, but this could not be substantiated by attendance records. This was most likely due to confounding factors such as the unstable social and political climate within the country and infestation of schools with mosquitoes during the Easter Term. These had a severely negative impact on the beneficiaries' presence in school over several months.

## CONCLUSION AND RECOMMENDATIONS

There are a number of factors in a child's life that can impact on his or her nutritional status positively. These include an improvement in housing, an increase in family income, nutrition awareness of parents and improved health care. Improvements over a period of time are therefore

quite often the result of more than one factor. However, the significant improvements noted in this study suggest that feeding 3-6-year old children, particularly malnourished children 250ml of locally produced whole sweetened cow's milk daily can have a strikingly positive impact on their nutritional status.

The farming community around the Danzig Dairy Plant also benefited from this project as it allowed many of them to milk their cows to near full capacity thereby increasing their income and the standard of living of their family. However, the Danzig Plant is still producing well below its maximum capacity and many cows are still producing less than their capacity because of a low demand for the product.

On the basis of this study and the observations pertaining to production levels at the Danzig Plant I therefore recommend that:

- ❑ Similar milk supplementation projects be implemented at schools as a means of reducing the rate of malnutrition in Guyana and improving the general well-being of Guyana's childhood population. In many ways Danzig Milk is superior to powdered milk which is currently used in school feeding programmes. Of immense importance is the fact that the milk used in this project comes to the child prepackaged and pasteurized thereby reducing the risk of contamination, a development that is very likely when milk has to be mixed and handled extensively as is necessary when milk powder is used.
- ❑ Consideration should be given to the use of this product in other supplementation programmes e.g. for prenatal mothers. The individual packets are very manageable as indicated by the nursery school population and they can be easily distributed and consumed at health centers.
- ❑ Efforts should be made to include this product on the shopping list of institutions such as orphanages, homes for senior citizens and hospitals. The high quality of the product, and the excellent nutritional value of milk make it an excellent low cost food.
- ❑ Canteens should be encouraged to include this product in their list of fare. This will allow for a wider choice of beverages and provide consumers with the opportunity to "drink right."

## REFERENCES

Browne, C. and Brown J, "Finding the causes of Malnutrition" Bureau of study and Research for the Promotion of Health, Atlanta 1984.

Food and Agriculture Organisation of the United Nations, " *Conducting small-scale nutrition surveys*" Rome 1990.

World Health Organisation, "*Measuring Changes in Nutritional Status*" Geneva. 1983.

Yvette DeFreitas, *Local Milk Consumption Promotion Plan* ,2001.

## □ A STUDY PROPOSAL

### The impact of milk supplementation on malnourished children aged 3-5 years.

#### The Problem

Malnutrition continues to be a significant problem in Guyana. Fourteen percent of children under 5 years old suffer from energy-protein malnutrition. At the same time, over the past eight years, there has been a decline in the availability of fresh cow's milk, a relatively cheap source of high quality protein. Recent studies show that powdered milk a more expensive alternative is now being utilized by most Guyanese. The Ministry of Health Micronutrient study of 1997 indicated that approximately 80 % of milk users consumed powdered milk but the majority (46%) only used it 2-3 times per week. In the CFNI study titled "Young child feed in Guyana" only 19.4 % of mothers reported feeding their children fresh cow's milk on a regular basis.

In the "Local Milk Consumption Promotion Plan", it was proposed that free or subsidized cow's milk be provided to children as part of the effort to improving the nutritional status of children while at the same time increasing the consumption of local cow's milk. However before launching a full-scale project of this nature some evaluation of the success of milk supplementation is recommended. Since no comprehensive study of this nature has been done before, it is recommended that a pilot study be conducted primarily to determine the nutritional impact of free/subsidized milk distribution to children.

#### Objectives

3. To measure and assess the degree of growth improvements in the population benefiting from the project.
4. To determine whether the population benefiting from milk supplementation experiences other positive changes reflective of improved nutritional status.

#### Research questions

##### Age of the child

Weight of the child

Bouts and severity of illness

General performance at school – signs of vitality e.g. increased activity, wakefulness.

#### Proposed method of Study

Time span: Most food supplementation programme are organized for a period of three years but it is possible to have significant improvements within one year, hence the proposed duration of this study is one year.

### **The study Population**

Children aged 3-5 years attending identified nursery schools in communities with high malnutrition rates will be selected. All children will be given milk but only those who are malnourished will be a part of the study.

### **Data Collection**

Two approaches are proposed:

- Two measurements, weights and age will be taken to facilitate the calculation of the indicator weight-for-age. Of the indicators used to measure nutritional status weight-for-age was selected because it is the most sensitive to change in nutritional status.
- Semi-structured interviews with teachers. These interviews will provide qualitative information such as the less measurable signs of good nutrition. These include improved resistance to disease and increased vitality.

A series of three weight are proposed over the twelve months period. It is proposed that:

- The first be taken at the beginning for use as baseline data
- The second will be taken during the 4<sup>th</sup> month of the study
- The third be taken during the 8<sup>th</sup> month
- The fourth be done during the 12<sup>th</sup> month

### **Limitations**

1. The study can be expensive milk. Donations of milk or additional funding may be necessary.
2. Other arrangement will have to be made to provide children with milk during school vacations.

### **Strengths**

1. Distribution of milk directly to the affected children provides a better guarantee that the persons being targeted will be utilizing the milk.

### **Data management**

The project coordinator will be responsible for overseeing the collection of data. She will be responsible for overseeing data collection and data entry. She will do the analysis of data and prepare a written report.

### **Data analysis**

Weight-for-age will be compared with the reference population for the Caribbean, to determine what percentage of children in the sample now meet the desired standard. In addition the degree of improvement experienced by individuals in the study population will be reported. This analysis will be done using Epi info software.

The information collected in interviews will be collated and a summary of findings will be reported.

## Program Impact Summary by Objective

### Objective 1: Strengthening the institutions and organizations directly involved in the production, processing and distribution of milk.

Results	Indicators	Means of Verification	Remarks (Generally based on monitoring six model farms. SSCF is dealt with in separate Table.)
1. Increased milk production per cow and per lactation	Initial and final milk production per cow and acre changed	Data from dairy farm surveys at different points in time	<i>Average milk production per cow per day</i> increased from 4pts/cow/day to 10.8pts/ cow/day (May - December 2002) and on to 12-13 pts/cow/day (Jan - Sept 2003) or by 300%. <i>Avg. no of cows milked per day</i> increased from 6 to 8 and avg. quantity of milk per day increased from 52 to 87 pints. <i>Extra acres under pasture (two farms):</i> 24 acres or 77%. <i>No of improved milking facilities:</i> 3 <i>Average lactation period:</i> 305 days (close to ideal)
2. Carrying capacity rationalized	Cows per unit area	Data from dairy farms at different points	The objective is to rationalize land size and space based on the potential milk market and on improving the productivity of the animals (i.e. more milk from less animals). One landless farmer is producing same amount of milk from 50% less animals. Two farmers with land increased carrying capacity from (a) 1AU:2acs to 1AU:1ac and from (b) 1AU:0.6ac to 1AU:0.06ac to 1AU:0.75ac (Also see SSCF).
3. Milk production costs rationalized	Cost of production per gallon of milk	Cost of production study at different points	Data collection and farm monitoring mechanism in place on each model farm.
4. Concentrate use rationalized	Quantity of concentrate fed per cow	Concentrate purchases analysis at different times	The SSCF feed trial showed that the average amount of milk produced per cow/day over the control cows was 4.2 kg. It also showed that the average value of milk produced over the control was US \$1.90/cow/day. Feeding dairy ration to the entire milking herd was therefore recommended.
5. Farm level costs rationalized	Cost per unit of various farm activities reduced	Farm profile analysis	Average cost of G\$71,000 (US\$355) over a 9 month period.
6. Stable milk production levels	Seasonal milk production levels rationalized	Farm records and plant delivery/ receipt records	Hay, silage, other concentrates fed and pastures irrigated in effort to maintain production levels during harsh dry seasons.
7. Physical cow condition stable	Changes in animal condition measurements in different seasons are reduced	Tape and visual inspection records analysis	Weight monitoring being done at SSCF through use of tape. Animals on all model farms are in better condition. Contributing factors: rationalization of herd size, improved herd health practices, improved sanitation, mineral supplementation, deworming and CMTs.
8. Improved dairy animal genetics	Number of cows successfully inseminated	Farm and AI records	All model dairy farmers using AI to upgrade local genetic pool. Sixty % of calves over last two years from AI. NDDP doing about 3000 AIs per year.
9. Improved dairy animals available to farmers	Numbers of dairy farmers and number of dairy cattle purchased increase	Project and farm records	SSCF has a waiting list for 5-day old calves. GDDP has facilitated the sale of improved breeds of calves, cows and bulls among farmers. Demand > supply.
10. Incidence of mastitis reduced	Lower mastitis bacteria count	Health and milking records	Improved farm health program and management system in place. Incidence of mastitis decreased as a result of training/ exposure programs and farm walks. Farmers doing more physical checks. (See SSCF).

## Program Impact Summary by Objective

### Objective 1 (Continued):

Results	Indicators	Means of Verification	Remarks
1. Reproduction rates	Culling interval is rationalized and calving percentage increased	Farm records and sales	Data collected include: services per conception (avg. of 1.5), open days (avg of 90), calving interval (1 per year). See SSCF).
2. Culling practices (sick, excess, low producers) improved	Increased proportion of cows in production versus cows dry and increased productivity per cow	Cow milk production records	One farmer culled 100% of his herd and replaced them with a larger number of higher producers. Another former culled 50% of his herd and improved his management to get just as much milk as before the interventions.
3. Animal health improved	Reduced expenditure on drugs, increased conception rates and increased milk production	Farm business records and cow Cards	Reduced incidence of mastitis and other health management problems as a result of better housing and better health mgt. practices
4. Production and transportation costs lowered	Milk transportation charges reduced	Farm business records, area transportation services	Actual costs not necessarily lowered but costs rationalized leading to increased production and profit. See Objective 1, No. 5.
5. Raw milk quality improved	Bacteria and mastitis tests improved	Farm health records	Known to have improved where monitored (Region 5). Farmers made aware of clean milk concept. 50% of model farmers installed improved facilities. Done in collaboration with FAO project.
6. Milk losses decreased	% of milk discarded reduced	Farm and dairy plant records	Model farmers are selling all milk produced. No milk being discarded. Reduced bacteria count gave rise to increased quality.
7. Milk demand increased	Milk sales increased over time	Farm business and dairy play-it Records	Model farmers are selling all milk produced. Can all sell more milk than that available for sale.
8. Quality of dairy products improved	Shelf life increases	Dairy plant and retail store records	No model farm mixing milk with water. Better overall sanitation. Impact of Clean Milk Program. Three milk processing plants in operation from November 2003.
9. Financial returns for farmers and processors increased	Improved profit margins	Cost of production, price analysis at different points of sale	20 gallons of raw milk per day would yield a total revenue of G\$8000 (US\$40). When processed, 20 glns. could yield a total revenue of G\$30,000 (US\$150).
10. Farmer use of marketing information to improve profitability increased	Number of farmers using marketing information available increases	Request for information Requests for assistance in relation to use of information	Information made available to farmers. General radio promotions done. 40% model farmers used information.
11. Improved domestic milk price strategies and policies	Milk price incentives maintained	Farm, processing and marketing records	Prices have been stable over the last year. (G\$20-50/pint) Demand up. Value-added dairy products available at competitive prices.
12. Increased earnings for farmers, processors and marketers of milk	Cost/price ratio levels improve	Mkt prices and cost of production info at the different levels of the commodity chain	- Same total milk production from 50% less cows. - Weaning calves before suckle and sale at day 5 or soon thereafter saves farmer 30 Gls of milk (G\$ 12,000 - US\$60) per month. - 20 gallons of raw milk per day would yield a total revenue of G\$8000 (US\$40). When processed, 20 glns. could yield a total revenue of G\$30,000 (US\$150).
13. Waste and byproduct utilization increased	Increased use of crop residues, waste and by products	Farm records	Two model farms now involved in humus production.

## Program Impact Summary by Objective

### Objective 2: Improve the quality, variety and accessibility of dairy products to consumers

Results	Indicators	Means of Verification	Remarks
1. Stable milk supply available to consumers	Milk production levels remain stable throughout the year	Farm records and plant delivery/receipt records	Stable raw milk supply was achieved by some of the model farmers as reported at Objective 1, No 6. However, challenges with the MMMP Coop and the management of the Dantzig Plant caused supply to be erratic. A more stable supply of dairy products is assured with the establishment of the three plants. See Result 4 and 5.
2. Milk quality improved	Results of bacterial tests	Farm health and milk collection records	Yes. There is no evidence to suggest model farms are adding water. Decreased bacteria count caused increased quality. Incidence of mastitis was high before the project. Farmers now trained to detect mastitis early. They can now treat it. Clean milk concept promoted.
3. Milk demand increased	Milk sales change over time	Farm business and dairy plant records	Yes, all model farms have reported increased sales.
4. Increased availability of quantity milk products for consumers	Milk price affordability evaluation; domestic milk product volume and variety	Retail market evaluation; consumers surveys.	Price of Dantzig Milk was affordable but the quantities were insufficient. Dantzig Plant was closed for most of the April-Sept 2003 period. Towards the end of the reporting period the plant (renamed Whitegate) was reopened under new management. In addition, two other dairy plants (Moogoodies and SSCF DPU) launched their dairy products. All prices competitive.
5. Diversity of milk products increased.	New products on the market, especially those targeted at children	Milk plant production records, supermarket milk product offering assessment, informal sources of new milk products (cake and coffee shops)	Dairy products that were exposed to/ sampled by/ displayed to over 50,000 potential consumers over the last 36 months include: yogurt, eggnog, soft cheese and a range of local sweet meats. The national exhibitions were used to advantage. By end of the project, more than 20 different dairy products including plain pasteurized milk, flavored milk, liquid yogurt, solid yogurt, dips, eggnog, cream cheese, sour cream and ghee, all packaged to international standards had been market tested. More than 12 are on the market consistently.

## Program Impact Summary by Objective

### Objective 3: Improve children's nutrition by increasing their consumption of dairy products

Results	Indicators	Means of Verification	Remarks
1. Milk demand by children increased	Milk sales increase over time to organizational/individuals that serve children	Farm business and dairy plant records	Dantzig milk sales increased from 0 to 20Litres to over 150 Liters /day. Production decreased in early 2003 because of COOP and Plant management issues. Demand was stimulated/ increased over the duration of the project but it was largely unsatisfied. The three plants in operation have made a difference. All plants target children and others.
2. Quality and diversity of dairy products increased	Shelf life, quality and number of products offered to consumers	Dairy plan and retail store records	<i>Shelf life-</i> from a few hours for raw milk to 7-20 days. Some Good Morning products (solid yogurt / cream cheese) have lasted up to 6 weeks. Ghee lasts several months. <i>Quality</i> – good, request for more <i>Number of products offered to consumers</i> – From raw milk only to: pasteurized (plain and flavored), yogurt (liquid and solid), soft cheese (plain and flavored), eggnog, pera, fudge, vermicelli cake and sawine. The SSCF DPU offered 16 different products to consumers from November 2003. <i>No of persons tasting new product / observing display etc</i> – estimated at 50,000 (2001-2004) <i>No of exhibitions / displays participated into date</i> - 16
3. Increased returns for farmers and processors	Milk marketing margins	Cost of production, price analysis at different points of sale	20 gallons of raw milk per day would yield a total revenue of G\$8000 (US\$40). When processed, 20 glns. could yield a total revenue of G\$30,000 (US\$150).
4. Increased information on milk benefits to vulnerable groups- children, mothers	Number of training sessions held, posters prepared, handouts distributed	Survey on familiarity with nutrition and use of milk products at different points in time	Duration of radio promotions: Jan – Nov 2002 No of supplementation studies – 1 Participation at major exhibitions/ events each year - 4
5. Increased consumption of milk products	Sales at milk plants and retail outlets Increased demand for milk	Dairy plant and retail surveys	Estimated that a minimum of 60 gallons of milk in dairy products equivalent are being marketed per day by the three dairy plants ( Moogoodies Dairy, Whitegate and SSCF DPU). The upper range is estimated at 100 gallons.

## Program Impact Summary by Objective

**Objective 4: Increase the capacity of local institutions and organizations to address challenges of the dairy sector in the future.**

Results	Indicators	Means of Verification	Remarks
1. Stronger farmer organization and greater involvement in the development of the dairy sector	Services offered by farmer organization; Level and degree of participation by farmer organizations at different points of the milk system	Association records; farmer surveys; observation and minutes of institutional linkage meetings.	- Organizations not yet providing an increased number services. - Their participation in the dairy industry is growing but still poor. - Much more time is required to have these groups achieve / do more basic tasks.
2. Increased availability and access to improve inputs and services	Volume and variety of inputs handled by the association increased	Association records	Organizations not strong enough as yet to branch into these areas.

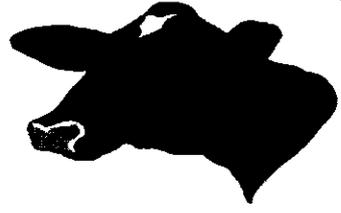
Some other indicators of success / impact based on specific areas of focus are as follows:

Area of Focus	Before Project	With GDDP
Number in attendance at meetings	Often no Quorum	Quorum
Level of training in Coop & related matters	Minimal	Increased
Record keeping	Inadequate	Improving
Use of an agenda	Not in use	In use
Observation of rules of society	Inadequate	Improving



# COW TALK

Quarterly *Newsletter*



Volume 4 No. 2

April/June 2001

Guyana has recently been declared free from Foot and Mouth Disease. This represents a significant milestone within the cattle industry. Cattle farmers, policy makers, technicians, and other stakeholders are tasked with moving the industry towards increased production and marketing of beef and milk.

This issue examines current beef and milk production, management, and export potentials.

## BEEF PRODUCTION

In 1996, the Ministry of Agriculture's Planning Department estimated Guyana's cattle population at 258,212 heads. This figure represents a decline by approximately 30,000 heads in 2000, according to an estimate provided by the RDP Livestock Services B.V of the Netherlands. This consultancy firm (RDP) was contracted during year 2000 by the Caribbean Development Bank (CDB) to provide technical assistance for Institutional Strengthening of the National Dairy Development Program. The consultancy firm further estimated annual beef production at 3,537 metric tons. This figure represents approximately 35,250 heads per year. Of concern is the high percentage of slaughtered female animals (cows and heifers). Approximately 53% or 18,800 female animals are slaughtered annually. Together, total slaughtered females and males, referred to as "off take," represents 15% of the animal population. These estimates suggest that maintaining the cattle population requires an equal or greater percentage of productive animals (15%) reaching maturity (slaughter) to offset the annual "off take" percentage.

In 1996, the mid year population was estimated at 770,000 persons. Annual local per capita consumption of beef, as

estimated in year 2000, is around 5 kilograms (11Lbs). With the possibility of export now available, the quantity of beef earmarked for export and local consumption would have to be carefully monitored so as not to deplete the stock.

## Management

The system of herd management practiced for beef production is primarily extensive. Under the extensive system of herd management, cattle is allowed to traverse pasturelands with minimal levels of labor and supplementary nutrition inputs. This system, though inexpensive, does not produce animals at an early age with optimum weight and meat quality that export markets demand. The introduction of "beef lot" production system of herd management is therefore of importance to Guyana. The RDP consultancy firm strongly recommended "feed lot" production system for Guyana. Under this intensive system of management, animals are reared in confinement, usually in specifically constructed pens and buildings. Greater emphasis is placed on record keeping, nutrition, and health. Animals are fed "ad lib" with high quality pasture grass and supplementary feeds such as rice bran, wheat bran, copra meal, fishmeal, molasses, and other byproducts. This efficient and improved intensive management system would guarantee animals that reach market weight earlier and with better quality meat. It would also add impetus to increasing the herd population over a shorter period, while still providing quality meat to local and export markets.



His Excellency, President Bharrat Jagdeo receives the FMD Certificate from Dr. Steve Surujbally, Hon Minister of Fisheries, Crops and Livestock Mr. Satyadeow Sawh looks on.

## Export Potential

Export potential for beef is good. Markets are available both locally and abroad. Recent studies confirmed market availability in the Caribbean region (Trinidad and Tobago, Barbados, St. Lucia), Suriname and others. The principal suppliers of beef to these countries are the USA, Canada, and New Zealand. Beef import value for Trinidad and Tobago alone was over \$US5 million.

A prerequisite to commence exportation of beef may be the establishment of a modern abattoir. The existing abattoir does not reach basic sanitary and operating requirements. In 1989, the CDB examined the local abattoir and production capacity and recommended a slaughterhouse having a 50 head per day capacity.

## MILK PRODUCTION

National milk production for year 2000 is 31.4 million liters. National average

(Continued on page 2)



**Export Potential**

Guyana is officially declared free from Foot and Mouth Disease by the OIE. Great challenges to ahead.

His Excellency, Mr. Bharrat Jagdeo, President of Guyana at the Reception at the Le Meridien Pegasus earlier this month aptly calls for more intensive system(s) of beef rearing. There are the potential markets in the Caribbean and Suriname that are incentives for greater productivity, which must be sustained and maintained, but not to the detriment

of the Government. The Government has recognized the need for a more large and more effective extension systems with appropriate management must be introduced. Remember, animals reared for potential export markets must come from **DISEASE FREE HERDS**, hence the need for the implementation of **PROPER RECORDS** kept for **INDIVIDUAL ANIMALS**.

Construction of the housing and the

expansion of the equipment for the mini milk pasteurization plant at Dantzig begins in July. The National Project Coordinator and the Chairman of the Mahaica/Mahaicony Cattle Farmers Association visited Kenya this month (June) to observe/evaluate the operations of mini milk pasteurization plants that were established in that country. Upon their return, they will be able to plan appropriate strategies for product differentiation and marketing.

**GUYANA'S MILK AND BEEF PRODUCTION, AND EXPORT POTENTIAL (Cont'd from page 1)**

milk production (1983 to 2000) is 30.3 million liters. Region 5 is the highest milk-producing region with 10.3 million liters during 2000 that represents 33% of national milk production. From 1983 to 1993 milk production increased by 27 million liters, from a low of 12.7 million liters in 1983 to 39.6 million liters in 1993. Positive product moment correlations are shown when milk production is analyzed with artificial insemination, and pasture establishment.

Since the commencement of the artificial insemination (A.I) program in 1987, 33,526 services were administered. The National Dairy Development Program estimates that the average period from insemination to production is three years, and is influenced by the level of nutrition and management. Assuming a national average period from insemination to production is three years, then services, particularly artificial insemination and pasture development, accounted for an increase of 6.6 million liters of milk every three years or 2.2 million liters annually from 1983 to 1993. Recent studies of the dairy industry confirmed that current milk production figures do not indicate the full potential of the dairy industry, because only 55% of potential productive animals are utilized in milk production. This is because present market availability satisfies only this amount. Consequently, most farmers are milking only a given number of animals, and once daily, in order to satisfy a predetermined market quantity. Milk production fluctuations and a decrease from 39.6 million liters in 1993,

to 31.4 million liters in 2000, may be attributed to among other factors: a lack of markets; an increase in the importation of milk products as a result of more liberal tax impositions; and more emphasis on rice production spurred by greater economic returns.

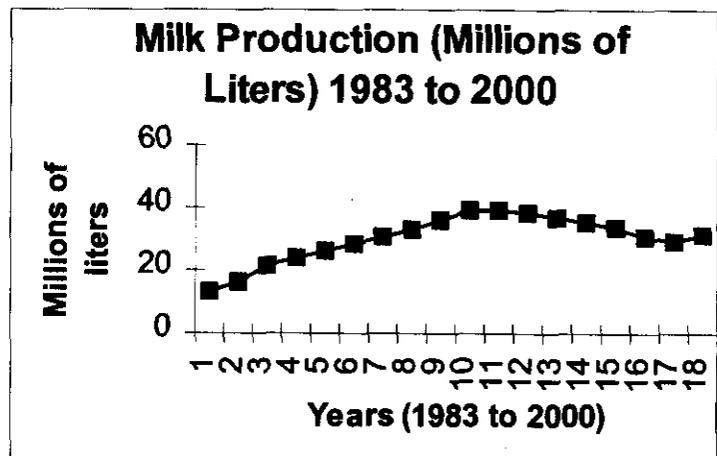
In 1993, the Ministry of Agriculture estimated local milk consumption at 55 million liters. This suggests only 57 % of national consumption requirement was realized. Milk and milk products importation provides the additional 43% of national milk requirement. From 1991 to 2000, according to the Bureau of Statistics, approximately 6.1 million kilograms of milk powder having less than 1.5% fat content, 11million kilograms with more than 1.5% fat, and 14 million kilograms of all other forms of milk and milk products were imported. Milk importation is supplied primarily from Canada, USA, Netherlands, UK, Trinidad and Tobago and some European countries.

**Dairy Management**

Dairy management practices such as artificial insemination, pasture development, silage making, urea blocks, rice straw bailing, clean milk production, and organizational strengthening of farmers associations will continue to be the focus of extension and technology transfer efforts. The provision of credit to farmers is critical to the program.

**Export Potential**

The current developmental thrust is geared to increasing the local market share of milk through improved marketing strategies, promotion, processing, and production of value added milk products.



**FOOT AND MOUTH**

It is a highly contagious viral infection that affects cloven-hoofed animals. Symptoms include fluid filled blisters (small swellings) that appear in and around the animal's mouth, nose, teats, and feet.

**> IS IT DANGEROUS TO HUMAN BEINGS?**

It has been reported in Britain (during 1967-68) that there were several cases of human Foot and Mouth. Symptoms such as

**> IS IT FATAL?**

Usually not, although young animals may die as a result of secondary infections, exposure and malnutrition.

**> SO WHY DO INFECTED ANIMALS HAVE TO BE DESTROYED?**

To prevent the disease from spreading. It's almost unstoppable.

**> HOW IS THE DISEASE SPREAD?**

Foot and Mouth is transmitted by direct contact with infected animals, by contact with their secretions, and by contact with contaminated objects.

It is also spread by air. The virus is carried by the wind. In fact, it is so contagious that it can be spread by a single animal and the virus can survive in the environment, even after the death of the animal. In fact, for this reason, many countries ban the importation of vaccinated livestock. To prevent the disease from spreading, all infected animals as well as those suspected of infection - must be destroyed. In addition, all livestock that have been in contact with infected animals must be destroyed.

**Dairy Cow of the Month Award – March 2001 to May 2001**

No.	Name	Address	Region	Age of Animal (yrs)	No. of Calving	Dairy Milk Production (pts)
1.	H. Heralall	Greenwich Park	3	5	2	20
2.	Shamnarine	Parika Facade	3	6	4	18
3.	H. Rahim	Blairmont	5	4	2	21
4.	B. Outar	166, Mibicuri North, BBP	6	5	2	24
5.	M. Sriram	34, Lesbeholden, BBP	6	8	5	22
6.	Seepersaud	17, Lesbeholden North, BBP	6	7	4	24

Nominations are based upon the following criteria:

1. Cows must possess a calf over two months of age at time of nomination.
2. Must produce 16 pts and over at once or twice milking daily.

## GUYANA DAIRY DEVELOPMENT PROJECT LAUNCHED

On the 26<sup>th</sup> of June 2001, the Guyana Dairy Development Project was officially launched at the Saint Stanislaus Dairy Training Center. Among representatives at the launching ceremony were the Honorable Minister of Fisheries Crops and Livestock Mr. Satyadeow Sawh; His Excellency, Ambassador of the United States of America to Guyana, Mr. Ronald Godard; Inter American Institute for Cooperation on Agriculture, Guyana Representative, Dr. Alexis Gardella; President of Partners of the Americas, Guyana Chapter, Mr. Chaitram Persaud; Executive Member of the Caribbean Research and Development Associates, and Project Director Dr. Hector Munoz; Cattle Farmers; Technicians, and other Stakeholders.

The project goal is to increase the nutritional level of Guyanese children and the population in general by improving dairy production.

Partners of the Americas, in collaboration with the Caribbean Research and Development Associates (CARESDA), proposes a Dairy Development Project to address the critical issues of poverty, food insecurity and malnutrition in Guyana. The project includes the participation of government, private, and civil society organizations. The Technical strategy identifies the dairy sector's current constraints, identified in a Milk Production and Farm Management survey and study. Project intervention would seek to reduce them through activities that target approximately 5,000 small and medium size farmers that produce milk.

The project duration is for three (3) years.



Ambassador Godard, Minister Sawh, IICA Representative Dr. Gardella, Project Director Dr. Munoz and others sample locally produced cheese at the launching ceremony.

and shall be funded by the United States Agency for International Development (USAID). The implementing institution is Partners of the Americas. Collaborating institutions are the National Dairy Development Program (NDDP); CARESDA; Inter American Institute for Cooperation on Agriculture (IICA); Saint Stanislaus Training Center (SSTC); and International Consultants of the Americas (ICAS). ❀

## CONSIDERATIONS WHEN FEEDING IN A FATTENING PROGRAM

- Provide adequate roughage (grass). **Cattle need roughage and grass as a key element.** At least a third of the dry matter of the ration should be roughage. This means that on an "as-fed" basis, the quantity of grass should be at least 2.5 to 3.5 times the quantity of concentrates.

- Good grazing should be done when possible, **but avoid muddy conditions.** Struggling through mud uses up a lot of energy and will reduce growth rates / weight gain. Under muddy conditions consider providing cut grass. For bulls, cut grass may also be the only option.

- **Balance concentrate ration for fast growth**, about 11-12% of the ration should be Crude Protein (CP) and a high density of energy as provided by cereals or bran.

- **Not more than 40% rice bran in the total ration** (including grass) as digestion problems and diarrhoea may develop.

- **Use good quality "fresh" feeds or**

**concentrates.** The oil in the rice bran may become rancid if stored for too long.

- **Provide sufficient minerals.** By products of rice and wheat are low in calcium. Additional ground limestone, salt blocks of mineral licks is recommended.

- **Unbalanced rations result in poor utilization** and an excessive production of heat, which the animal has to dispose of. This may cause stress.

### NUTRITIVE VALUE AND USAGE OF SOME FEEDS

1. **Rice Bran:** Provides energy (fat) and protein (13.17%). Good bran has a high content of soft fat that results in a soft fat cover on the meat. Therefore, in the last few weeks before slaughter, the amount of rice bran should be gradually reduced. Remember that rice bran should not constitute more than 40% of the ration.

2. **Broken Rice:** Could be fed, preferably in small quantities. When polished, broken rice has a low fiber

content, protein and fat. It is almost pure starch.

3. **Wheat bran & Wheat Middling:** Wheat bran has a little more fiber and less energy than wheat middling. Wheat bran also has a much lower fat content but a slightly higher protein content than rice bran. Therefore, when formulating a ration, wheat middling and rice bran could replace each other, but a mixture of the two is recommended.

4. **Copra Meal:** Could be used to increase the protein content of a ration. Can be best fed at a rate of ½ - 1 lb. per day.

5. **Molasses:** Could be incorporated at a rate of 5 - 10% in a ration. Has low protein content.

6. **Grass:** Should be greater part of the ration. Care should be taken to feed at the recommended stage of growth. Remember "stemmy" and fibrous material (over grown) has low feeding value. ❀

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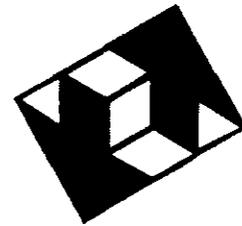
Guyana Dairy Development Project, 69 Sophia Backlands, Greater Georgetown  
Funded by: United States Agency for International Development (USAID)  
Implemented by: Partners of the Americas



# COW TALK

Quarterly

Newsletter



Volume 4 No. 3

July - October 2001

## CATTLE FARMERS LAUNCH NATIONAL BODY

On October 25, 2001 the National Cattle Farmers Association (NCFA) was launched at the Sophia auditorium. The launching was an important turning point in the history of the cattle industry. The idea had been around for some time but it only became a reality on September 27, 2001, at the first Annual General Meeting and Election of Office Bearers. The elected members of the Board of Directors were as follow:

**President**

- Mr. Bhopaul Singh (Region 3)

**Vice-President**

- Mr. Roopnarine Indhal (Region 6)

**Secretary**

- Mr. Leon Small (Region 4)

**Treasurer**

- Mrs. Shamdai Mohan (Region 4)

**Assistant Secretary**

- Mr. F. Karamat, (Region 5)

**Committee Members**

- Mr. J. Farinha (Region 5)

- Mr. Hazeer (Region 6)

- Mr. M. Inshan (Region 3)

- Mr. Deoroop (Region 3)

The Launching Ceremony was attended by Minister of Fisheries, Crops and Livestock, Mr. Satyadeow Sawh; Director of the Guyana Dairy Development Project (GDDP), Dr. Hector Munoz; Director of the National Dairy Development Programme (NDDP), Mr. Meer Bacchus; President of Partners of the Americas, Guyana /Mississippi Chapter, Mr. Alex Foster; US Ambassador, Mr. Ronald Godard; Country Representative of the Inter-American Institute for Co-operation on Agriculture (IICA), Dr. Alexis Gardella; and Veterinarian and current Chairman of the Elections Commission, Dr. Steve Surujbally. The formation of the association was

said to be the brainchild of Dr. Surujbally, a former Director of the NDDP.

The President of the Association said that the rustling problem was one of two main issues the Association planned to address before the end of the year. The other problem was finding land

for farmers. According to Mr. Singh, cattle belonging to farmers sometimes roam the streets causing accidents. Rice farmers have also complained bitterly in the past about incursions of cattle onto their plots. The rustling problem he said was more prevalent in Region 6. He said that the plight of the landless farmers was perhaps more pronounced in Region 3.

The Association's President also urged farmers to produce grade "A" milk in order for them to get grade "A" money. There is also current work on a feedlot system to produce cattle for beef exportation. Guyana was formally certified as free of Foot and Mouth Disease earlier this year and this paves the way for exports. He informed the gathering that before the formation of the Association, farmers have spent many days, many months and many years, at the IICA's office setting it up. He intimated that there are 54 District Cattle Farmers Associations (DCFAs) in the country and the national body plans on to put all of its effort to solve the problems of farmers.



Minister Sawh speaking at the Launching of the National Cattle Farmers Association

The constitution of the national body had already been drafted and the body was in the process of being legally registered.

Minister Sawh told the farmers that the launching was a milestone and urged them not to be deterred by the small number of persons who attended the Launching. The Minister noted that there was need for the expertise of everyone in dealing with the theft of cattle and the illegal export of carcasses. He warned the executive body that there was need for it to be always democratic in its activities.

Mr. Meer Bacchus, Programme Director of the NDDP hailed the establishment of the NCFA. He stated that there has long been a

*(continued on page 2)*

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## Editorial

In 2001, there were a number of exciting activities in the cattle sub-sector. These activities have certainly given hope to the cattle farmers of Guyana.

In April, Guyana's cattle industry was declared Free of Foot and Mouth disease. Although this is seen as a significant milestone within the industry there is still a lot of work to be done before the exportation of beef and beef products can become a reality. For example, there is urgent need for the completion of the Veterinary Diagnostic Laboratory and for the construction of a new abattoir with modern facilities. Cattle farmers and other stakeholders are perhaps, for the first time, challenged with improving production efficiency, through improved methods of breeding; feeding and management in order to satisfy the potential export markets.

In June of this year the Guyana Dairy

Development Project was launched. This project has further bolstered the cattle industry as it seeks to strengthen institutions and organizations directly involved in the production, processing, distribution, and marketing of milk. The goal of the project is to increase the nutritional level of Guyanese children and the population by increasing dairy production.

In October the coordinated efforts of NDDP, NCFA, the Ministry of Fisheries Crops and Livestock, GDDP, IICA, and Partners of the Americas yielded the first ever National Cattle Exhibition and Sale. The exhibition is intended to be an annual affair that would serve to instigate better prices for animals.

The highlight of the year however was the launching of the National Cattle Farmers Association on October 25, 2001. Since 1993, the NDDP has been working assiduously to get cattle farmers

organized into DCFAs, with the aim of establishing a National Body. The contributions made by the NDDP, IICA, AIC, GDDP, USAID, PARTNERS and other organizations must be lauded in helping to make the National Cattle Farmers Association a reality.

It is hoped that the progress made over the last year will be further built upon so that the development of the cattle sub-sector will continue unabated in 2002.

We would like to take this opportunity to wish all cattle farmers and their families Happy Holidays and all the best for a productive 2002. End of the year greetings and a big THANK YOU as well to all organizations that have supported us in any way during 2001. We look forward to your continued support in 2002.

## CATTLE FARMERS LAUNCH NATIONAL BODY (continued from page 1)

need for such a national body as there were National Groupings for other sub-sectors such as rice, sugar and poultry. The time and hard work invested by NDDP since 1993 to get cattle farmers organized into District Cattle Farmers Associations had eventually paid off.

Mr. Bacchus explained that prior to 1993, there were already some organized cattle farmers groups in existence. These included: Urban Cattle Farmers Association, Lusignan Dairy Cattle Farmers Co-op Society, The Rupununi Livestock Producers Association, Lenora/Edinburgh Cattle Farmers Association and Upper Corentyne Cattle Farmers Association (which is now two separate Associations.)

In 1993, 25 DCFAs were established with assistance from NDDP (Region 2 - one, Region 3 - six, Region 4 - three, Region 5 - three and Region 6 - twelve). During the period 1994-2000, 39 DCFAs were established with the

assistance of the NDDP. Additionally two Regional Cattle Farmers Associations (RCFAs) - Regions 6 and 3 were established.

In 2001, assistance was given for the establishment of the RCFA of Region 4. Initially, cattle farmer's groupings saw the need for their formation to acquire much needed land for pasturage.

In 1996, the Dairy Sector Project executed in collaboration with the Inter-American Institute for Cooperation on Agriculture (IICA) and with assistance from the Agricultural Institute of Canada (AIC), resulted in several associations being strengthened in organizational management to play a more active role in the development of the cattle sub-sector. The Cattle Farmers

Associations Coordinating Committee was established and was the forerunner of the present National Association.

During the period of establishment, it was envisaged that DCFAs coalesce into Regional Associations and these Regional Groupings would culminate into the National Body. However this did not come to pass. Efforts made in 1999 and 2000 to achieve the formation of a National Association was unsuccessful. In 2001, with Guyana being declared free of Foot and Mouth Disease (an obstacle to the export of beef), the realization of the first farmer owned milk pasteurization plant and the advent of increased resources and efforts being made in the cattle industry, the National Cattle Farmers Association was established.

**Editors:** Kelvin Craig, GDDP, Meer Bacchus, NDDP & Bhopaul Singh, NCFA  
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**MINI-Workshop**

On the October 25, 2001 the National Cattle Farmers Association (NCFA) held a mini-workshop at the Sophia Convention Centre. This workshop was held after the Launching Ceremony of the NCFA.

Thirty-five cattle farmers and their representatives from Regions 2, 3, 4, 5 & 6 participated. Also present were the main facilitators, NDDP staff and the GDDP team. Cooperative and

management consultants attended as observers.

Mr. Bhopaul Singh, the NCFA President, presented a draft work plan. The major issues discussed were cattle rustling, land for the landless and marketing. The team leaders for specific topics were:

- Mr. Indhal - Rustling
- Mr. M. Inshan - Land Issues
- Mr. Deeroop - Marketing, Training, Support services and other issues.

The focus was on the rustling and land issues. The participants ratified the need to pursue solutions to these matters and ratified the recommendations in the Cattle Rustling Document, which were arrived at a Cattle Rustling Symposium that was hosted by the AIC/NICA Project in 1998. Support promised by the Minister of Fisheries Crops and Livestock at the Launching Ceremony was welcomed. A follow-up by the NCFA was agreed upon. 🌿

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Mr. Lloyd Naljit of Washington, West

**Dairy Cow of the Month Award – June 2001 to September 2001**

No.	Name	Address	Region	Age of Animal (yrs)	No. of Calving	Dairy Milk Production (pts)
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Nominations are based upon the following criteria:

1. Cows must possess a calf over two months of age at time of nomination.
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3. NDDP's field officers must verify the milk production of the nominated animal(s) at two or more visits.

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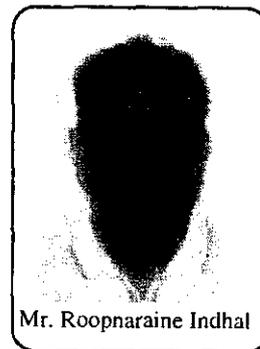
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3. Remarks by Implementing Agency – Mr. Ben Carter, Chairman Agricultural Committee, Guyana/Misissippi Chapter, Partners of the Americas
4. Remarks by National/Region 3 Cattle Farmers Association, Mr. Bhopaul Singh, President, NCFA
5. Introduction of the Minister of Fisheries Crops and Livestock – Mr. Esau Dookie, Regional Chairman, Region 3
6. Feature Address, Hon. Mr. Satyadeow Sawh, Minister of Fisheries Crops and Livestock
7. Ribbon Cutting Ceremony – Child of St John's Community High School
8. Vote of Thanks – Mrs. Seokumarie

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Name: Roopnaraine Indhal  
Sex: Male  
Age: 49 years old  
Address: Tarlogie Farm, Corentyne, Berbice

Mr. Roopnaraine Indhal has been a farmer for about 30 years. He has 175 head of mostly creole animals that are currently being upgraded. His herd produces about 30 gallons of milk per day. In addition, Mr. Indhal is an owner and trainer of racehorses.



Mr. Roopnaraine Indhal

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## QUESTION AND ANSWER CORNER

### IMPROVING THE BREED

#### What Is Artificial Insemination (A.I.)?

Artificial insemination is a method of breeding where semen of specially selected bulls is used to get cows and heifers pregnant.

In this method the bull does not 'JUMP' the cow.

A trained technician uses a special instrument to place the sperm into the cow's womb.

#### Why Do We Need A.I.?

We need A.I. to improve the production of our local "creole" animals. Because our "creole" cattle are generally low producers, we cannot use them on a profitable basis.

With A.I. however, semen from high producing bulls in the USA, Canada and England is imported and used on our cattle.

The result is a calf that is tough and hardy and also a good producer of milk and beef. This is the type of animal we need to stand up to our harsh conditions and still produce profitably.

#### How Does A.I. work?

For A.I. to work you must inform the technician as soon as your cow 'calls' or comes into heat. When your cow is in heat she will:

- Bawl and be restless.
- She will pass a string of clear slime from her 'parts'.
- She will stand still and allow other animals to "jump" on her back.

#### What are the Benefits of Artificial Insemination?

- It is the quickest way of improving the breed and production potential of our local cattle.
- In Guyana it is very cheap.
- Your cows produce calves from some of the best bulls in North America and England
- You can rear more cows in your pens/pasture because there is no need to rear breeding bulls.
- Bulls are dangerous and can injure people and other animals, they can also be very destructive and damage fences, pens and other property.

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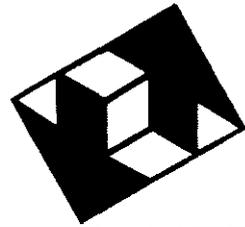
Guyana Dairy Development Project, 69 Sophia Backlands, Greater Georgetown  
Funded by: United States Agency for International Development (USAID)  
Implemented by: Partners of the Americas



# COW TALK

Quarterly

Newsletter



Volume 4 No. 3

July - October 2001

On October 25, 2001 the National Cattle Farmers Association (NCFA) was launched at the Sophia auditorium. The launching was an important turning point in the history of the cattle industry. The idea had been around for some time but it only became a reality on September 27, 2001, at the first Annual General Meeting and Election of Office Bearers. The elected members of the Board of Directors were as follow:

**President**

- Mr. Bhopaul Singh (Region 3)

**Vice-President**

- Mr. Roopnarine Indhal (Region 6)

**Secretary**

- Mr. Leon Small (Region 4)

**Treasurer**

- Mrs. Shamdai Mohan (Region 4)

**Assistant Secretary**

- Mr. F. Karamat, (Region 5)

**Committee Members**

- Mr. J. Farinha (Region 5)

- Mr. Hazeer (Region 6)

- Mr. M. Inshan (Region 3)

- Mr. Deeroop (Region 3)

The Launching Ceremony was attended by Minister of Fisheries, Crops and Livestock, Mr. Satyadeow Sawh; Director of the Guyana Dairy Development Project (GDDP), Dr. Hector Munoz; Director of the National Dairy Development Programme (NDDP), Mr. Meer Bacchus; President of Partners of the Americas, Guyana /Mississippi Chapter, Mr. Alex Foster; US Ambassador, Mr. Ronald Godard; Country Representative of the Inter-American Institute for Co-operation on Agriculture (IICA), Dr. Alexis Gardella; and Veterinarian and current Chairman of the Elections Commission, Dr. Steve Surujbally. The formation of the association was

said to be the brainchild of Dr. Surujbally, a former Director of the NDDP.

The President of the Association said that the rustling problem was one of two main issues the Association planned to address before the end of the year. The other problem was finding land

for farmers. According to Mr. Singh, cattle belonging to farmers sometimes roam the streets causing accidents. Rice farmers have also complained bitterly in the past about incursions of cattle onto their plots. The rustling problem he said was more prevalent in Region 6. He said that the plight of the landless farmers was perhaps more pronounced in Region 3.

The Association's President also urged farmers to produce grade "A" milk in order for them to get grade "A" money. There is also current work on a feedlot system to produce cattle for beef exportation. Guyana was formally certified as free of Foot and Mouth Disease earlier this year and this paves the way for exports. He informed the gathering that before the formation of the Association, farmers have spent many days, many months and many years, at the IICA's office setting it up. He intimated that there are 54 District Cattle Farmers Associations (DCFAs) in the country and the national body plans on to put all of its effort to solve the problems of farmers.



Minister Sawh speaking at the Launching of the National Cattle Farmers Association

The constitution of the national body had already been drafted and the body was in the process of being legally registered.

Minister Sawh told the farmers that the launching was a milestone and urged them not to be deterred by the small number of persons who attended the Launching. The Minister noted that there was need for the expertise of everyone in dealing with the theft of cattle and the illegal export of carcasses. He warned the executive body that there was need for it to be always democratic in its activities.

Mr. Meer Bacchus, Programme Director of the NDDP hailed the establishment of the NCFA. He stated that there has long been a

*(continued on page 2)*

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## CATTLE FARMERS LAUNCH NATIONAL BODY (continued from page 1)

need for such a national body as there were National Groupings for other sub-sectors such as rice, sugar and poultry. The time and hard work invested by NDDP since 1993 to get cattle farmers organized into District Cattle Farmers Associations had eventually paid off.

Mr. Bacchus explained that prior to 1993, there were already some organized cattle farmers groups in existence. These included: Urban Cattle Farmers Association, Lusignan Dairy Cattle Farmers Co-op Society, The Rupununi Livestock Producers Association, Lenora/Edinburgh Cattle Farmers Association and Upper Corentyne Cattle Farmers Association (which is now two separate Associations.)

In 1993, 25 DCFAs were established with assistance from NDDP (Region 2 - one, Region 3 - six, Region 4 - three, Region 5 - three and Region 6 - twelve). During the period 1994-2000, 39 DCFAs were established with the

assistance of the NDDP. Additionally two Regional Cattle Farmers Associations (RCFAs) - Regions 6 and 3 were established.

In 2001, assistance was given for the establishment of the RCFA of Region 4. Initially, cattle farmer's groupings saw the need for their formation to acquire much needed land for pasturage.

In 1996, the Dairy Sector Project executed in collaboration with the Inter-American Institute for Cooperation on Agriculture (IICA) and with assistance from the Agricultural Institute of Canada (AIC), resulted in several associations being strengthened in organizational management to play a more active role in the development of the cattle sub-sector. The Cattle Farmers

Associations Coordinating Committee was established and was the forerunner of the present National Association.

During the period of establishment, it was envisaged that DCFAs coalesce into Regional Associations and these Regional Groupings would culminate into the National Body. However this did not come to pass. Efforts made in 1999 and 2000 to achieve the formation of a National Association was unsuccessful. In 2001, with Guyana being declared free of Foot and Mouth Disease (an obstacle to the export of beef), the realization of the first farmer owned milk pasteurization plant and the advent of increased resources and efforts being made in the cattle industry, the National Cattle Farmers Association was established.

On the October 25, 2001 the National Cattle Farmers Association (NCFA) held a mini-workshop at the Sophia Convention Centre. This workshop was held after the Launching Ceremony of the NCFA.

Thirty-five cattle farmers and their representatives from Regions 2, 3, 4, 5 & 6 participated. Also present were the main facilitators, NDDP staff and the GDDP team. Cooperative and

management consultants attended as observers.

Mr. Bhopaul Singh, the NCFA President, presented a draft work plan. The major issues discussed were cattle rustling, land for the landless and marketing. The team leaders for specific topics were:

- Mr. Indhal - Rustling
- Mr. M. Inshan - Land Issues
- Mr. Deeroop - Marketing, Training, Support services and other issues.

The focus was on the rustling and land issues. The participants ratified the need to pursue solutions to these matters and ratified the recommendations in the Cattle Rustling Document, which were arrived at a Cattle Rustling Symposium that was hosted by the AIC/IICA Project in 1998. Support promised by the Minister of Fisheries Crops and Livestock at the Launching Ceremony was welcomed. A follow-up by the NCFA was agreed upon.

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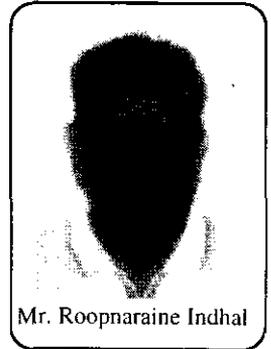
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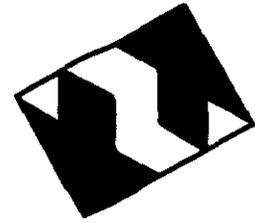
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BEST AVAILABLE



# COW TALK

Quarterly Newsletter



Volume 6 No. 1

January - March 2003

## GLOBAL TRADE CREATES NEW OPPORTUNITIES FOR CATTLE PRODUCTION

English speaking Caribbean businesses grew up in colonial times. This meant operating in a world where the norm was represented by assured market access for defined quantities at preferential prices, for much of the output of their natural resource endowment:

- in Guyana, for example, sugar, bauxite, and rice benefitted from this arrangement;

- there were external investments from the then mother country and from our major trading partners;

- protected markets ensured profits for the reasonably efficient producer of goods or suppliers of services; and

- high tariff walls, encouraged and protected domestic producers, in their efforts to transform a mix of local and imported raw materials and intermediate goods into profitable, finished end products.

This cozy and comfortable world is now virtually at an end. Today, the new concepts are represented by the 'in words' of *globalization* and *liberalization*, meaning the rapid reduction and eventual, planned disappearance of tariff walls and most non-tariff barriers and the exposure of local producers and suppliers to competition from the international marketplace.

As an economic phenomenon, globalisation is a shift from distinct national economies to a global economy. In today's "global village," the production of goods has been internationalised, and money flows

freely and instantly across borders. It is virtually trade without borders.

We have in fact, moved from a world of *comparative advantage*, based largely on abundant natural resources and relatively cheap labour, to a world of *competitive advantage* meaning a new emphasis on making strategic choices in an age of global markets.

Open trade rewards those businesses that can meet the requirements of the customer at the best price. Anyone who achieve any success, does so through effective Quality Management.

Livestock production seemingly, has not met the expectations of developing countries. National economic data almost always suggests that livestock contributes minimally to national income and growth. However, closer analysis of individual industries suggests that the socio-economic contribution of this sub-sector may be grossly under estimated. In particular, cattle has played a vital role in advancing the status of food security. Despite the seemingly minimal contribution to national economy, cattle production activities have been a major lucrative alternative source of income for many small resource farmers, especially where their regular source of earning had become unsure.

The cattle sub-sector provides food, raw material for agro industries and employment that generates income; which in turn encourages other industrial, commercial and service activities. The economy benefits from import substitution and opportunities for increased taxation.

The demand for beef in the Caribbean

has been estimated at more than 4000 tons per year. This level of demand is much larger than Guyana could satisfy even in the long term. Guyana is now internationally certified by the Office International des Epizooties (OIE) as being free from Foot and Mouth disease free status. During 2001, Guyana satisfied all the requirements and certification was granted by the OIE. **In fact Guyana is now the only country within South America that has this certificate.**

Fluid milk equivalent annual demand is estimated at 12-13 million gallons, while production is just approximately 6 million gallons. In comparison, the annual milk equivalent import is estimated at 2.4 million gallons.

In addition to the new opportunities for milk and beef production, Globalization and Trade Liberalization have made consumers more conscious of quality and reliable supply of milk and milk products.

Guyana has always, because of its large available resources (land and capability) been considered to have the potential to contribute significantly to the sustenance of the region especially in terms of food security and is ideally located because of its proximity to the potential markets.

The time for farmers to take up these challenges is NOW! 🌟

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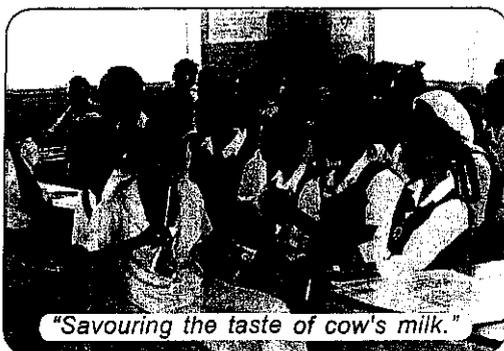
During the first quarter of 2003 the Guyana Dairy Development Project (GDDP) did stock taking in terms off its second year review. Part of its stock taking included a stakeholders meeting where it presented its achievements over the past year and plans for the final year of the three-year program. GDDP is a USAID-financed, Partners of Americas - CARESDA - implemented dairy development project that is national in scope. The goal of the project is to increase the nutritional level of the Guyanese children and population in general by improving dairy production. The main support to the development of the dairy/cattle industry has been in the areas: market promotion in terms of value-added products; technology transfer of appropriate dairy productin systems; and

institutional strengthening of farmers' organisation. One of the major achievements of the project was winning the first prize of the 2003 Caribbean Nutrition Promotion Awards Competition.

In pursuit of excellence, achieving close to ninety percent of the planned activities over the two year period, some of which are highlighted in this issue of "COWTALK." Of course, achievement depends on support. GDDP embarked on the

establishment of strategic alliance such as with the Ministry of Fisheries Crops and Livestock; National Dairy Development Program; Inter-American Institute of Co-operation on Agriculture; National Cattle Farmers' Association and affiliates; New Guyana Marketing Corporation; Linden Economic Advancement Project (LEAP) and others whom have all sanctioned the achievement.

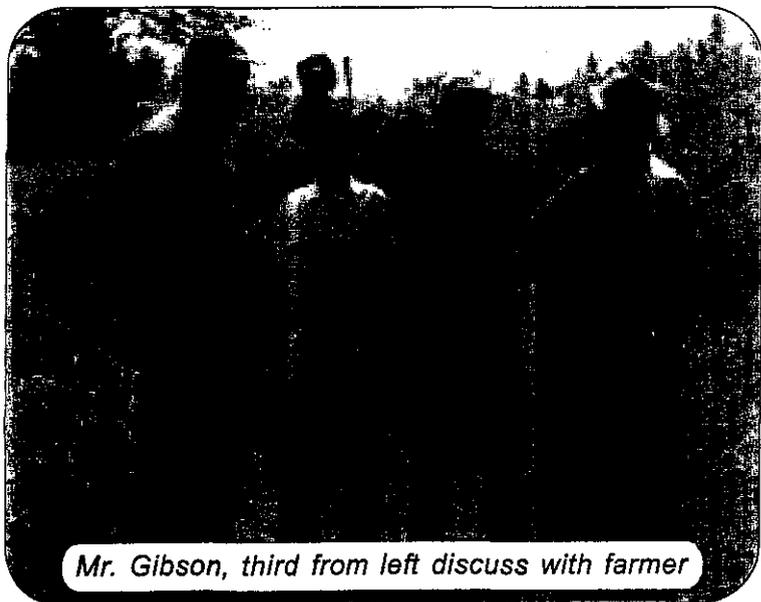
"COWTALK" takes this opportunity of joining in the congratulatory greetings. "COWTALK" looks forward to the continued collaborative efforts among the stakeholders for the future improvement of this seemingly insignificant but vital component of the livestock sub-sector (dairy production and marketing).



*"Savouring the taste of cow's milk."*

### IICA new Representative spends a day in the field

Mr. Winston Gibson, the new IICA Representative to Guyana was on a dairy production familiarisation visit to farmers and other GDDP associated activities. Mr. Gibson a native of Trinidad and Tobago is very familiar with agriculture developmental activities. IICA has been a major GDDP collaborator from the inception of the project. Mr. Gibson expressed appreciation for the "day out" with the farmers and commended the farmers for their effort and looked forward to the continued collaborative efforts between GDDP and other stakeholders.



*Mr. Gibson, third from left discuss with farmer*

**Editors:** *Kelvin Craig, GDDP,  
Meer Bacchus, NDDP &  
Bhopaul Singh, NCFE*

**Design, Layout & Printed by:**  
*PAVNIK PRESS, Georgetown, Guyana.*

**"HAY SAVES THE DAY"**

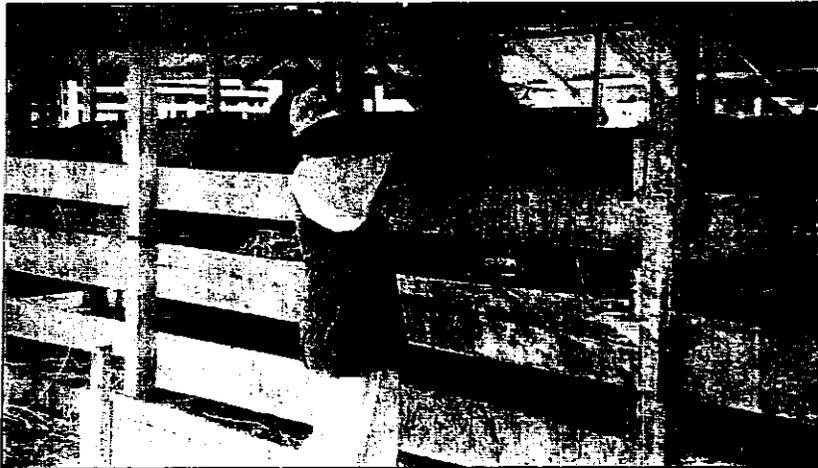
It was during the extended dry period that Guyana just experienced, that farmers was put to the test for maintaining the nutritional levels of their animals. The traditional native roadside, abandoned rice and other grazing areas were without grass (forage), some improved pastures such as those with antelope grass were also affected. Conditions like these would result in farmers feeding above normal supplement feed such as rice bran, and wheat middling. Unfortunately these, too were scarce during the extended dry spell and also

result in farmers having to expend more for additional levels of feeding.

Three model farmers resorted to applying an appropriate feeding practice: that of making hay and feeding it to the animals during the long dry period. Forage conservation/preservation had not always been a practice at these farms. Hay was used to maintain the nutritional level of feed for the animals in their herds. In addition, it helped to maintain the supply of over 2000 pints of milk per month to the market.

What is hay? Hay is sun dried forage (grass and / or legume) without the loss of nutrients or loss of leaves from handling. In one of the two instances hay was soaked into molasses liquid before being offered to the animals. This practice improved the taste and intake.

Would you like to know more about hay? Please contact GDDP for learning more about hay and other appropriate production technologies.



*Bails of hay offered to animals can bridge deficiencies created by seasonal production of normal source of forage*

**DAIRY COW OF THE MONTH AWARDS FOR COWTALK**

**ISSUES OF JAN/MARCH 2003**

No.	Name	Address	Region	Age of Animal (yrs)	No. of Calvings	Daily Milk Production (pts)
1.	K. Shamlall	Bounty Hall	2	6	3	18
2.	Sewnarine	New Road	2	7	4	18
3.	N. Singh	Crane, W.C.D	3	6	5	21
4.	M. Zainul	De Groote, Uitvlugt, WCD	3	5	3	28
5.	S. Bactoo	Parika B/Dam, EBE	3	6	4	20
6.	Ramdai	La Union, WCD	3	10	8	22
7.	J. Puran	Mon Repos North	4	4	2	32
8.	K. Matadin	Lesbeholden North, BBP	6	5	2	24

## DAIRY PRODUCTS FOR YOUR HEALTH

**A Daily Dose of Fermented Milk :** Researchers from Finland report that fermented milk is high in bioactive peptides that could be used to lower blood pressure among people with hypertension. The Institute of Biomedicine at the University of Helsinki evaluated the long-term blood pressure of hypertensive patients and the lowering effect of milk fermented by *Lactobacillus helveticus*. They concluded that fermented milk does have blood

pressure-lowering effects in hypertensive subjects.

Source: Dairy Outlook Owner 31/01/03.

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of the protein casein, which is a key ingredient for the manufacture of cheese and yoghurt. The New Zealand Researchers set out to enhance milk composition and milk processing efficiently by increasing the B-casein and K-casein concentration in milk. Actually, the ratio of milk to cheese is 8 to 1. By increasing the casein content in the milk, this ratio will be reduced.

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As an initial step of technical assistance, to these farms, a Farm Profile was prepared for each farm involved. The Farm Profile describes the before intervention situation on each farm; identifying farm resources; production system; constraints to production and proposed interventions that would enable the removal of identified constraints, thus helping to make the farms more economically viable and sustainable.

The single most significant change made across all of the farms is the introduction of a simple and appropriate record keeping system, as a farm management tool. It is being used to monitor and analyse the performance of each farm. The FARMWALKS therefore allowed the participating farmers to hear how the model farms increased their average milk production from 4 pints/cow per day to 11 pints per cow per day.

For more details on the interventions made on these farms, please contact the GDDP.

Table 1: Interventions and results

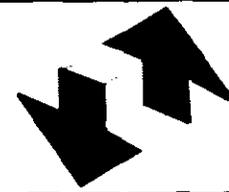
Improvements made on farms	FARMS			
	1	2	3	4
Pasture	X		X	
Milking pen/machine	X	X		X
CMT*	X	X	X	X
Record system	X	X	X	X
Water	X	X	X	X
Average milk increase	4 pints to 11 pints			

\* California Mastitis Test

Published by: Guyana Dairy Development Project, 69 Sophia Backlands, Greater Georgetown  
 Funded by: United Agency for International Development (USAID)  
 Implemented by: Partners of the Americans



# Quarterly Cow Talk Newsletter



Volume 5 No. 4

October - December 2002



By virtue of its involvement in the Milk Supplementation Study, GDDP was asked by the Ministry of Fisheries Crops and Livestock to coordinate World School Milk Day Activities in Guyana. World School Milk Day was celebrated for the first time in Guyana on Wednesday October 9, 2002.

World School Milk Day is celebrated internationally on the last Wednesday of September or any day designated by the

appropriate national authority that falls as close as possible to that day.

The goal of World School Milk Day is to provide a particular day when attention is focused on this issue and thereby promote such programmes. Importance is lent to the event by the fact that other countries are doing the same thing, on the same day, and that FAO is supporting the activity. On that day in Guyana, nursery school students, from the three collaborating schools (Airy Hall, Novar and Calcutta Nursery Schools), along with their parents and invitees each got a 250ml pouch of pasteurized milk.



During October, the New USAID Mission Director, Dr. Mike Sarhan spent a day in the field, observing GDDP activities.

He toured the Dantzig Dairy Plant and had discussions with Committee of Management of the Mahaica Mahaicony Milk Producers Cooperative Society (MMMPCSL).

He then visited the Airy Hall, Calcutta and Novar Nursery Schools where he chatted with staff on the POA-GDDP Milk Supplementation Study. At Norvar Nursery he met with the Headmistress of the three schools and learnt of the positive impact of the study. He was also able to observe the children of Novar Nursery drinking their milk.

Dr. Sarhan and the touring party which included GDDP and NDDP management and the President of the local Partners then visited two model farms where they observed the grazing of antelope grass, the use of a solar fence, a milking parlour and the start of a protein bank.



**MILK STUDY SCORES - FIRST PLACE**

Later the same afternoon Dr. Sarhan toured the Saints Stanslaus College Farm (SSCF), a model dairy farm of the Caribbean. In addition, at the Saints Stainslaus Training Centre (SSTC) he met with Board of the Directors of the SSCF and SSTC. The Board briefed him on the historical aspects of the complex, the current situation and their vision for the future.

GDDP assisted the NCFA in the preparation of two project proposals. They were submitted through the MFCL and the Caribbean Community Secretariat (CARICOM) to the Mexican Commission for Cooperation with Central America and the Caribbean (CMCCAC) of Mexico. The initial submission entitled, "Strengthening the Marketing Capability of the Cattle Industry in Guyana" was, after a round of discussions, eventually substituted with an alternative project entitled, "Improving Guyana's Cattle Information System".

The objective of the latter project is to improve Guyana's cattle information system through the conduct of a Cattle Sondeo and the establishment of a database for cattle. It is recognized that Mexico has vast experience in cattle production, marketing and beef processing. The project proposal is now in the hands of the relevant authorities and it is being assessed.

Through the initiative of the GDDP, five dairy farmers affiliated to the NCFA were able to take part in a study tour to Mexico and Costa Rica in November/December 2001. The study tour was organized in collaboration with the Mexican Co-operation Commission of Central America and the Caribbean

## EDITORIAL

In 2002, collaborative efforts between the NCFA, GDDP and NDDP resulted in two project proposals being developed "Strengthening the Marketing Capabilities of the Cattle Industry in Guyana" and "Improving Guyana's Cattle Information System". These were submitted through the Government of Guyana and the Caribbean Community Secretariat to the Mexican Commission for Cooperation with Central America and the Caribbean. Collaborative efforts also resulted in joint participation of these agencies (NCFA, GDDP, NDDP) at several major Exhibitions and Fairs. The aim was to promote the utilization of locally manufactured value-added milk products.

The Dantzig Dairy Plant was officially commissioned on February 14 and pasteurised milk from this entity was used in a Milk Supplementation Study at three Nursery Schools Airy Hall, Calcutta and Novar - during the period of February to December. It has been mooted that Dantzig Milk would continue to play an important part in supplementing the nutritional requirements of our school children. However, much more has to be done to further promote the sale of this processed milk to the general public. The advent of chocolate flavored milk early in 2003 will give a boost to sales.

The NCFA has celebrated its first Anniversary in October. There is the need for greater cohesiveness and collaboration between the DCFAs, RCFAs and the NCFA. Many issues such as rustling, inadequate land for pasturage, limited processing facilities need urgent resolution. The Executive Committee having enjoyed renewed confidence of its members, must act in the New Year to address fundamental issues (management and organisation) as well as the issues outlined previously.

Beef export is being brought closer to reality with the proposed establishment of a Livestock Board, the upgrading of a privately owned abattoir and the revision of Veterinary Legislation (soon to be taken to Parliament.)

A Happy New Year to each and every one of you!

(CMCCAC), the Ministry of Fisheries Crops and Livestock of Guyana, IICA-Guyana, IICA-Mexico, the NCFA, GDDP and the Central American School for Livestock (ECAG).

On their return to Guyana, the team claimed that they had a better insight into what was possible. They also had a stronger conviction of what was needed to help them to make a difference and to move the industry

forward. One year after the historic study Tour, the PD and NPC of GDDP met with the five persons along with the President of the NCFA. The session was at the home and farm of the Vice President, NCFA, Mr Roopnarine Indhal. The deliberation led to the conclusion that the most obvious lesson learnt on the study tour was that the Latin American Farmers gained a lot more by working together rather than as individuals. The farmers expressed the view that more group effort was the answer to some of the challenges facing the Industry.

## MODEL FARMS



**TWO FARMERS TAKING HARVESTED FORAGE TO THEIR ANIMALS**

Profiles for six model farms were completed during the reporting period. Of the six, four farmers pursued the interventions as originally agreed. At least one visit per week was made to the following four farms during the period. Interventions have been as follows:

### ●Seudial's Dairy Farm (Rotational

as a source of alternative feed for the low forage production during the dry season; machine milking now done without calves; clean milk production observed; legume nursery established; records being kept in accordance with recommendations from GDDP.

### ●Deeroop's Dairy Farm (Cut and Carry Intensive System):

Repair of cowpen completed; feed trough installed; clean milk production in practice; records now being kept in accordance with GDDP recommendations.

### ●Kiritpal's Cattle Farm (Intensive Rotational Grazing System):

Floor completed; milking parlour completed; clean milk production in practice; single churn milking machine repaired and working; solar electric fence established and functional; two plots of antelope grass, totaling 19 acres sub-divided for rotational grazing; records now being kept in accordance with GDDP recommendations.

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### ●Doodnauth's Cattle Farm (Intensive Rotational Grazing System):

Eight acres ploughed and planted with antelope grass; records now being kept in accordance with GDDP recommendations.

## MILK PRODUCTS COURSE

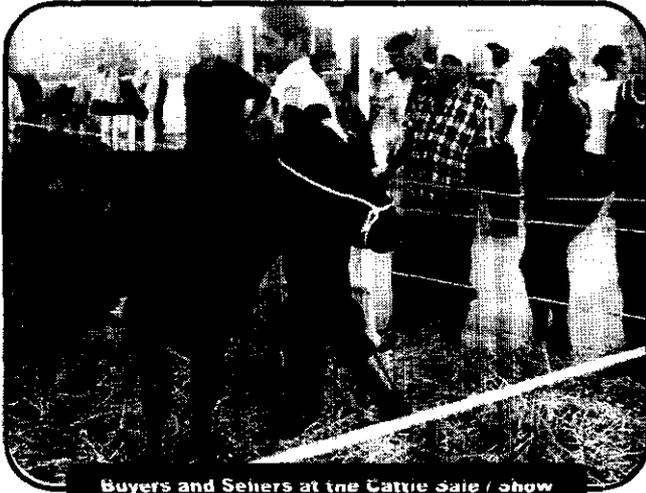
A two-day Milk Products Course was held in November 2002. Nine women from the Guyana Federation of Women's Institute (all from Regions 4) attended the course, which was held at the SSTC. They learnt how to make soft cheese and yogurt.

## CATTLE SALE AND SHOW

The National Cattle Farmers Association successfully hosted its Cattle Show and Sale on Sunday 27<sup>th</sup> October, 2002. Forty-two (42) animals representing five (5) different breeds were exhibited in ten (10) categories by eighteen (18) cattle farmers from Regions 3, 4 & 5. The sale which is now in its second consecutive year realized nine transactions on site and two subsequent to the event. Sales totalled approximately G\$0.5 million dollars. Participating farmers were asked for the first time to pay a registration fee for each animal entered and a small "tax" on each animal sold. This experimental effort at cost recovery by the NCFA was well accepted by the Exhibitors.

The Day's activities were declared open by the Hon. Minister of the Fisheries, Crops & Livestock, Mr. S. Sawh.

The event was well attended by farmers and secondary school children. Attendance averaged



Buyers and Sellers at the Cattle Sale / show

About 400 persons throughout the day.

This event which is rapidly gaining popularity is becoming one of the major highlights of the Agriculture Month calendar.



GDDP and its main collaborator the NDDP supported the NCFA at the Guyana Night Exhibition (August) and at Guyexpo 2002 (September). The overall objective was to promote the utilization of local milk and milk products. The Agriculture Month (October) activities were programmed in collaboration with the MFCL and the NDDP. The NDDP, NCFA and GDDP together participated in the following October Month events: World School Milk Day, World Food Day, Essequibo Night, Region 3 Farm Walk and NCFA Cattle Sale and Show.



PATRONS TASTING MILK PRODUCTS - CHEESE AND YOGURT

The SSCF will set up a Milk Products Unit (MPU). The MPU will be geared to convert lower-valued fresh milk of the SSCF to the higher valued products such as yogurt, sour cream, and sweet cream. The processing equipment for the MPU have already been identified. GDDP is already committed to spend about US\$18,000 on this component of the project. However, since funding for the unit would be beyond the scope of the GDDP, additional funding has already been sought. An initial feasibility study on yogurt production has been prepared and already submitted to the SSCF Board of Directors.

In addition, GDDP and CARESDA joined forces to assist the SSCF to prepare "Dairy Enterprise Value Add Project" for submission to CARTF. CARTF is expected to provide funds for research and training, primarily in the area of milk products development. Further, the German Embassy in Trinidad has been approached to finance the infrastructure works associated with the establishment of the MPU at the SSCF. The German Embassy is expected to fund this component through a special Micro Project Scheme.



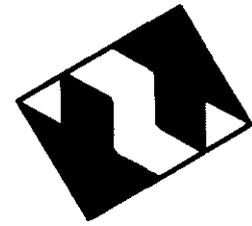
During the period under review, a Partners (GDDP) Credit Facility Operations Manual was completed. The manual dealt with all of the relevant aspects of the credit facility. These include areas such as: loan characteristics and pre-application procedures, application and appraisal procedure, project implementation supervision, management of the loan portfolio and the management, organization and training of the facility.

Credit is initially targeted at Region 5 farmers. A credit facility brochure can be obtained from GDDP, NDDP or the NCFA.



# COW TALK

Quarterly Newsletter



Volume 6 No. 1

January - March 2003

## GLOBAL TRADE CREATES NEW OPPORTUNITIES FOR CATTLE PRODUCTION

English speaking Caribbean businesses grew up in colonial times. This meant operating in a world where the norm was represented by assured market access for defined quantities at preferential prices, for much of the output of their natural resource endowment:

- in Guyana, for example, sugar, bauxite, and rice benefitted from this arrangement;
- there were external investments from the then mother country and from our major trading partners;
- protected markets ensured profits for the reasonably efficient producer of goods or suppliers of services; and
- high tariff walls, encouraged and protected domestic producers, in their efforts to transform a mix of local and imported raw materials and intermediate goods into profitable, finished end products.

This cozy and comfortable world is now virtually at an end. Today, the new concepts are represented by the 'in words' of *globalization* and *liberalization*, meaning the rapid reduction and eventual, planned disappearance of tariff walls and most non-tariff barriers and the exposure of local producers and suppliers to competition from the international marketplace.

As an economic phenomenon, globalisation is a shift from distinct national economies to a global economy. In today's "global village," the production of goods has been internationalised, and money flows

freely and instantly across borders. It is virtually trade without borders. We have in fact, moved from a world of *comparative advantage*, based largely on abundant natural resources and relatively cheap labour, to a world of *competitive advantage* meaning a new emphasis on making strategic choices in an age of global markets.

Open trade rewards those businesses that can meet the requirements of the customer at the best price. Anyone who achieve any success, does so through effective Quality Management.

Livestock production seemingly, has not met the expectations of developing countries. National economic data almost always suggests that livestock contributes minimally to national income and growth. However, closer analysis of individual industries suggests that the socio-economic contribution of this sub-sector may be grossly underestimated. In particular, cattle has played a vital role in advancing the status of food security. Despite the seemingly minimal contribution to national economy, cattle production activities have been a major lucrative alternative source of income for many small resource farmers, especially where their regular source of earning had become unsure.

The cattle sub-sector provides food, raw material for agro industries and employment that generates income; which in turn encourages other industrial, commercial and service activities. The economy benefits from import substitution and opportunities for increased taxation.

The demand for beef in the Caribbean

has been estimated at more than 4000 tons per year. This level of demand is much larger than Guyana could satisfy even in the long term. Guyana is now internationally certified by the Office International des Epizooties (OIE) as being free from Foot and Mouth disease free status. During 2001, Guyana satisfied all the requirements and certification was granted by the OIE. **In fact Guyana is now the only country within South America that has this certificate.**

Fluid milk equivalent annual demand is estimated at 12-13 million gallons, while production is just approximately 6 million gallons. In comparison, the annual milk equivalent import is estimated at 2.4 million gallons.

In addition to the new opportunities for milk and beef production, Globalization and Trade Liberalization have made consumers more conscious of quality and reliable supply of milk and milk products.

Guyana has always, because of its large available resources (land and capability) been considered to have the potential to contribute significantly to the sustenance of the region especially in terms of food security and is ideally located because of its proximity to the potential markets.

The time for farmers to take up these challenges is NOW! 🌟

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## EDITORIAL

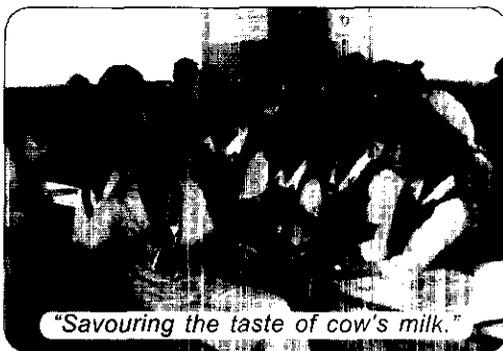
During the first quarter of 2003 the Guyana Dairy Development Project (GDDP) did stock taking in terms off its second year review. Part of its stock taking included a stakeholders meeting where it presented its achievements over the past year and plans for the final year of the three-year program. GDDP is a USAID-financed, Partners of Americas - CARESDA - implemented dairy development project that is national in scope. The goal of the project is to increase the nutritional level of the Guyanese children and population in general by improving dairy production. The main support to the development of the dairy/cattle industry has been in the areas: market promotion in terms of value-added products; technology transfer of appropriate dairy productin systems; and

institutional strengthening of farmers' organisation. One of the major achievements of the project was winning the first prize of the 2003 Caribbean Nutrition Promotion Awards Competition.

In pursuit of excellence, achieving close to ninety percent of the planned activities over the two year period, some of which are highlighted in this issue of "COWTALK." Of course, achievement depends on support. GDDP embarked on the

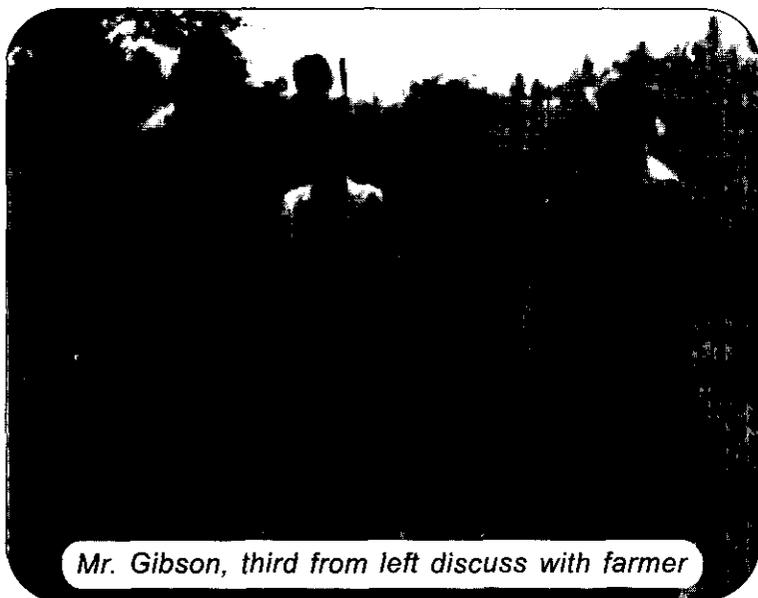
establishment of strategic alliance such as with the Ministry of Fisheries Crops and Livestock; National Dairy Development Program; Inter-American Institute of Co-operation on Agriculture; National Cattle Farmers' Association and affiliates; New Guyana Marketing Corporation; Linden Economic Advancement Project (LEAP) and others whom have all sanctioned the achievement.

"COWTALK" takes this opportunity of joining in the congratulatory greetings. "COW TALK" looks forward to the continued collaborative efforts among the stakeholders for the future improvement of this seemingly insignificant but vital component of the livestock sub-sector (dairy production and marketing).



### **IICA new Representative spends a day in the field**

Mr. Winston Gibson, the new IICA Representative to Guyana was on a dairy production familiarisation visit to farmers and other GDDP associated activities. Mr. Gibson a native of Trinidad and Tobago is very familiar with agriculture developmental activities. IICA has been a major GDDP collaborator from the inception of the project. Mr. Gibson expressed appreciation for the "day out" with the farmers and commended the farmers for their effort and looked forward to the continued collaborative efforts between GDDP and other stakeholders.



**Editors:** Kelvin Craig, GDDP,  
Meer Bacchus, NDDP &  
Bhopaul Singh, NCFA

**Design, Layout & Printed by:**  
PAVNIK PRESS, Georgetown, Guyana.

**"HAY SAVES THE DAY"**

It was during the extended dry period that Guyana just experienced, that farmers was put to the test for maintaining the nutritional levels of their animals. The traditional native roadside, abandoned rice and other grazing areas were without grass (forage), some improved pastures such as those with antelope grass were also affected. Conditions like these would result in farmers feeding above normal supplement feed such as rice bran, and wheat middling. Unfortunately these, too were scarce during the extended dry spell and also

result in farmers having to expend more for additional levels of feeding.

Three model farmers resorted to applying an appropriate feeding practice: that of making hay and feeding it to the animals during the long dry period. Forage conservation / preservation had not always been a practice at these farms. Hay was used to maintain the nutritional level of feed for the animals in their herds. In addition, it helped to maintain the supply of over 2000 pints of milk per month to the market.

What is hay? Hay is sun dried forage (grass and / or legume) without the loss of nutrients or loss of leaves from handling. In one of the two instances hay was soaked into molasses liquid before being offered to the animals. This practice improved the taste and intake.

Would you like to know more about hay? Please contact GDDP for learning more about hay and other appropriate production technologies.



*Bails of hay offered to animals can bridge deficiencies created by seasonal production of normal source of forage*

**DAIRY COW OF THE MONTH AWARDS FOR COWTALK**

**ISSUES OF JAN/MARCH 2003**

No.	Name	Address	Region	Age of Animal (yrs)	No. of Calvings	Daily Milk Production (pts)
1.	K. Shamlall	Bounty Hall	2	6	3	18
2.	Sewnarine	New Road	2	7	4	18
3.	N. Singh	Crane, W.C.D	3	6	5	21
4.	M. Zainul	De Groote, Uitvlugt, WCD	3	5	3	28
5.	S. Bactoo	Parika B/Dam, EBE	3	6	4	20
6.	Ramdai	La Union, WCD	3	10	8	22
7.	J. Puran	Mon Repos North	4	4	2	32
8.	K. Matadin	Lesbeholden North, BBP	6	5	2	24

## DAIRY PRODUCTS FOR YOUR HEALTH

A Daily Dose of Fermented Milk : Researchers from Finland report that fermented milk is high in bioactive peptides that could be used to lower blood pressure among people with hypertension. The Institute of Biomedicine at the University of Helsinki evaluated the long-term blood pressure of hypertensive patients and the lowering effect of milk fermented by *Lactobacillus helveticus*. They concluded that fermented milk does have blood

pressure-lowering effects in hypertensive subjects.

Source: Dairy Outlook Owner 31/01/03.

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Improvements made on farms	FARMS			
	1	2	3	4
Pasture	X		X	
Milking pen/machine	X	X		X
CMT*	X	X	X	X
Record system	X	X	X	X
Water	X	X	X	X
Average milk increase	4 pints to 11 pints			

\* California Mastitis Test

Published by: Guyana Dairy Development Project, 69 Sophia Backlands, Greater Georgetown  
 Funded by: United Agency for International Development (USAID)  
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# Keep your little ones satisfied with finger-licking dishes from fresh cow's milk

## Plantain and Black-eye Porridge

### Ingredients

- ½ cup Grated Green Plantain
  - 2 tbsps Sugar
  - 1 tsp Margarine
  - 2 cups Milk
  - ½ cup Black-eye Pulp
- (boil and pass through a sieve)*

### Method

1. Mix grated plantain and black-eye with a little milk to form a smooth paste.
2. Bring milk to the boil.
3. Stir black-eye and plantain mixture into the milk. Bring mixture to the boil.
4. Remove from heat and mix in sugar and margarine.
5. Serve in bowl with a spoon.



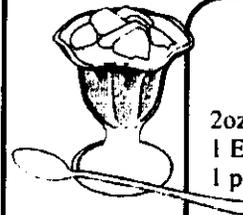
## Milky Rice and Cheese Loaf

### Ingredients

- 1 cup Rice
- 2 cups Water
- 1 ½ cups Milk
- ½ lb Grated Cheese
- 2 Eggs
- Finely Chopped Onion
- 2 tsp Finely
- Mustard to taste
- Chopped Seasoning
- Salt to taste

### Method

1. Cook the rice in boiling salted water until soft.
2. Heat the milk and stir in the cheese.
3. Cook slowly until the cheese melts. Add mustard.
4. Beat the eggs, adding seasoning and the milk-cheese mixture, as you heat.
5. Stir milk-cheese mixture into the rice and pour into a buttered loaf-tin.
6. Bake in a moderate oven for about 1 hour.
7. Serve with vegetables.



## Rice and Mango Pudding

### Ingredients

- 2ozs Rice
- Stewed Mangoes
- 1 Egg
- Pinch Salt
- 1 pint Milk
- 1oz Sugar

### Method

1. Wash rice and put in a saucepan with milk and a pinch of salt.  
*(Optional: Add a drop of food colour)*
2. Cook slowly until thick.
3. Let cool, then add sugar and beaten egg.
4. Mix well and pour into a buttered pyrex dish and bake until tender.
5. Arrange mangoes over rice mixture.
6. Serve hot or cold.



Prepared by:  
Guyana Dairy Development Project, Saint Stanislaus Training Centre Building  
69 Sophia Backlands, Sophia, Georgetown, Guyana. 592-222-2991 / 592-623-4263



National Dairy  
Development  
Programme



Partners  
of the  
Americas

*After  
6 months of Exclusive  
Breastfeeding ...  
What?*



**Don't worry! Continue breastfeeding ...  
But begin to introduce new foods enriched with  
fresh cow's milk**



## REQUIREMENTS

- Positive Identification - ID Card or Passport
- Land title document
- Receipt for rental and electricity
- Memoranda and articles of association
- Price quotation
- Valuation of Equipment and Machinery
- Registration, Permits and Licence
- Estimate of Work to be done
- Statement of Outstanding Liabilities
- Two (2) character references
- Police Clearance



## OUR LOAN PROCESS

1. Initial Interview
2. Supporting Documents
3. Application
4. Appraisal Visit
5. Appraisal Report
6. Loan Approval
7. Client Education and Equity Contribution
8. Disbursement
9. Monitoring and Training
10. Loan Repayment

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GDDP Credit Facility  
Lot 89 St Stanislaus College Farm  
Sophia Backlands,  
Greater Georgetown, Guyana  
Phone: 222-2991 Fax: 222-2991



# GDDP

## Credit Facility

FINANCIAL SOLUTIONS  
FOR THE DAIRY INDUSTRY



A  
USAID

Project

financed by

USAID





## THE ORGANISATION

Guyana Dairy Development Project (GDDP) is a United States Agency for International Development (USAID) financed, Partners of the Americas (POA) implemented dairy development project.

The Credit Facility is a small component of the GDDP operated as a micro-lending window. It is an integral component of the GDDP and will therefore be operated in conjunction with the Technical Transfer type activities being administered.

POA is a US-based private, non-profit, voluntary organization dedicated to promoting economic and social development while fostering inter-American friendship and cooperation.

The objective of the Credit Facility is to provide financial resources (Complimentary Funds), in the form of loans, to small business operators in the dairy industry.



## WHAT ARE WE LOOKING FOR?

### Eligible Project Activities

- Purchase of dairy production inputs, machinery and equipment;
- Construction and upgrading of milking and storage facilities;
- Pasture establishment and rehabilitation;
- Purchase of dairy cattle;
- Purchase of technical services.



## WHO CAN APPLY?

### Applicants must be:

- Located in the **Target Area** - Region 5, East of the Mahaica River and West of the Abary River;
- Dairy farmers within the target area;
- Cattle farmers associations and legally registered farmer groups within the target area;
- Intermediaries such as suppliers of veterinary services in the target area;
- Manufacturers, service providers and retailers of dairy products within the target area.



## OUR LOAN CHARACTERISTICS

### LOAN AMOUNT

- Individual maximum G\$200,000
- Group maximum G\$350,000

### LOAN CHARGES

- *Application Fee* 2%
- *Appraisal Fee* 3%
- *Interest Rate* 20%
- *Collateral Fee Charge* G\$2.00 and *Bill of Sale* G\$4.00 plus G\$1.20 per every G\$1,000.00.
- *Loan Penalty* 5%

### PROJECT FINANCING

- Client 20%
- GDDP 80%

## **SAINTS MASTER DOUBLE PORTABLE MILKING MACHINE**

The SAINTS MASTER is a milking machine that has been fabricated in Guyana for use by Guyanese dairy farmers. It is tough and rugged enough for local conditions but it has all of the sophistications of equivalent milking machine that were imported in the past. A SAINTSMASTER has been in use at the Saints Stanislaus College Farm for almost a year.

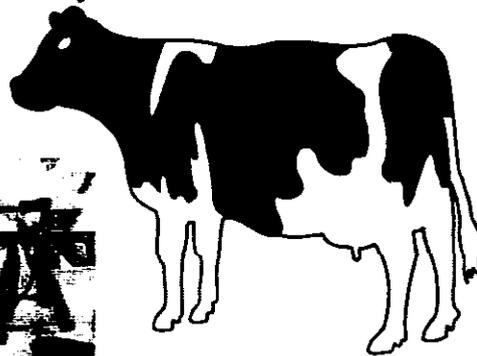
### **Characteristics of the SAINTS MASTER**

This machine milks up to 20 cows per hour  
Milk two cows at a time  
The speed is 64 pulses per minute  
The machine can work with either electrical or gasoline motor.  
Gasoline motor 3HP, 3500 RPM  
Electrical motor - 110-220 volt 1725 RPM



### **Advantages of the SAINTS MASTER**

Simple to operate  
Easy to clean  
Easy to maintain  
Spares and replacement parts are readily available  
Reasonably priced  
Price G\$280,000  
Guaranteed for six months



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# **Partners of the Americas**

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## ***Guyana Dairy Development Project Credit Facility***

### **Operations Manual**

*May 2002*

Guyana Dairy Development Project Credit Facility

# Operations Manual

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# 1. BACKGROUND AND INTRODUCTION

## 1.1 OBJECTIVES OF PARTNERS OF THE AMERICAS

Partners of the Americas (Partners) is a US-based private, non-profit, voluntary organization dedicated to promoting economic and social development while fostering inter-American friendship and cooperation. Founded in 1964 Partners is the largest private voluntary organization in the Western Hemisphere engaged in international co-operation and training. Partners supports and implements a variety of projects that are as diverse as the people and countries that comprise the organization. However, throughout this diverse network there are four common themes or objectives known as Partners' Core Competencies. They are:

- Promoting citizen participation
- Mobilizing hemispheric collaboration
- Training community leaders
- Strengthening local NGOs

## 1.2 A MICRO-ENTERPRISE LENDING PROGRAMME

Partners organisation is well suited to develop a successful Micro-enterprise Lending Program (MLP) and become a strong player in this field. Its track of successful implementation of new programmes, coupled with its network of volunteers, makes the consideration of embarking in MLP not only a reasonable business decision but also a timely opportunity for diversification.

Obviously, careful planning and commitment will be required in order to successfully compete in this arena. At this juncture, Partners does not have significant experience in MLPs. While lack of experience represents a limitation and an additional challenge, obstacles could be minimised by

collaboration with more experienced organisations and by the accessibility to vast information and training available. So far, Partners has not seriously considered MLP as an opportunity. However, MLPs represent an opportunity for Partners to develop a new core competence, just like its traditional ones.

During the proposal development stages of our dairy programme in Guyana, Partners took the initiative to include a credit component. Partners is now developing a (60k) MLP in Guyana that not only meets programme expectations but will also serve as a model for replication. Partners CAC programme may also bring a similar opportunity.

The advantages of involvement in the MLP are clear and overwhelming. Following are some initial thoughts supporting the idea of giving MLP a higher institutional priority:

- Micro-enterprise including micro lending seems to be a priority of many donors;
- MLP responds to increasing economic needs of people in the developing world, particularly the Latin American Countries;
- MLP is consistent with our mission and may be a natural complement to our programmes;
- It offers the opportunity to develop a new core competency for Partners;
- It provides an opportunity to develop sustainable programs;
- MLP is ideal for chapter inclusion;
- The existing Dairy and CAC programmes offer a timely opportunity to develop a model for replicating MPL programmes elsewhere.

### 1.3 GENERAL OBJECTIVES OF THE GDDP

In an attempt to address the needs of small cattle farmers in Guyana Partners is currently implementing a United States Agency for International Development (USAID) funded project called the Guyana Dairy Development Project (GDDP). The project is aimed at addressing the needs and promoting the economic development of the local dairy industry. The principal objectives of the GDDP are to:

- Strengthen the institutions and organizations directly involved in the production, processing and distribution of milk;
- Improve the quality, variety and accessibility of dairy products to consumers;
- Improve children's nutrition by increasing their consumption of dairy products; and
- Increase the capacity of local institutions and organisations to address challenges of the dairy sector in the future.

A small component of the GDDP is a Micro-enterprise lending program referred to as the Credit Facility.

### 1.4 THE CREDIT FACILITY

The main objective of the Credit Facility is to provide financial resources, in the form of loans, to small business operators (producers, processors etc.) in the dairy industry. Utilisation of resources will be consistent with programme objectives, taking into consideration clients' needs, risk factors, and recovery of costs and preservation of the fund. Loans will be available to individuals and groups for the acquisition of inputs that are critical to the production, manufacturing, marketing or distribution process.

An essential objective of the credit facility is the development of the programme as a model to be duplicated by Partners and allow for capacity building of its field and head quarters staff as well as chapters' members.

The Credit Facility is an integral component of the GDDP and will therefore be operated in conjunction with the Technology Transfer type activities already being administered by the GDDP. It is envisaged that the fund will assist farmers to better implement recommendations that would ultimately lead to farm improvement techniques or better market access.

The "seed" capital that was donated by USAID and available for lending is US\$60,000. It is considered an initial fund to be managed as a revolving loan facility that will be increased and complimented by other sources of funding.

#### 1.5 PROMOTION OF CREDIT FACILITY

The Credit Facility will be promoted through:

- Outreach meetings with members of the National Cattle Farmers Association (NCFA); Regional Cattle Farmers Associations (RCFAs); and respective District Cattle Farmers Associations (DCFAs); the Project Director and NDDP Field Staff. Farmers will be briefed on the Credit Facility with specific reference to the eligibility criteria; the collateral requirements; the possible duration of loans and access to funds.
- Brochures and other appropriate forms of promotional material. These will be used to sensitise the dairy industry of the Credit Facility.

- The initial launching of the Credit Facility will be low keyed. The emphasis is getting information about the programme directly to farmers and other operators in the target area.

## 1.6 REPORT FORMAT

This Manual is divided into seven (7) sequential chapters so that the flow of activities of the Credit Facility may be easily followed. This opening chapter serves as an Introduction and Background to the Credit Facility. Most important it establishes the needs and objectives of the Credit Facility.

Chapter 2 covers the aspect of project identification. In so doing it defines some key terms, and identifies who can apply for funding, what projects are eligible and what projects are ineligible.

Chapter 3 deals with the loan characteristics and the procedure leading up to the taking of the loan application. Under loan characteristics the Manual examines the loan size, duration, charges, and collateral security. The pre-application procedure covers the requirements of the initial interview and supporting documentation.

In chapter 4 the application and appraisal procedure is examined. In addition to looking at the procedure or steps to be followed it identifies who is responsible for each aspect of the operation.

Chapter 5 outlines the project implementation and supervision procedure and like chapter 4 identifies where the responsibility falls.

Chapters 6 and 7 examine the administrative aspects of the Credit Facility. Specifically, chapter 6 examines the accounting, collection arrears and loan management systems. The Operations Manual is concluded with chapter 7 examining the organisational structure and training requirements of the credit Facility. It is followed by the table of appendices, which list the relevant forms as identified in the body of the manual.

## 2. IDENTIFICATION OF ACTIVITIES FOR FUNDING

### 2.1 PROJECT IDENTIFICATION

The initial contact for project identification would be made through contact with NDDP Field Staff or through contact with GDDP's Credit Facility personnel.

The NDDP Field Staff can identify projects for funding based on their knowledge of the Credit Facility's aims and objectives; suitability of the area for the proposed projects as well as their knowledge of the prospective client(s) operations. Individual dairy farmers and other dairy operators as well as associations and groups may also identify projects for financing based on their expertise and experience in the proposed project and its suitability for the area.

Finally, Credit Facility personnel may also identify projects for financing in consideration of its principles and objectives and those of Partners and the GDDP.

### 2.2 DEFINITION OF TERMS

#### *Project*

A project refers to any dairy related activity that qualifies for funding under the Credit Facility regulations. The project may involve:

- Improving and expanding dairy facilities for the production of dairy goods and services (possibly by the introduction of new technology).
- Expanding an existing concern e.g. pasture and milking herd.
- The purchase of a capital item such as a milking machine.

### 2.3 DEFINITION OF TARGET AREA

The initial target area for disbursement of the Credit Facility is the Region 5 area, East of the Mahaica River and West of the Abary River. This would eventually extend eastwards to the Berbice River and westwards to encompass Region 4. Further selection of geographic areas for disbursement will be the responsibility of the Loan Review Committee (see page 32). It is projected that approximately 80% of the total loan budget will be disbursed to farmers in this area.

### 2.4 WHO CAN APPLY

- Dairy farmers within the target area.
- Cattle farmers associations and legally registered farmer groups within the target area.
- Intermediaries such as suppliers of veterinary services, manufacturers and retailers functioning within the dairy industry and serving farmers within the target area and known to the NDDP Field Staff.

### 2.5 ELIGIBLE PROJECT ACTIVITIES

Dairy related activities eligible for financing by the Credit Facility include:

- a. Purchase of dairy production inputs e.g. veterinary drugs, pesticides insecticides, weedicides, and fertilisers;
- b. Purchase of machinery and equipment such as storage equipment, feed and silage equipment, milking machines, packaging equipment, farm tools and milk processing equipment / machines;

- c. Purchase of a vehicle where the design and main purpose is to transport milk and related dairy products;
- d. Construction and upgrading of milking and storage facilities;
- e. Pasture establishment and rehabilitation;
- f. Purchase of approved dairy cattle that benefit the production of milk;
- g. The financing of promotional cost for marketing dairy products; and
- h. The purchase of technical services including artificial insemination and veterinary services.

***All projects to be financed must, where applicable, adhere to the hygienic and operational standards and practices recommended by the Milk Plant Guidelines.***

## 2.6 INELIGIBLE PROJECT ACTIVITIES

The following activities and items are ineligible for financing:

- a. Land purchase;
- b. Breeding stock not approved by the NDDP and the GDDP;
- c. Purchase of vehicles not approved (e.g. large trucks);
- d. The purchase of stock other than cattle;
- e. Home improvement and the purchase of personal items;
- f. Payment of taxes, rents, leases, insurance and the re-financing of loans to other institutions;
- g. Purchase of bonds or any other type of financial investment; and
- h. Activities that are not commercially oriented i.e. they do not contribute to marketing or bring a dairy product to the market.

### 3. LOAN CHARACTERISTICS & PRE-APPLICATION PROCEDURE

#### 3.1 LOAN CHARACTERISTICS

##### 3.11 LOAN SIZE

The Credit Facility will not provide 100% financing for projects. All loans will represent up to a maximum of 80% of the total cost of the project. Clients are required to make a cash contribution of 20% of the total project cost. Where second hand machinery and equipment are to be financed the client will contribute 40% of the total project cost. The client's cash contribution must be paid into the Partners – GDDP Credit Facility bank account at the Bank of Nova Scotia. The client's contribution will be disbursed with the loan at the time of disbursement to meet the total project cost. The Credit Facility will provide loans as follows:

- First time individual loan – G\$100,000 maximum.
- Subsequent individual loan – G\$200,000 maximum.
- First time group loan - G\$200,000 maximum.
- Subsequent group loan - G\$350,000 Maximum.

##### 3.12 THE LOAN DURATION

The loan life will be up to a maximum of 18 months. The instalment amount and loan life will be determined at the time of appraisal. Given that existing businesses are being financed no grace period will be allowed. Repayment will commence one month after first disbursement and the repayment mode will be monthly. Thus the repayment period is equal to the loan life/duration.

### 3.13 LOAN CHARGES

- a. *Application Fee* -2% of the loan amount is non-refundable and payable on signing the loan application form.
- b. *Appraisal Fee* - 3% of the loan amount. This fee will form part of the total loan amount and will be deducted before disbursement. The appraisal fee will be revised by the GDDP after six months of project implementation.
- c. *Interest Rate* – 20% per annum.
- d. *Collateral Security Fee* – Charge G\$2.00 and Bill of Sale G\$4.00 plus G\$1.20 per every G\$1,000.00.
- e. *Loan Penalty* – 5% on the arrears balance.

### 3.14 METHOD OF INTEREST CALCULATION

Interest will be computed using the straight-line method at 20% per annum. Consider the example below:

A loan amount of \$150,000 at an interest rate of 20% monthly to be repaid by 12 equal monthly instalments commencing one month after first disbursement.

Loan Amount \* Interest Rate = Loan Interest

$$\$150,000 * 0.20 = \$30,000$$

(Loan Amount + Loan Interest) / No. of Repayments = Monthly Instalment Amount

$$(\$150,000 + \$30,000) / 12 = \$15,000$$

### 3.15 LOAN SECURITY

The required security ratio is 2:1 in favour of the Credit Facility. Each loan recipient will be required to sign a Promissory Note /Lien on assets authorising Partners / GDDP to recover outstanding sums in cases of default. Where the loan has been utilised to purchase machinery, equipment or cattle, a Bill of Sale or Charge will be established on the asset in favour of the Credit Facility.

## 3.2 PRE – APPLICATION PROCEDURE

### 3.21 INITIAL INTERVIEW

The objective of the **Initial Interview** (Appendix 2) is to determine whether or not the proposed project activity is eligible for financing by the Credit Facility. This interview may be conducted either by the NDDP Field Staff or the Credit Officer.

If the project proposed is eligible for consideration, the prospect is given the **Supporting Document Check List** (Appendix 3). It outlines the supporting documents required before the application can be taken. If the proposal were not eligible for consideration the potential client would be advised to suggest an alternative project.

### 3.22 SUPPORTING DOCUMENTS

The following list of supporting documents would be requested based on the type of project:

- a. Positive Identification - Current National Identification Card or Passport;
- b. Land Title document - Government lease, Certificate of Title, Transport for Property;

- c.* Agreement of Sale - Required where the applicant intends to purchase machinery, equipment, materials or other property;
- d.* Receipt for rental and rates - To help establish ownership and to show payment of expenses such as land and property/housing rent;
- e.* Memoranda and Articles of Association - Applicable to associations and companies;
- f.* Certificate of Registration - Applicable to co-operatives, associations and companies;
- g.* Price Quotation - Required where veterinary drugs and other supplies including tools, machinery and equipment are to be purchased;
- h.* Evaluation of Equipment and Machinery - An official evaluation is required where second-hand machinery and equipment are to be purchased;
- i.* Permits and Licence – A permit from the Public Health Inspector, the Food and Drug Analyst Department and other related government agencies might be necessary to allow for the conduct of business;
- j.* Permit to Import – Required for the importation of some goods, machinery and equipment;
- k.* Estimate of Work to be done - Essential in arriving at the total project cost and client/ GDDP – Credit Facility contribution;
- l.* Statement of Outstanding Liabilities - Official letter from banks and other financial institutions indicating outstanding debt;
- m.* Evidence of available funds to meet project contribution and application fee. Bank statements and passbooks are relevant documents; and
- n.* Application Fee - The applicant is required to pay an application fee of 2% of the loan amount for each application made.

## 4. APPLICATION & APPRAISAL PROCEDURE

### 4.1 APPLICATION PROCEDURE

The loan application is taken once the project has been clearly defined, the activities or items deemed eligible for financing, and the applicant has met all the other preconditions. NDDP Field Staff are not authorised to take the loan application or to collect loan application fees.

*The GDDP Credit Officer and NDDP Field Staff must adhere to the following:*

- a. The applicant must satisfy the criteria set out at the initial interview before the application is taken. Further, all supporting documents must be submitted prior to taking the application;
- b. The Credit Officer takes the application only when all the supporting documents have been submitted and verified correct. The Credit Officer may take the application in the office or in the fields;
- c. The Credit Officer is responsible for taking the loan application and collecting the application fee. On collecting the application fee a receipt must be immediately issued and the receipt number and value quoted on the **Application and Appraisal Report (Appendix 4)**;
- d. On taking the application the potential client must be informed of the date when the appraisal visit will be made. The proposed date of appraisal visit must be recorded on the application form; and
- e. Where applications are made for group loans all group members must sign and the group must take part in the GDDP Capacity Building Programme.

## 4.2 PROJECT APPRAISAL PROCEDURE

In order for the appraisal visit to be effective and efficient some preparatory work would be necessary. It would involve information gathering on the following subject areas:

- The major agricultural activity within the area;
- The farming, farm management practices, and the marketing situation within the area;
- The technical and other coefficients of the proposed project;
- Credit enquires on the clients to be visited;
- Verification of all sources of income of the client.

Once the appraisal visit has been completed the Credit Officer must complete the project write-up, which is the **Application and Appraisal Report (Appendix 4)**, for submission to the NPC. The report must be completed with the officer's recommendation and supporting arguments for approval or rejection. When preparing the Appraisal Report, information on the following subject areas is important:

- a. Marketing, availability of markets, market contracts, and marketing agencies;
- b. Storage and processing of products;
- c. Product transportation;
- d. Product pricing;
- e. Product quality and grades;
- f. Technology in use and available;
- g. Suitability of project location;
- h. Infrastructure and physical condition of land, utilities, and buildings;
- i. Ingress and egress;

- j.* Availability of inputs and skilled labour;
- k.* Timing of project;
- l.* Technical and financial coefficients;
- m.* Project capability;
- n.* Management experience, ability, credit rating and progress (growth) over the years; and
- o.* Financial aspects including balance sheet, project income and expenditure, cash flow, and total project cost.

#### 4.3 PROJECT APPROVAL/ REJECTION

All applications taken by the Credit Officer must be submitted immediately upon completion to the NPC for final appraisal. The completed Project Application and Appraisal Report has now been submitted to the NPC. At this stage the NPC and the Loan Review Committee (LRC) have the responsibility for approving or rejecting an application based on the completed appraisal report, supporting documents, and evaluation criteria.

## 5. PROJECT IMPLEMENTATION AND SUPERVISION

### 5.1 PROJECT IMPLEMENTATION

#### 5.11 LOAN APPROVAL

After approval the applicant will be notified of the decision of the LRC in writing through the **Loan Approval Letter (Appendix 6)** and advised on loan disbursement. If the project is approved its implementation stage commences at this point. The Credit Officer will explain in detail to the new client the Loan Offer Package referred to as the **Loan Agreement (Appendix 7)** and all the pre-requisites before disbursement. This should include the following:

- a. The type and nature of activity to be pursued;
- b. Loan amount, interest rate, repayment plan, loan duration, and the security to be offered;
- c. The client contribution amount and procedure for it's deposit;
- d. Conditions for loan including penalties for misuse;
- e. The disbursement schedule;
- f. Instructions to the client on the need to consult with the Credit Officer if he/she plans to implement any major changes to the planned project; and
- g. In the case where contractual agreements (markets, suppliers, etc.) exist in the project plan, these arrangements should be fully discussed / explained to the new client.

#### 5.12 LOAN DISBURSEMENT PROCEDURES

Disbursement of funds must be made only: after the loan agreement is executed, the security is created and the prospective client has established his/her full cash contribution to the project. The *Financing Plan* must be closely related to the *Implementation Plan* with disbursements

being made in tranches as far as possible. Whenever possible, disbursement should be made to suppliers, contractors, etc. directly. Second and subsequent disbursements must be made only after the Credit Officer has verified the proper utilisation of the earlier disbursement.

The financing plan must be so designed that the earlier disbursements, especially in the implementation phase, are met by the contribution of the clients.

## 5.2 PROJECT SUPERVISION

### 5.2.1 REASONS FOR POST-APPROVAL SUPERVISION

The Credit Facility is offering *Supervised Credit*, that is, the loans must always be carefully monitored in the field. It is essential that loans be supervised if proper action is to be taken whenever the situation warrants. Analysis and review of the activity of projects are also necessary. This should involve an intensive investigation/examination of the projects, especially during the implementation phase, and should be carried out at periodic intervals.

*Supervision* is essential if repayments are to be ensured and if the objectives of the project are to be achieved, both on the part of the client and on the part of the Credit Facility. It is therefore, necessary for the Credit Officer to ensure that the loan is applied properly and thoroughly for what it was intended. This can only be done by spot check visits in the field, not only during the implementation phase, but after the project would have come on stream, that is, at all stages of the project.

The *supervision report* should relate actual performance to projected performance in terms of physical output, revenues, and expenditures. It should involve an assessment of the extent to

which the approved development plan of the project is being carried out. It should also determine whether the objectives of the project are being achieved, and variations should be accounted for. Much expense in supervision can be saved if the applicant for a loan is properly investigated, if the loan is properly made in the first instance, and if the terms are explained to the extent that there will be little likelihood of misunderstanding on the part of the client.

#### 5.22 PROJECT SUPERVISION PROCEDURE

- a. Post – approval supervision is divided in two phases, the implementation supervision phase (Appendix 9) and the ongoing supervision phase (Appendix 10).
- b. The Credit Officer and NDDP Field Staff will closely supervise all loans. Fortnightly visits will be scheduled for projects in their implementation stage and monthly visits for ongoing projects.
- c. The Credit Officer and NDDP Field Staff are expected to verify the use of funds and report on project progress. Supervision reports will be made on the prescribed forms provided and must be filed within seven days after the field visits.
- d. In the case where disbursements are made in tranches, a supervision report must be submitted before a subsequent disbursement.
- e. The Credit Officer is expected to prepare a weekly plan for supervision visits and coordinate the visits of the NDDP Field Staff.
- f. Special supervision visits should be organised for troubled projects when they do not fit into the regular schedule. However, supervision visits should be planned and organised as far as possible within the planned schedule and incorporate appraisal visits. This will help control transportation cost.

### 5.23 OBJECTIVES OF POST – APPROVAL SUPERVISION

The objectives of post – approval supervision can be listed as follows:

- a. To monitor the progress of the project to ascertain whether the project is implemented according to the time and cost schedules originally envisaged;
- b. To take timely decisions on financing over-runs after a proper analysis of the cause of the over-runs;
- c. To ensure repayment of the loan in accordance with the repayment schedule; and
- d. To identify problems encountered or to be encountered by a project so that remedial measures can be taken.

## 6. MANAGEMENT OF THE LOAN PORTFOLIO

The Credit Officer is responsible for the design, data input and management of the loans portfolio and database.

### 6.1 THE ACCOUNTING SYSTEM

The loans portfolio will be computerised to allow for accuracy and efficiency when compiling and presenting information. Ideally a multi – user, multi – currency accounting and management information system with credit management capability is proposed. The system must be designed to run on any standard Personal Computer, simple to use, and include all the necessary features.

The system should include the following features and reports:

- a.* Maintain a loans database;
- b.* Calculate loan repayment schedule;
- c.* Produce cross-tabular and graphical analysis;
- d.* Process loan repayment;
- e.* Reschedule loans and interest rate changes;
- f.* Produce loan statements and repayment schedules;
- g.* Print past due and master list report;
- h.* Produce monthly cashflow report and age analysis; and
- i.* Produce portfolio cashflow forecast.

## 6.2 Loan Collection

When a loan application is appraised a repayment schedule is formulated based on projected income to be generated (this can be seen on the Cash Flow Projections in Appendix 5). The client, who should be made aware of the repayment schedule, is expected to make such repayments on or before the scheduled dates. If payments are not met on time, the loan goes into arrears and steps must be taken to remedy this situation.

All repayments are to be made to the Bank of Nova Scotia to a designated revolving loan account in the name of Partners – GDDP Credit Facility. The Bank will provide weekly statements on loan repayments and the Credit Officer will input and update the individual client records and the loans portfolio database.

In cases of default, the following procedure will prevail:

- **Arrears Visit.** This visit should be conducted within the first week of default to discuss reasons for default and how the Credit Facility may help
- **First Notice.** The client will receive written notification fourteen days after the due date of the loan instalment if discussions at the arrears visit was not productive. At this time the client will also be called in to the GDDP office for discussion on the project (see Appendix 12).
- **Second Notice.** This letter is sent twenty-one (21) days after the due date if there is no **adequate response** to the first letter. It demands payment of the arrears balance and warns the client of pending legal action for non-payment (see Appendix 13).

- **Third Notice.** This letter is sent thirty days after the due date if there is no adequate response to the first and second notices. It demands payment of the areas balance immediately, failing which the loan will be recalled in full (see Appendix 14).
- **Loan Recall.** If there is no positive response from the previous notices here the loan is recalled in full and the client has 14 days to settle the total outstanding balance. The LRC through the NPC will be notified of the situation and asked for their recommendations for legal action.

**Adequate response** means that justification has been given by the client for the arrears position and the excuse has been accepted by the Credit Officer as reason for reschedule or to wait on payment (see 6.5 Refinancing & Rescheduling).

### 6.3 RECOVERY OF EQUIPMENT

Once the loan has been recalled the Bill of Sale and Charge on any equipment purchased with the loan funds should be affected. If the decision is to recover equipment then the recovery should if possible be effected with the clients permission and should be carried out quickly and efficiently. If the client does not give permission and there are problems legal advice will be sought.

When recovering equipment it must be considered whether the equipment can be sold and at what price. Also, given the cost of recovery, including labour and transportation, is recovery worthwhile?

Recovering equipment could have a negative impact on the image of the Credit Facility, damaging community support. This would be especially true in cases where business failure was not the fault of the client. In some cases it would be better to write-off the loan.

#### 6.4 ARREARS AND WRITE OFFS

Loan repayments are said to be in arrears when one or more scheduled repayments have not been made to the loan account of the borrower. Loans 120 days or more in arrears will be written off the active loans portfolio. However, such loans will still be pursued for collection and repayment in full.

#### 6.5 REFINANCING & RESCHEDULING

Refinancing refers to a situation where there is a repayment of a loan to a creditor by borrowing the money from another or the same creditor. Rescheduling refers to a change in the time schedule (increase or decrease the loan period) of the loan repayment plan.

The Credit Officer may recommend that the outstanding loan be increased and refinanced, or rescheduled if it can be shown that this will enhance the chances of the project succeeding. In refinancing and rescheduling a loan, a reappraisal has to be done with consideration being given to all the aspects to which attention was paid when the loan was first appraised. Where the situation involves a refinance the client is required to pay application and appraisal fees on the increased loan amount.

## 6.6 LEGAL ACTION

Legal action implies the taking of the necessary legal steps consistent with the terms of the loan agreement to recover sums lent to the borrower who had been delinquent in one way or another.

The Credit Officer may recommend legal action if any one of the following situations occurs:

- a. The client has used finances for some purpose other than the project;
- b. The client has, without the approval of Credit Facility, disposed of assets that have been pledged as security;
- c. The project is generating returns but the borrower is unwilling to pay;
- d. The project has gone 'sour': a project is considered as being 'sour' when it is no longer operational, or when it is operating far below its projected capacity; and
- e. The loan is more than 60 days in arrears.

Recommendations for legal action must be submitted to the Loan Review Committee through the NPC for approval and should include the following:

- Justification for legal action;
- Condition and location of all assets offered as security; and
- Specifications of the type of legal action being recommended.

## 7. MANAGEMENT, ORGANIZATION & TRAINING

The Guyana Dairy Development Project Credit Facility is a component of the GDDP, which is being executed by Partners. Partners make all policy guidelines and decisions and the Chief Finance Officer (CFO) of Partners is responsible for implementation. The NPC will have day to day responsible for administering the fund. The Credit Facility will have a Loan Review Committee (LRC) functioning similar to a Board of Directors.

The Credit Facility will have a six (6) months first phase at the end of which its operations will be evaluated. Special attention will be paid to the application fee and other loan charges. A review of loan charges can result in either an increase or decrease. The CFO of Partners will appoint an appropriate independent professional for the evaluation exercise. The time period of the Credit Facility is February 2001 – February 2004.

### 7.1 INTERNATIONAL

Partners of the Americas, Head Quarters, Washington has overall management responsibility for the GDDP Credit Facility. The responsible officer out of Washington office is the Grant Manager, Chief Finance Officer. The following management responsibilities apply:

- Contractual obligation as indicated in the USAID-Partners agreement
- Programme design, monitoring, policies, results and reporting to donor.
- Compliance with donor requirements and regulations.
- Support of field programme, staff supervision and programme monitoring
- Financial management

## 7.2 LOCAL – GUYANA

The Credit Facility is being operated as a component of the GDDP. NDDP is providing technical support in the fields for loan interview and supervision. The local office is managed by the NPC who has responsibility for oversight and policy-enforcing functions. The local office is responsible for:

- Implementation of the Credit Facility;
- Day-today operations;
- Supervision of Credit facility staff;
- Reporting to Partners head quarters, Washington;
- Financial control;
- Maintaining financial/accounting systems related to the Credit Facility;
- Compliance with policies and regulations;
- Programme outreach and education of clients;
- Lending decisions through the LRC;
- Other responsibilities as indicated in Credit facility Operations Manual.

## 7.3 LOAN REVIEW COMMITTEE

The LRC will be established to advise on Policy and to periodically review the Progress of the Credit Facility. The LRC will not identifying priority areas for financing but focus on creating a balance in all the approved areas in the dairy industry.

The LRC is also responsible for the final assessment of loan applications. A majority vote by the committee shall reject or approve an application presented by the Credit Officer. The Chief Finance Officer of Partners must approve the LRC. The Committee's Mandate will also include:

- a. The review of loan applications where necessary.
- b. Recommendations for any modifications/adjustments to the credit operations
- c. Decisions on Legal Action

The committee should meet at least once monthly depending on the needs. It is recommended that the LRC comprise the following members:

- Dr Hector Munoz, Project Director.
- Mr Kelvin Craig, National Project Coordinator
- Mr Roy Samaroo, Financial Advisor
- Mr Bernard Carter, Chairman of the Agriculture Committee, Partners of the Americas – Guyana Mississippi Chapter

#### 7.4 NATIONAL PROJECT COORDINATOR

The NPC is responsible for overall management of the Credit Facility and is responsible to the Chief Finance Officer. The NPC is responsible for coordinating all activities of the Credit Facility with Partners in Washington. Other functions include facilitating the administration of the Credit Facility and acting as liaison with the local USAID office.

## 7.5 CREDIT OFFICER

The Credit Officer will be responsible to the NPC for the day-to-day operational aspects of the Credit Facility. The Credit Officer's responsibilities include all those activities involving operations, administration, and accounting for the Credit Facility. However the main function and thrust of the Credit Officer would be those activities related to the management of the loans portfolio.

## 7.6 TRAINING

As part of the implementation program all personnel involved in the work of the Credit Facility will be trained in their various aspects of involvement. The personnel involved are:

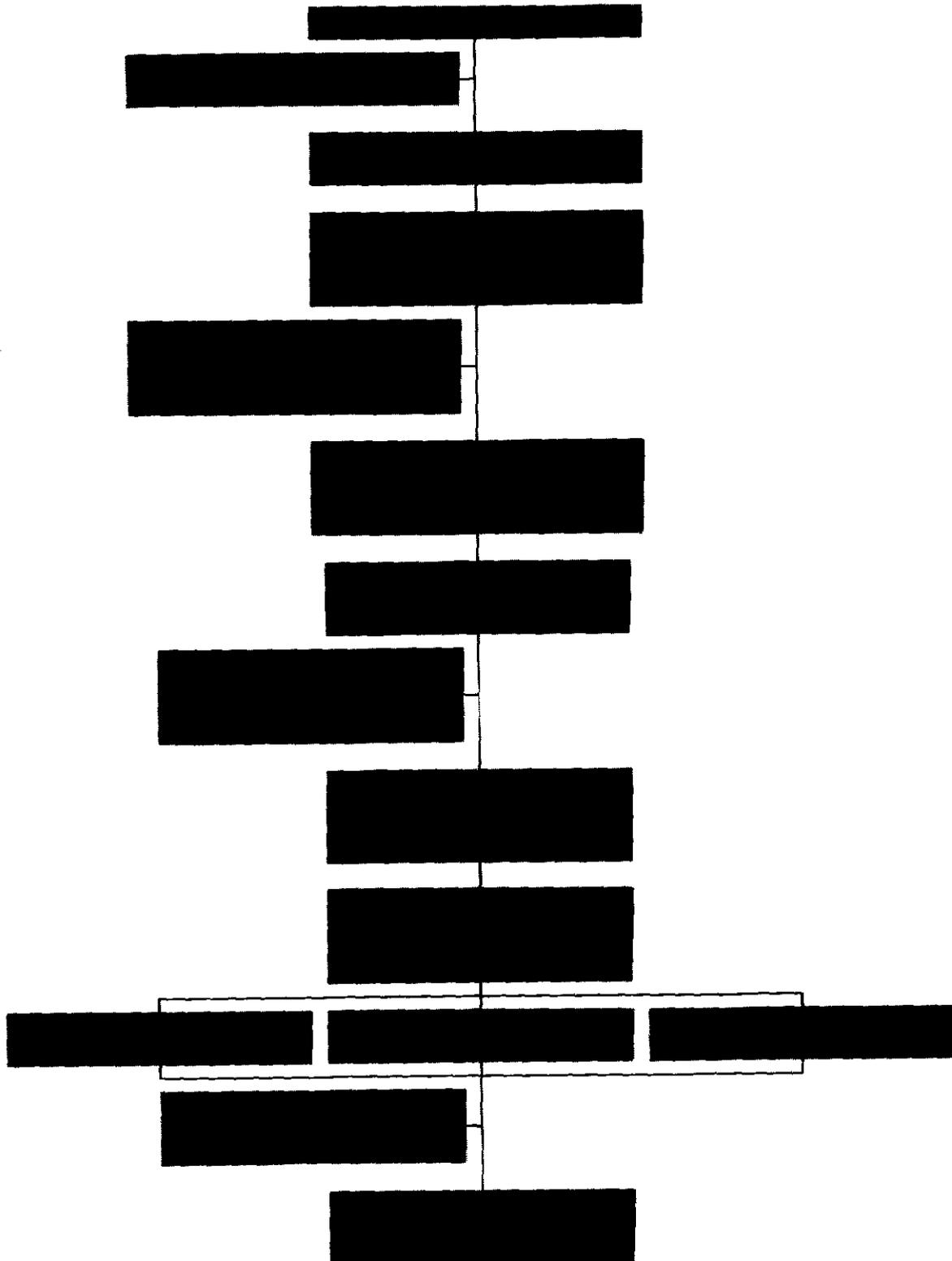
- The NPC;
- The LRC;
- The Credit Officer; and
- The NDDP Field Staff.

During the ongoing phase training will focus on clients and operations personnel (NDDP Field Staff and GDDP Credit Staff). Client training will focus mainly on basic record keeping and incorporate various aspects of entrepreneurship as needs are identified over time. NDDP Field Staff will receive training to help them better perform their duties in relation to the Credit Facility clients. Their training will focus on conducting initial interviews, the application process and project supervision. Training for the credit staff will focus on developing micro – credit and leadership skills.

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# CREDIT WORK FLOW



**Partners of the Americas – GDDP Credit Facility**

**Initial Interview – Form 1**

Interview No.: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Proposed Activity: \_\_\_\_\_

Project Description: \_\_\_\_\_

Project Location: \_\_\_\_\_

Loan Request: G\$ \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
**NDDP Field Staff Signature**

Credit Officer's Comments: \_\_\_\_\_

**Recommendation:**

**Tick**

Proposed project <b>eligible</b>	Supporting documents requested	
Proposed project <b>ineligible</b>	Proposal rejected	

\_\_\_\_\_  
**Credit Officer's Signature**

## Partners of the Americas – GDDP Credit Facility

### Supporting Documents Checklist – Form 2

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Proposed Activity: \_\_\_\_\_

Financing: Applicant's equity contribution (20% minimum) - \$ \_\_\_\_\_

POA – GDDP Credit Facility contribution (80% maximum) - \$ \_\_\_\_\_

Total Project Cost \_\_\_\_\_

The documents marked below, has been requested to give full consideration to the application.

All documents should be supplied in block at the earliest convenient time.

List	Date Received
Positive Identification – National ID card or Passport	
Lease, Transport and Land Title Documents	
Agreement of Sale	
Receipts for rent and rate payments	
Certificate of Registration, and Memoranda and Articles of Association	
Price Quotation and Invoice	
Evaluation of Equipment and Machinery to be purchased	
Permission from the Public Health Department, Local Authority, and Food and Drug Analyst Department	
Permits and License for import	
Estimate of work to be done	
Statement of Outstanding Liability and Assets	
Statement of Current (past 3 months) and Projected Income and Expenses	
Police Clearance – not older than one month	
Two character references	
Security to be Offered	
Evidence of Available Funds	
Application Fee and Processing charges	

**Partners of the Americas – GDDP Credit Facility**

**Supporting Documents Checklist – Form 2**


To be done in duplicate, one copy for prospect, the other for file. Any other material needed by the Credit Facility to complete its study of the financing proposal will be requested promptly. If any clarification is required, please contact the Credit Officer. Date documents submitted.

**Credit Officer's Signature:** \_\_\_\_\_

**Partners of the Americas – GDDP Credit Facility**

**Application & Appraisal Report – Form 3**

Application Fee: \_\_\_\_\_

Receipt No.: \_\_\_\_\_ Dated \_\_\_\_\_

**A. BRIEF BACKGROUND OF APPLICANT**

1. Name: \_\_\_\_\_

2. Address: \_\_\_\_\_

3. Project Location: \_\_\_\_\_

4. Date of Birth: \_\_\_\_\_ ID No.: \_\_\_\_\_ Marital Status: \_\_\_\_\_  
 DD. MM. YYYY.

No. of Dependents: \_\_\_\_\_

5.

Education Level	Yes	No
Primary		
Secondary		
Post Secondary		

Sex	
Male	
Female	

Brief Comments on Education Level: \_\_\_\_\_

6. No. of Years Experience as Dairy Farmer: Employed \_\_\_\_\_

Owner Operator \_\_\_\_\_

Brief Comments on Dairy Experience: \_\_\_\_\_

7. Other Work Experience: Is applicant presently employed fulltime or part time away from the proposed project? Yes \_\_\_ No \_\_\_. If yes, state name and address of employer and position held: \_\_\_\_\_

Brief Comments on Past Employment: \_\_\_\_\_

**B. PRESENT SITUATION**

1. Type of Business: \_\_\_\_\_

2. Current Heard Size:

Type	No.	Age

3. No. of Acres Pasture Under Cultivation: \_\_\_\_\_

4. Other Grazing Arrangements: \_\_\_\_\_

5. Crops Cultivated:

Type	Acreage	Age	Projected Harvesting Time

6. Is a Record Keeping System in Place? Yes \_\_\_ No \_\_\_ Comment Briefly: \_\_\_\_\_

7. Is the project under consideration applicant's principal source of income? Yes \_\_\_ No \_\_\_  
If no, state other sources of income.

Type or source	Monthly earnings	Monthly Expenditure	Monthly Net Income

**C. CREDIT HISTORY**

1. Has applicant utilized formal credit before? Yes \_\_\_ No \_\_\_
2. If yes, please state (E.g.) Loan from GBTI

Date obtained	Name of Institution	Amount borrowed	Amount. Outstanding

Comments \_\_\_\_\_

**D. MARKETING ASPECTS**

1. Name and type of products or service marketed: \_\_\_\_\_
2. Market:

Product form of marketing	Yes	No
To milk plant at Mahaica		
Wholesale		
Retail		

Comment on other forms of market arrangement: \_\_\_\_\_

3. Who markets the milk: applicant \_\_\_\_\_ other \_\_\_\_\_  
If other, comment: \_\_\_\_\_
4. Current price of milk: G\$ \_\_\_\_\_ per gallon.
5. Other products sold: Current price per unit \_\_\_\_\_

**E. MANAGEMENT AND ORGANISATION**

1. Who manages the project? \_\_\_\_\_
2. No. of employees: Total \_\_\_\_\_ No. Full-time \_\_\_\_\_ No. Part Time \_\_\_\_\_
3. Functions: Applicant \_\_\_\_\_  
Employee 1 \_\_\_\_\_  
Employee 2 \_\_\_\_\_

**F. FINANCIAL ASPECTS**

1. Total Project Cost by Main Purpose & Source

Item	GDDP Credit	Applicant's contribution.
Capital Cost		
Sub-total		
Operating Cost		
Sub-total		
Grand Total		
Percentage Contribution		

2. Past Income and Expenditure (monthly): For the Period \_\_\_\_\_ to \_\_\_\_\_

Month Yr. Month. Yr.

INCOME	Month 1	Month 2	Month 3
Dairy			
Crops			
Other			
Gross Income			
EXPENSES			
1.			
2.			
3.			
TOTAL EXPENSES			
NET INCOME			

3. Projected income and expenditure (monthly)

<b>INCOME</b>	<b>Month 1</b>	<b>Month 2</b>	<b>Month 3</b>
Dairy			
Crops			
Other			
Gross Income			
<b>EXPENSES</b>			
1.			
2.			
3.			
4.			
5.			
TOTAL EXPENSES			
<b>NET INCOME</b>			

4. Projected cash flow (Frequency – Mthly / Quarterly)

<b>INFLOWS</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1. Sales				
2. Loans				
3. Applicant's contribution				
4. Other				
TOTAL INFLOWS				
<b>OUTFLOWS</b>				
1. Operating Expenses				
2. Loan Repayments				
3. Capital Expenditure				
4. Other				
TOTAL OUTFLOWS				
ENDING BALANCE				

4. Balance sheet as at \_\_\_\_\_

<b>Assets</b>	<b>\$</b>	<b>Liabilities</b>	<b>\$</b>
<b>Current Assets</b>		<b>Current Liabilities</b>	
Cash		Accounts Payable	
Bank		Short term Bank Debt	
Accounts Receivable		Rates & Taxes payable within 1 year	
Inventory		Other Debts	
Salable Livestock			
Salable Crops			
<b>Total Current Assets</b>		<b>Total Current Liabilities</b>	
<b>Fixed Assets</b>		<b>Long Term</b>	
Machinery & Equipment		Mortgage	
Vehicle		Long term Bank Debt	
Buildings		Other	
Land			
<b>Total Fixed Assets</b>		<b>Total Long Term Liabilities</b>	
		<b>Equity</b>	
<b>Total Assets</b>		<b>Total Liabilities &amp; Equity</b>	

## G. LEGAL ASPECTS

### Loan Security

1. Assignment of Sale Proceeds \_\_\_\_\_
2. Bill of Sale on machinery, equipment, or property \_\_\_\_\_
3. Charge on machinery, equipment, or property \_\_\_\_\_
4. Promissory Note from client.

**Loan Conditions**

1. Applicant to pay all bank charges associated with the loan prior to disbursement.
2. Security to be established prior to disbursement.
3. Applicant to pay into Partners – GDDP Credit Facility bank account his cash contribution of 20% of the total project cost.

**Recommendation**

A Loan of G\$ \_\_\_\_\_ at 20% per annum to be repaid by \_\_\_\_\_ monthly installments of G\$ \_\_\_\_\_ commencing one month after first disbursement, is recommended for approval based on the following:

1. Equity contribution G\$ \_\_\_\_\_
2. Net worth G\$ \_\_\_\_\_
3. Experience \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Signature of Credit Officer** \_\_\_\_\_ **Date** \_\_\_\_\_

**Review and comments of Project Coordinator**

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**Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

# Partners of the Americas – GDDP Credit Facility

## Appraisal Summary – Form 4

### PROJECT PROFILE

Name

Address

Project Location

Project Title

Loan Purpose

Project Financing

Loan Duration

Interest Rate

20% per annum

Date of Report

### CLIENT HISTORY

1. Age: \_\_\_\_\_
2. No. of Years Experience as Dairy Farmer: Employed \_\_\_\_\_  
Owner Operator \_\_\_\_\_
3. Employment:
4. Marital Status:
5. No. of Dependents:

### CREDIT HISTORY

1. Has applicant utilized formal credit before? Yes \_\_\_ No \_\_\_
2. If yes, please state (E.g.) Loan from GBTI

Date obtained	Name of Institution	Amount borrowed	Amount. Outstanding

Comments \_\_\_\_\_

## FINANCIAL ASPECTS

### 1. Total Project Cost by Main Purpose & Source

Item	GDDP Credit	Applicant's contribution.
<b>Capital Cost</b>		
1.		
2.		
<b>Sub-total</b>		
<b>Operating Cost</b>		
1.		
2.		
<b>Sub-total</b>		
<b>Grand Total</b>		
<b>Percentage Contribution</b>		

### 2. Past Income and Expenditure (monthly): For the Period \_\_\_\_\_ to \_\_\_\_\_

Income	Month 1	Month 2	Month 3
Dairy			
Crops			
Other			
<b>Gross income</b>			
<b>Expenses</b>			
1.			
2.			
3.			
<b>Total expenses</b>			
<b>Net Income</b>			

3. Projected income and expenditure (monthly)

Income	Month 1	Month 2	Month 3
Dairy			
Crops			
Other			
<b>Gross income</b>			
<b>Expenses</b>			
1.			
2.			
3.			
4.			
5.			
<b>Total expenses</b>			
<b>Net Income</b>			

**LOAN CONDITIONS**

1. Applicant to pay all bank charges associated with the loan prior to disbursement.
2. Security to be established prior to disbursement.
3. Applicant to pay into Partners – GDDP Credit Facility bank account his cash contribution of 20% of the total project cost.

**RECOMMENDATION**

A Loan of G\$ \_\_\_\_\_ at 20% per annum to be repaid by \_\_\_\_\_ monthly instalments of G\$ \_\_\_\_\_ commencing one month after first disbursement, is recommended for approval based on the following:

1. Equity contribution G\$ \_\_\_\_\_
2. Net worth G\$ \_\_\_\_\_
3. Secure Market Arrangement

**PARTNERS OF THE AMERICAS**  
**GUYANA DAIRY DEVELOPMENT PROJECT**  
**CREDIT FACILITY**

June 22, 2004

Project Code: 001233

Mr. Dairy Client  
123 Milk Plant Road  
East Coast Demerara

Dear Client:

**SUBJECT: LOAN APPROVAL LETTER**

A loan of the following terms has been approved subject to the conditions set out below:

**Amount Approved:** \$150,000.00

**Interest Rate:** 20 % per annum

**Repayment:** To be repaid in full with interest by 18 monthly instalments of \$10,758.00 each, commencing 1 month after first disbursement.

**Purpose:** To purchase 1 milking machine and rehabilitate milking barn.

**Note. No changes in these approved loan purposes are to be made except the client has first obtained permission in writing from Partners of the Americas - GDDP Credit Facility. Violation of the agreement in this respect will result in the outstanding amount of the loan becoming immediately due and payable.**

**Security:**

1. Charge on Cattle with Registration Bran No. 123/2000.
2. Bill of Sale on Milking Machine to be purchased.

**Conditions:**

1. Client to pay all costs associated with the loan prior to disbursement.
2. Client's equity contribution to be paid prior to disbursement.
3. Assignment of Wags
4. Assignment of sale proceeds

Sincerely,  
Mr. Dairy Loan  
Credit officer

**Partners of the Americas – GDDP Credit Facility****Loan Agreement – Form 6****Acceptance of the loan contract**

Project Code: \_\_\_\_\_ Loan Amount: \$ \_\_\_\_\_

I \_\_\_\_\_ of \_\_\_\_\_

hereby agree to abide by all terms and conditions relating to the above loan as set out in the Loan Offer Letter, Promissory Note, and Loan Agreement.

**Loan Contract**

1. The client undertakes to use the loan for the agreed purpose and the departure from this agreement may lead to cancellation of the contract.
2. The client shall keep all books, records of financial transactions and documents as recommended by officers of the Credit Facility.
3. The client agrees that the officers will have access at any reasonable time, to the project premises, financial books and any other information relevant to the project.
4. The client agrees to meet at least once per month with officers to monitor and discuss project progress.
5. The client shall not dispose, charge or otherwise encumber the movable or immovable assets financed by the Credit Facility during the amortization period of the loan.
6. The client shall not make any major decisions regarding the business such as relocation or change of operations without prior consultation with the officers of the Credit Facility.
7. The client shall accept all technical assistance necessary as rendered by or on behalf of the Credit Facility.

**Partners of the Americas – GDDP Credit Facility**

**Loan Agreement – Form 6**

- 8. Where appropriate the Credit Facility shall, at your cost, hold Bills of Sale, Charge and other instruments on your assets during the loan period.
- 9. The Credit Facility reserves the right to change the interest rate, default fees and service fees, payable on loans, at such rate and on such terms and conditions as may be determined at any time or from time to time and whenever deemed necessary by the Credit Review Committee.
- 10. The client pledges to make payments on his loan as set out in the repayment schedule to inform officers of the Credit Facility immediately of any change in project progress and or inability to follow repayment.

**Signatures:**

Signature of Credit Officer: \_\_\_\_\_ Date: \_\_\_\_\_ 2002

Signature of Client: \_\_\_\_\_ Date: \_\_\_\_\_ 2002

**Witnesses to Signatures:**

1. Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

2. Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

**Partners of the Americas – GDDP Credit Facility**

**Promissory Note – Form 8**

I \_\_\_\_\_ of \_\_\_\_\_

hereby promise to pay to Partners of the Americas - Guyana Dairy Development Project Credit Facility of Lot 69, Sophia Backlands, Greater Georgetown, Guyana, or Order, the sum of \_\_\_\_\_

\_\_\_\_\_ dollars

(\$ \_\_\_\_\_) together with interest at the rate of 20% per annum on demand in

\_\_\_\_\_ (\_\_\_\_) equal instalments of \_\_\_\_\_

(\$ \_\_\_\_\_) on the \_\_\_\_\_ day of each and every month commencing on the

\_\_\_\_\_ day of \_\_\_\_\_ 2002 on condition that should I fail to pay any

instalment when the same becomes due and payable then the whole outstanding balance

shall immediately become due and payable.

For value received.

\_\_\_\_\_  
**Signature of Borrower**

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2002.

# Partners of the Americas – GDDP Credit Facility

## Implementation Supervision Report – Form 11

Project Code: \_\_\_\_\_ Visit No.: \_\_\_\_\_ Date of Visit: \_\_\_\_\_

Name of Client: \_\_\_\_\_

Project Location: \_\_\_\_\_

Project Description: \_\_\_\_\_

Loan Amount Approved: \_\_\_\_\_ Date Approved: \_\_\_\_\_

Loan Amount Disbursed: \_\_\_\_\_ Date Disbursed: \_\_\_\_\_

1<sup>st</sup> Instalment Due Date: \_\_\_\_\_ Instalment Amount: \_\_\_\_\_

### Implementation Cost

Item	Estimated cost	Actual Cost	Source of Financing		
			Disbursement to Date	Credit Facility	Equity
Totals					

### Remarks:

1. Have there been changes or adjustments in the scope of the original project plan? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. State reasons for cost overruns if any and how they were financed: \_\_\_\_\_

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3. Are disbursements and planned work on schedule? \_\_\_\_\_

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4. Overall summary and impressions on project progress: \_\_\_\_\_

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**Recommendations including approval of further disbursement:**

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**Action Taken:**

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\_\_\_\_\_  
**Credit Officer's Signature**

## Partners of the Americas – GDDP Credit Facility

### Ongoing Supervision Report – Form 12

Project Code: \_\_\_\_\_ Visit No.: \_\_\_\_\_ Date of Visit: \_\_\_\_\_

Name of Client: \_\_\_\_\_

Project Location: \_\_\_\_\_

Project Description: \_\_\_\_\_

Loan Amount Approved: \_\_\_\_\_ Loan Amount Disbursed: \_\_\_\_\_

Amount Un - disbursed: \_\_\_\_\_

#### Loan Account Details as at \_\_\_\_\_

Outstanding Balance			Instalment Due	Period in Arrears	Arrears Balance		
Interest	Principle	Total					

#### Comments:

1. Project progress in relation plan: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Management and organisation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Production (produced) and output (sales) levels: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Accounting information and system: \_\_\_\_\_

\_\_\_\_\_

5. Problem areas: \_\_\_\_\_

6. State of Security: \_\_\_\_\_

7. Client's future project plans (new, refinance, reschedule, increase): \_\_\_\_\_

8. Overall Summary and Impressions: \_\_\_\_\_

9. Recommendation and action taken: \_\_\_\_\_

\_\_\_\_\_  
**Credit Officer's Signature**

**PARTNERS OF THE AMERICAS**  
**GUYANA DAIRY DEVELOPMENT PROJECT**  
**CREDIT FACILITY**

June 22, 2004

Project Code: 001233

Mr. Dairy Client  
123 Milk Plant Road  
East Coast Demerara

Dear Client:

**SUBJECT: INSTALMENT NOTICE**

Please be informed that the installment of \$ \_\_\_\_\_ on your loan is due  
on \_\_\_\_\_. Payment made after the prescribed date will result in  
your loan going into arrears and will attract an additional five (5) percent interest on the  
amount in arrears.

Prompt payment will be to your advantage.

Sincerely,

\_\_\_\_\_  
Credit Officer

**PARTNERS OF THE AMERICAS**  
GUYANA DAIRY DEVELOPMENT PROJECT  
CREDIT FACILITY

June 22, 2004

Project Code: 001233

Mr. Dairy Client  
123 Milk Plant Road  
East Coast Demerara

Dear Client:

**SUBJECT: ARREARS NOTICE**

The Credit Facility has noticed from the bank statements of the Bank of Nova Scotia that you are over fourteen days late with you payment. Your loan is in arrears by the sum of

\$ \_\_\_\_\_ as at \_\_\_\_\_.

Please be advised that you should contact the Credit Officer within seven days of this letter to discuss your loan repayment and make arrangements to liquidate the arrears balance. If you are facing any special problems you should also visit the credit facility to discuss a possible solution.

Sincerely,

\_\_\_\_\_  
Credit Officer

**PARTNERS OF THE AMERICAS**  
**GUYANA DAIRY DEVELOPMENT PROJECT**  
**CREDIT FACILITY**

June 22, 2004

Project Code: 001233

Mr. Dairy Client  
123 Milk Plant Road  
East Coast Demerara

Dear Client:

**SUBJECT: ARREARS NOTICE**

The Credit Facility refers to its letter to you which demanded payment of \$ \_\_\_\_\_ as at \_\_\_\_\_ . To date you have not cleared your arrears.

If payment is not received within seven days from the date hereof, we shall recall your loan in full and commence legal proceedings without any further notice to you. Again you are advised to visit the office to discuss any problem you may be having.

Sincerely,

\_\_\_\_\_  
Credit Officer

**PARTNERS OF THE AMERICAS**  
**GUYANA DAIRY DEVELOPMENT PROJECT**  
**CREDIT FACILITY**

June 22, 2004

Project Code: 001233

Mr. Dairy Client  
123 Milk Plant Road  
East Coast Demerara

Dear Client:

**SUBJECT: ARREARS NOTICE**

Our records indicate that your loan is in arrears by the sum of \$ \_\_\_\_\_ as at \_\_\_\_\_ . Several attempts were made to have you clear the arrears balance.

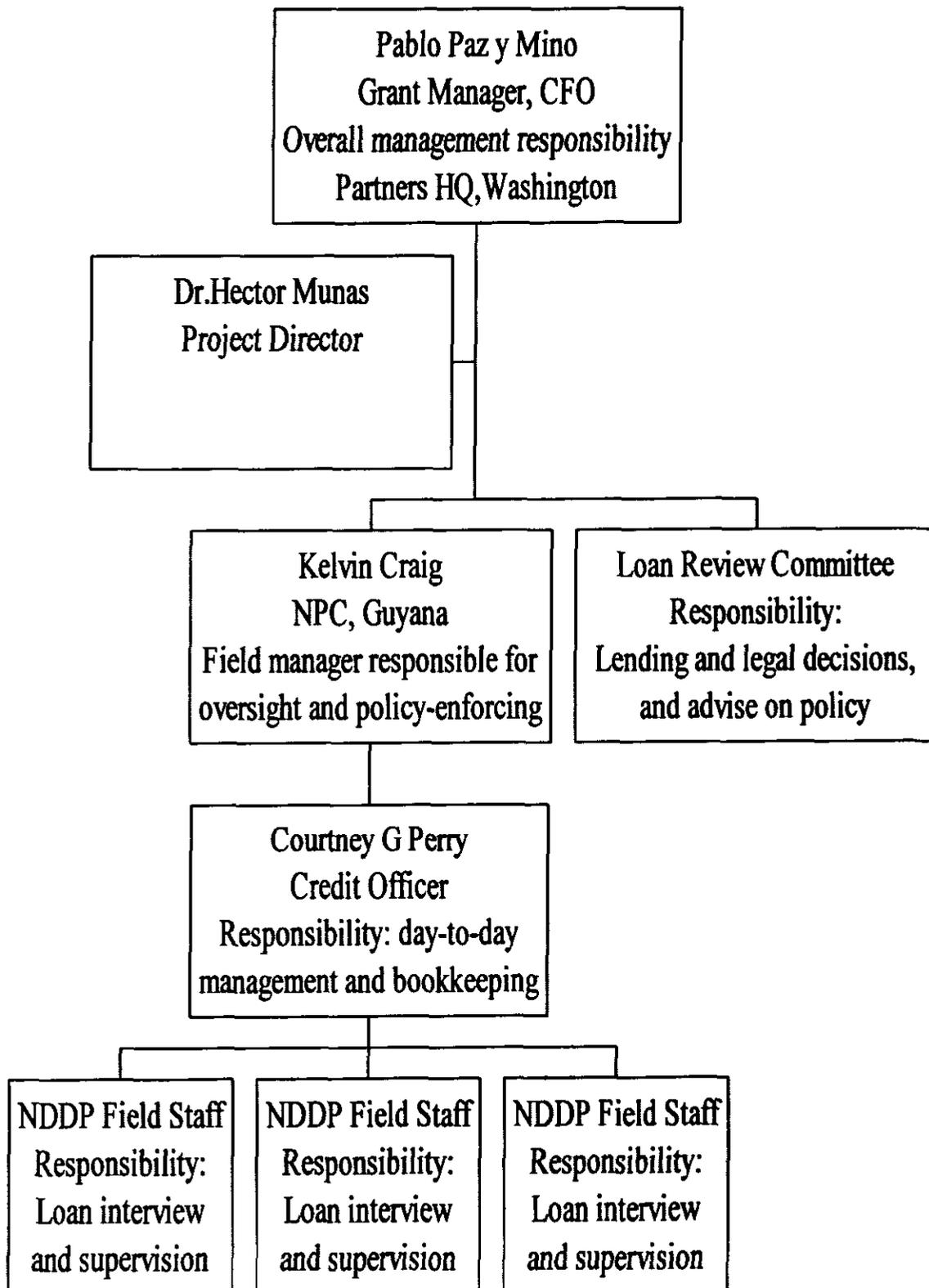
We demand this payment from you immediately.

The Credit Review Committee has reviewed your file in light of the non - payment of your loan and has decided to recall your loan in full and proceed with legal action.

Sincerely,

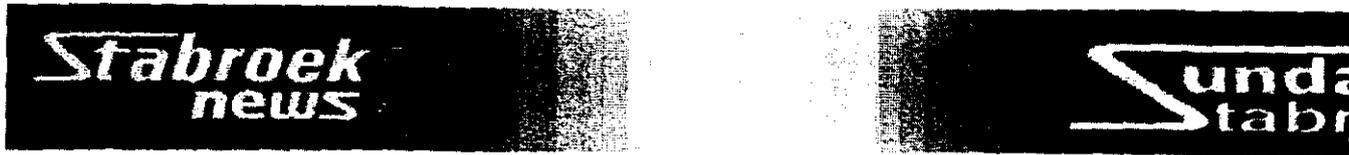
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4. If you don't get enough calcium to keep your muscles healthy your body will steal it from your bones. Have healthy muscles and strong bones. Drink some fresh cow's milk today.
5. Think you're getting enough calcium? Ninety percent of adult women aren't. Drink 3 glasses of fresh milk every day.
6. Think you're getting enough calcium? Eighty-five percent of teenage girls aren't. Drink three glasses of fresh milk everyday.
7. Think you're getting enough calcium? Eighty-two percent of young men aren't. Drink three glasses of fresh milk everyday.
8. Think you're getting enough calcium? Sixty percent of adult men aren't. Drink three glasses of fresh milk everyday.
9. Worried about osteoporosis? Then add more fresh milk to your diet. Calcium in milk is the most important bone-growing nutrient your body requires.
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**FULL STORY**

### Local milk products proving a hit

Friday, April 2nd 2004



School children savouring the taste of local yoghurt

Locally produced flavoured milk and yoghurt are proving popular with schoolchildren and older consumers with suppliers working hard to meet the demand.

Anernauth Kirigtal, the manager of Whitegate Dairy in Mahaicony says sales are up 30% in March.

"I have to think about expanding soon," says Kirigtal, who has seen strong orders for home deliveries and supermarket sales.

The Whitegate Dairy Plant sells 1.8-litre bottles of low fat, strawberry, chocolate and vanilla flavoured milk. It is also negotiating with a large manufacturer to supply fresh cow's milk.

The success of the local dairy industry could cut into imports of milk/cream products which from January to June 2003 amounted to \$1.2B.

The manager of Moo-goodies Dairy Plant in New

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Amsterdam is also very pleased with the response to the company's products.

"Things are going really well," says Timothy McIntosh.

Yoghurt sales are four times above what we had projected and their 1.8-litre bottle of flavoured milk, retailing for \$340, is still the top seller.

Other products like the cream cheese, are still to gain a following, but the manager notes that with a little more promotional activities this product and the others will do even better.

Trials are also ongoing at the Moo-goodies plant to begin producing hard cheeses such as Dutch Edam and mozzarella, which is used in pizzas and salads. McIntosh says some leading hotels have shown interest in mozzarella.

Officials from the Guyana Dairy Development Project (GDDP) who collaborated with the St. Stanislaus College Association Farm (SSCF) to produce 'Goodmorning' dairy products say they too will have to expand soon.

Kelvin Craig, the project co-ordinator at GDDP explains that soon, they will have to source milk from other farmers, but have enough for the moment. Apart from producing bottled milk, the SSCF also sells local cheese and dips and fresh cow's milk. A popular seller is the 250 ml bottle that sells for \$100.

Students and supermarket consumers are the main contributors to the sales increase, according to officials at the plant.

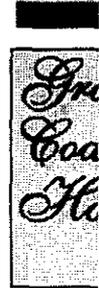
Schools such as Marian Academy are purchasing far higher amounts of flavoured milk and liquid yoghurt than when the product first came out last November. He adds that some public schools were unable to purchase the milk because they lacked a refrigerator.

Craig hopes that hotels and resorts will start serving breakfasts with "Goodmorn-ing" dairy products.

Supermarkets have increased their inventories of liquid yoghurt double their original amounts when the product first came out, he adds.

Craig admits that the plant has had a few challenges but within a year they will be able to show profits.

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Now that the Small Business Act compels the government to procure at least 20% of its goods and services from small businesses, the dairy industry is hoping they can profit.

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FULL STORY

### Local eggnog in time for Xmas One of several new dairy products

Tuesday, November 18th 2003

A range of 16 new dairy products, including eggnog, all produced from local milk will be available in retail outlets in time for the Christmas season.

The products, sold under the 'Good Morning' brand, will soon feature prominently at supermarkets including C&F Meat Centre and Bounty Meat Centre.

The 16 products include flavoured yoghurts, flavoured and plain pasteurised milk; cheeses, flavoured dips, sour cream and eggnog and were launched yesterday at St Stanislaus College dairy farm in Bel Air.

The \$8 million unit, funded by the United States Agency for International Development (USAID), is geared at processing approximately 12,000 gallons of milk per day most of which is being supplied by the St Stanislaus dairy farm.

Efforts to receive additional supplies from external dairy farmers will soon be implemented as demand for the products increases.

Head of the Guyana Dairy Development Project (GDDP), Dr Hector Munoz, outlining the establishment of the Dairy Products Unit (DPU), identified the need to add value to the raw milk supplies to increase profits.

According to Munoz, the idea of adding value to the raw milk was developed after considering increasing the farm's stock of dairy animals and the price for fresh raw milk both of which were not possible.

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According to Munoz, the plant, with a capacity to process and transform 2500 litres of milk per day into the range of dairy products, was acquired and installed at the St Stanislaus farm.

Among the components associated with the plant are a cream separator, pasteuriser, high-speed blender, filling machine, cooling facilities and laboratory equipment.

Current production of milk stands at some 5.4 million litres per annum which is 50% of the required amount to satisfy local demands, said Agriculture Minister Satyadeow Sawh.

Among the other speakers were US Ambassador Roland Bullen and President of the Partners of Americas Guyana/Mississippi Chapter, Vanessa Benn, who outlined the role played by the organisation in facilitating the project.

Cariforum Agribusiness Research and Training Fund (CARTF) Representative, Hilton Ford, and Director of CARESDA, Dr PI Gomes highlighted the contributions of their entities.

The event was also attended by a group of ten students from Alcorn State University in Mississippi, USA who are visiting Guyana to get firsthand knowledge of the local agriculture sector.

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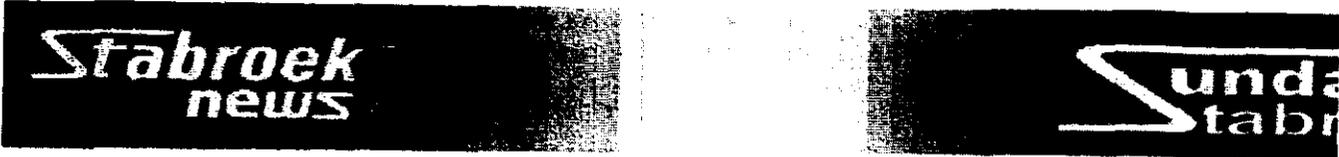
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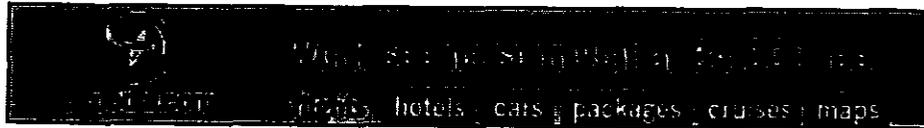
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**FULL STORY**

## Milk programme reduces malnutrition

### -study in three Berbice nursery schools

Wednesday, November 19th 2003

There was a 75% reduction in rates of malnutrition in nursery school children at three schools in Region Five (Mahaica/West Berbice) after they were fed with a daily supply of milk for 11 months last year.

The feeding programme, undertaken through the Guyana Dairy Development Project (GDDP), saw students at three nursery schools including those of Calcutta and Airy Hall benefiting from daily supplies, courtesy of the Dantzig milk plant which opened in the region early last year.

GDDP Nutrition Consul-tant, Yvette DeFreitas, outlining the findings of the agen-cy's research at Monday's launching of the St Stanislaus College Association Farm Dairy Products Unit, said indicators also showed that there was improved vitality and attention and a reduction in serious illnesses in the target group during the study period.

According to DeFreitas, the students adapted very well and tolerated the milk diet, with only three showing initial signs of adverse effects which were overcome following repeated use.

The study also showed a 48% improvement in the group of those students who were considered to be in the lower category of well-nourished persons, the nutritionist noted.

DeFreitas nevertheless observed that no significant changes were recognised in those children whose growth seemed to be stunted and suggested that this could well be linked to genetic factors.



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She also recognised that there were no significant improvements during the August vacation when the children received no milk leading them to conclude that the supplement was indeed the primary protein source.

Increased use of milk is being pushed especially with the opening up of mini-pasteurisation units in various parts of the country.



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## Milk boost from Dantzig

*'Some express their love on Valentine's Day with flowers, others use chocolate; today we say it with milk' - Minister of Fisheries, Crops and Livestock, Satyadeow Sawh*  
By Chamanlall Naipaul



**MILK check:** from left, Prime Minister Sam Hinds, Minister of Fisheries, Crops and Livestock, Satyadeow Sawh, former President Janet Jagan, Chairman of the Guyana Elections Commission and former Director of NDDP, Dr. Steve Surujbally and NDDP Project Coordinator, Timothy McIntosh examine packets of pasteurised milk being produced at the Dantzig milk plant. (Cullen Bess-Nelson photo)

THE current dumping of large quantities of milk by farmers is expected to be cut when the mini-milk pasteurisation plant at Dantzig, Mahaicony, East Coast Demerara, rolls into full operation.

Products are due out in commercial quantities shortly from the plant which Prime Minister Sam Hinds formally commissioned yesterday.

The project is a result of an agreement between the Government of Guyana and the Food and Agricultural Organisation (FAO) signed more than two years ago, and is aimed at helping rural farmers process dairy products and access markets to increase their income and living standards.

The overall cost of the project is US\$232,000 which included costs of training personnel, consultancy and acquiring machinery and equipment. The plant machinery, which cost about US\$20,000, can process 70 litres of milk per hour

and utilises simple, but modern techniques and technology.

Fresh milk is collected in measuring cylinders from where it is packaged in plastic bags. These bags then pass through a hot water bath where they are heated to a temperature of 63 degrees Celsius. This process constitutes the pasteurisation of the milk.

The bags are then cooled by a cold water bath to five degrees Celsius and placed in cold storage ready for the market.

National Project Coordinator of the National Dairy Development Programme (NDDP), Mr. Timothy McIntosh said this process has a great advantage over the traditional system where manufacturers pasteurise the milk before placing it in containers. He explained that with the latter contamination could take place when the milk is being placed into the containers.

With the system at Dantzig the milk and containers are simultaneously pasteurised, and contamination by the containers is eliminated. The shelf life of the milk is 14 days and is being produced in strawberry and vanilla flavours, in addition to unflavoured milk.

McIntosh pointed out that farmers and employees at the plant have been trained in maintaining required standards of hygiene.

He noted that large amounts of milk were being dumped because of the absence of milk processing plants. The Dantzig plant will minimise spoilage of milk and will help farmers increase their incomes, he added.

The long-term plan of the plant is to create a milk marketing enterprise where milk is taken care of from the farm right down to the retailer.

McIntosh lamented the absence of local pasteurised milk on the shelves of supermarkets and is optimistic that the Dantzig plant will contribute to ending this situation.

Prime Minister Hinds said independent countries face the challenge of providing for themselves and it is therefore necessary to develop a "resilient and robust economy." He said Guyana's traditional products - sugar, rice, bauxite and timber - are under threat and diversification of the economy is imperative.

Micro-enterprises have a role to play in this process because these utilise affordable techniques and technology and are in closer contact with the market, he said.

Minister of Fisheries, Crops and Livestock, Mr. Satyadeow Sawh declared, "Some express their love on Valentine's Day with flowers, others use chocolate; today we say it with milk."

He expressed pleasure at the fruition of the project while acknowledging there were some initial hiccups.

Describing it as a landmark event, Sawh said the plant uses technology that serves the needs of the community at a minimal cost, preventing the dumping of milk by farmers which resulted in the loss of a valuable resource and much needed income to farmers.

He said it was a pioneering project and the knowledge and experience gained will be used to replicate similar plants around the rural communities that produce milk.

"Plants like these will be dotting our countryside" where poverty is more pronounced, he added. This, he said, is in accordance with the national philosophy to reduce poverty and improve the living standards of all Guyanese.

Sawh said that in this process the leaders must have a vision and recalled that the late President Cheddi Jagan, because of his vision, had foreseen the need to develop the agricultural sub-sector, which President Bharrat Jagdeo is now implementing.

The minister spoke of the need to move into other value-added milk products like cheese and yogurt. He, however, cautioned farmers who will eventually own and manage the plant, not to allow petty squabbles to interfere with its smooth and successful functioning.

He stressed the need for accountability, unity and cooperation among all farmers.

Projects like that at Dantzig help to create and sustain jobs and replace foreign imported products like powdered milk, Sawh said, adding that it is vital to the future of the country that the plant does not become a "white elephant."

FAO Representative to Guyana, Trinidad and Suriname, Dr. David Bowen said the project would serve to facilitate farmers' access to markets.

He said the FAO recognises that Guyana has vast potential for improvement through investment in agriculture. Bowen also announced that the FAO would be addressing several concerns affecting implementation of programmes among member countries, including capacity building, information systems, improvement in the efficiency of projects, and reducing the processing time for approval of projects.

Dr. Hector Munoz, of the Guyana Dairy Development Project (GDDP) being funded by the United States Agency for International Development (USAID), said the aim of the programme is to increase the nutritional level among children and in this regard it will be conducting a milk supplementation scheme in three schools located in the community.

The programme will be in collaboration with the Ministry of Health and the Dantzig plant.

Munoz said that in the past availability and quality of milk was an "excuse, but today that has been removed."

# \$50M mini milk pasteurisation plant launched

From page 1

allow for a better standard of living. Noting the scale of the enterprise, Hinds saw it as an example to be emulated at all levels of society if the development thrust was to be achieved.

Small enterprises, the PM added, were being overlooked as efforts were made to venture into large-scale undertakings, some of which were never fully capitalised. He noted that small-scale ventures had greater advantages for closer contact between the producers and customers ensuring a rapid response to their concerns.

Minister of Fisheries,

Crops and Livestock, Satyadeow Sawh, who termed the event a landmark stated that it was the first time that a cattle breeding area would be producing the pasteurised product.

Recognising the benefits to the local dairy farmers, the minister said it was his dream to see the project repeated in other communities. He cautioned farmers against allowing petty squabbles to cause the facility to end up as a white elephant. He urged them to use it as an example to be emulated by others in the sector.

He again called on persons to support homegrown prod-

ucts as a way of creating jobs while boosting the well-being of those in the sector.

Other contributions to the afternoon programme came from Partners of the Americas/Guyana Dairy Development Programme Head, Dr Hector Munoz, who termed the event a proud and satisfying one for dairy farmers throughout the country and particularly in the immediate community.

He saw the realisation of one of the farmers' goals as helping with the improvement of the nutritional content in the diets of all Guyanese especially children, 200 of whom, from schools in Region Five (Mahaica/Berbice) will receive a daily glass of milk courtesy of the GDDP, from next week. This programme is being undertaken in collaboration with the ministries of health and education. The

milk will be purchased from the Dantzig plant.

Food and Agriculture Organisation (FAO) Representative with responsibility for Guyana, Suriname and Trinidad and Tobago, David Bowen, alluded to the months of collaboration between Sawh, his agency and the project coordinator to make the project a success.

Bowen expressed the hope that the assistance given by the FAO in making the facility a reality would aid in stimulating farmers to make headway in the sector.

Earlier, Project Coordinator, Timothy McIntosh, in his outline of the project stated that the facility was the result of 18 months of continuous effort. He noted the inputs of the Social Impact Amelioration Programme in its establishment.

Milk, according to

McIntosh, was collected from farmers, processed and distributed mainly to residents in the immediate community. The plant, which McIntosh described as using simple technology, is a model for other groups interested in venturing into such production. The project will formally conclude in June and will be handed over to the farmers' co-op society. Farmers will first capture the immedi-

ate coastal market prior to venturing to the wider marketplace. According to McIntosh, they will face the challenge of maintaining a viable product, which could compete with others who are going to enter the game including foreign products.

The four staff members of the facility are currently undergoing training in processing and testing techniques.

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## \$50M mini milk pasteurisation plant launched

By Oscar P. Clarke

"Milk from the cow to you," that was how the new \$50 million mini milk pasteurisation plant at Dantzig/Columbia on the East Coast Demerara (ECD), was recognised at yesterday's official commissioning ceremony attended by dignitaries and special invitees.

The small-scale plant, to be eventually owned and operated by the

Mahaica/Mahaicony Dairy Farmers Cooperative Society, will see farmers in that community, having all their available milk supply pasteurised for domestic consumption.

With a capacity of 70 litres per hour the pasteurisation plant will produce a wholesome product that could stand up to strict purification standards.

The milk, which is also being developed in two flavours — vanilla and straw-

berry — will have a shelf life of up to 14 days from the date of delivery to supermarket shelves.

Launching the facility, Prime Minister, Samuel Hinds called the venture a great step in restoring the local dairy sector.

According to the PM with traditional crops facing tremendous difficulties, the need to diversify the economy was even more critical to

Turn to page 10



Here's to milk! Toasting the realisation of the new Dantzig Pasteurisation plant yesterday are (from right to left) PAHO/WHO Representative, Dr Bernadette Theodore-Gandi; Elections Commission Chairman and former head of the National Dairy Development Programme, Dr Steve Surajbally; former president, Janet Jagan; Counsellor at the Embassy of Suriname, Eugenie Eersel; and US Ambassador, Ronald Godard. (Ken Moore photo)

Nov, 18, 2003

## **GUYANA CHRONICLE Online**

### ***At commissioning of dairy products unit--***

#### **Dairy farmers urged to meet Guyana milk needs**

***By Jaime Hall***

DAIRY farmers are being encouraged to develop sustainable systems in order to meet the other 50 per cent of the national requirement of dairy milk. At present, half of the nation's demand for dairy milk is supplied by local entrepreneurs.

And as the sector develops to provide more wholesome and nutritious milk, the deficit of imported powdered milk and other milk products would be reviewed in order to give local entrepreneurs a level playing field to compete effectively.

Minister of Fisheries, Crops and Livestock, Mr Satyadeow Sawh, made these remarks yesterday during the commissioning ceremony of the Saint Stanislaus Farm Dairy Products Unit, North Sophia, Georgetown. Mr Sawh, who is also performing the duties of Minister of Agriculture, underscored the importance of milk production for Guyana's development.

He said that the livestock sub-sector has always played a significant role in Guyana's agriculture development. It continues to play a pivotal role, too, in providing relatively cheap and readily available sources of animal protein to rural farming communities and the population at large.

Now, with the commissioning of the Saint Stanislaus Farm Dairy Products Unit, some 16 milk-based products will become available on the local market.

The products include yogurt, sour cream, cheese, milk and eggnog. Samples of these products were offered to visitors after the formal commissioning ceremony yesterday.

Milk production has varied from one to two per cent of the Gross Domestic Product (GDP), Sawh stated. He also pointed out that his Ministry had identified the dairy sector as one of the priority areas for development because of its potential to improve food security and provide improved income generation opportunities for rural communities.

"We have recognised that changes in the global markets demand that more attention be given to this sector," the Minister said.

In Guyana, low-income groups, pregnant and nursing women and also children under the age of five, are most vulnerable in a situation when costs of milk and milk products

increase.

Sawh argued that the dietary deficiency of milk might be one of the leading causes of malnutrition in children below the age of five.

He said that there are approximately 5,000 dairy farmers in the country, and while milk production is done in all ten administrative Regions, higher levels of dairy production are found in Regions Two (Pomeroon/Supenaam); Three (Essequibo Islands/West Demerara); Four (Demerara/Mahaica); Five (Mahaica/Berbice); and Six (East Berbice/Corentyne).

The Minister recalled that over the years, several attempts were made to increase the national milk supply. And while some of the local enterprises have not been sustained for one reason or another, the outstanding success story is the Saint Stanislaus Dairy Farm.

United States Ambassador to Guyana Mr Roland Bullen, who was a guest at the commissioning ceremony, urged dairy farmers to implement the best practices in the dairy industry; to work consciously to remove bottlenecks relating to the production, distribution and consumption of dairy products in Guyana and to exploit any synergies with other projects and donors.

The Ambassador referred to the Dantzig Milk Plant on the East Coast Demerara, which facility he described as being critical to dairy development in Guyana. Consequently, Mr Bullen said, special efforts must be made to ensure successful operation at, or near, full capacity at the plant, which was commissioned about two years ago.

Ambassador Bullen said it is obvious that a mutually beneficial relationship will exist if the activities of this milk processing facility are well integrated and supported by dairy farmers, particularly those from surrounding areas.

Mr Bullen highlighted, too, a Milk Supplementation Project that was executed by the Guyana Dairy Development Programme in collaboration with the Ministries of Health and Education at three schools in Region Five (Mahaica/ Berbice).

A study was conducted to determine the effects of this programme and its findings were presented to the relevant authorities.

He noted that research had found that malnutrition in Region Five was considered being at a high level compared to what existed in other Regions. As a result, he said, an 11-month exercise aimed at reducing malnutrition was carried out on children in the Region.

The children's diets were supplemented with sweetened and flavored milk, which came from the Dantzig Dairy Plant. The ages, weights, heights and other statistics of the

children were documented at the beginning of the exercise.

At the completion of the programme, malnutrition among the children had dropped from 8 per cent to 2 per cent.

Ambassador Bullen suggested that similar milk supplementation programmes be done at other schools in other Regions. (SOURCE: GUYANA CHRONICLE, NOV. 18, 2003.)

# Muestran modelos GGAVATT a visitantes de Guyana

POR Juanita del Angel/Josué Alexandre

OZULUAMA, Ver.- Un grupo de personas procedentes de Guyana realizaron un recorrido en la zona norte de Veracruz, principalmente en el municipio de Ozuluama en

donde los ganaderos están trabajando con el modelo GGAVATT (Grupos de Ganaderos de Validación y Transferencia de Tecnología) con el que han obtenido buenos resultados en lo productivo, en leche, en donde han aumentado entre un 350 y un 400 por ciento.

Por lo que ante la difícil situación por la que están atravesando los miembros de este sector, el laborar con este modelo ha aliviado en mucho a los mismos y sobre todo les empieza a dar fluidez económica.

Los interesados en conocer este proyecto llegaron ayer a las 07:50 horas de ayer al Aeropuerto Internacional de Tampico, General "Francisco Javier Mina", en donde fueron recibidos por los integrantes de la Unión de GGAVATT del Norte de Veracruz.

Héctor del Angel Santiago, Secretario y Coordinador de lo que es la



El grupo de personas de los Baysas Francesas fue recibido en el aeropuerto de Tampico.

Unión mencionada, dijo que estas personas verán lo que están haciendo como ganaderos en la zona norte, específicamente lo que es el modelo citado y que es un proyecto que están manejando desde hace cuatro años en su zona. Asimismo informó que precisamente para el día 8 de diciembre tienen contemplada la visita del titular de la Sagarpa, Javier Usabiaga Arroyo a ese municipio, quien participará en la reunión anual en donde evaluarán este modelo y en la que también estarán presentes alrededor de 3000 productores de diversas partes de la República Mexicana y sobre todo de la zona huasteca.

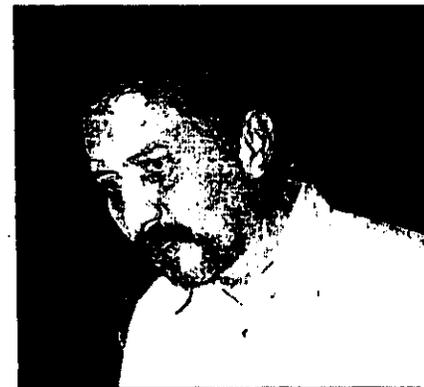
Agregó que en esa ocasión los visitantes son acompañados de funcionarios del gobierno federal de la Ciudad de México, directamente de la Dirección de Ganadería de la

Sagarpa y de la Delegación Estatal de Veracruz. Destacó que lo que quieren es transmitir a todos los ganaderos tanto del país como de otros países que trabajando con un paquete tecnológico que les da como base el modelo, esto funcione y funcione muy bien y sobre todo empiece a ver fluidez económica en el sector ganadero, pues actualmente están en una época tan difícil que éste es un aliciente para los ganaderos.

Sobre la situación económica por la que atraviesan los integrantes de ese sector en Ozuluama, dijo que la parte que está trabajando con este modelo empezará a cambiar y para el día 8 de diciembre que van a realizar esta reunión se les va a presentar por primera vez los resultados económicos de cuánto les cuesta producir un litro de leche y cuánto un



Héctor del Angel Santiago, Secretario y Coordinador del GGAVATT.



Enrique Olivera, Jefe del Departamento de Producción de Leche, de la Sagarpa.

kilo de carne.

Refirió que lo que tienen en ganancia en cada litro de leche es sobre 18 centavos y es pequeño el margen y están viendo que deben de ser más productivos, producir más con la misma vaca, eficientar sus pastos, pero andan con el precio del litro de 2.40 y ahí está su situación difícil porque el precio internacional de la leche fluctúa entre los 2.40 y 2.60 entonces como ganaderos saben que no va a aumentar el litro de leche y tiene que buscar ser eficientes, producir un litro de leche a 1.00 ó 1.50 y es ahí donde entra la metodología y lo que es el paquete tecnológico

**Dairy Products Tasting Session: Thursday 13th Dec**  
Guyana Chronicle Dec 13th

Mohan made traditional sweet meats, vermicelli, keer (sweet rice) and perah (a kind of fudge) with local milk, while Panday produced cottage cheese and yogurt. The products should be on the shelves of local supermarkets by next week, they said.

Guests at the event were invited to sample the products and to immediately respond by completing a questionnaire to give a feedback to the producers.

The overwhelming view was that the products were of a high quality.

Sawh said that before the farmers left for abroad he implored them to be good ambassadors of Guyana. "I am pleased to report that that they have done that," he declared.

The minister said that the long-term plan is "to dot all the milk producing areas with pasteurisation plants".

He called on the five to utilise the skills and knowledge they have acquired to provide leadership to the rest of the farmers so that they can improve their dairy farming skills and techniques to help expand the local dairy industry.

He appealed to them to go out and disseminate what they have acquired to those who have not had the opportunity to enjoy advanced training in the technology associated with the dairy industry.

The development and expansion of the dairy sector in the value added production will help to return Guyana's status as the "bread basket" of the Caribbean, declared the minister.

Indal told the Chronicle that the five-member team is preparing an educational programme which will be used to train dairy farmers nationwide. He said a striking observation about dairy farmers in the countries they visited is that they are well organised under umbrella associations.

This, he said, has been largely responsible for the success of the dairy farmers and the industry in those countries.

The NCFA will be assiduously working to do the same in Guyana, Indal said.



**SWEETMEATS: Ms. Shamdal Mohan displays sweets made from locally produced milk.**

**Dairy Products Tasting Session: Thursday 13th Dec**  
Guyana Chronicle Dec 13th

## **Guyana-made and good!**

*By Chamanlall Naipaul*



**TASTES GOOD!** Mr. Andrew Parker, Charge d'affaires at the U.S. Embassy, samples locally made yogurt at the exhibition yesterday. (Mike Norville photos.)

THE National Cattle Farmers Association (NCFA) yesterday hosted an exhibition of value added dairy items which it will be producing commercially for the local and overseas markets and the response was enthusiastic from those who sampled the goodies, including yogurt.

The well-attended event was held at the St. Stanislaus Dairy Farm at Sophia, Georgetown.

Charge d'affaires at the United States Embassy, Mr. Andrew Parker and Minister of Fisheries, Crops and Livestock, Mr. Sayadeow Sawh, Ministry of Health officials and representatives of related agencies were also there.

The products were prepared by members of the NCFA team that recently returned from a dairy training programme in Mexico and Costa Rica under the Guyana Dairy Development Programme, a collaborative project between the NCFA and the Partners of Americas organisation.

The five-member team that visited Mexico and Costa Rica was headed by NCFA President, Mr. Roopnarine Indal. The others were Mr. Leon Small, Ms. Shamdai Mohan, Mr. Joseph Farinha and Mr. Mansram Panday who is attached to the St. Stanislaus

Dairy Farm.

Parker said the dairy industry has a key role in the development of agriculture in transitional economies such as Guyana's. The development of the industry will lead to greater employment opportunities for Guyanese which it badly needs in the current economic situation, he noted.

He said the training programme for the farmers was financed through a US\$70,000 grant from the United States Agency for International Development.

Parker advised the farmers to help impart the knowledge they have gained to others to help boost the development of the local dairy industry.

Two of the returning farmers were involved in making by-products from local milk for yesterday's display.

# Historic cattle exhibition, sale held at Sophia

The Sophia Convention Centre has been used for a number of years to showcase a large variety of local products but yesterday history was made when for the first time a one-day cattle exhibition and sale was convened at the site.

The event, which had what some described as a disappointing attendance, was coordinated by the National Cattle Farmers Association (NCFA), the National Dairy Development Programme, Partners of the Americas Guyana/Mississippi Chapter and the Guyana Dairy Development Programme, (GDDP).

With the smell of the cattle and fodder wafting through the air, the convention centre was transformed into a scene from a farm. However, only sixteen head of cattle were on exhibition together with a number of calves.

The breeds of cattle at the exhibition included the Jersey Cross and Holstein, Holstein Zebro Cross, Creole, Brown Swiss Holstein Cross and the Angus beef breed.

The exhibition had a festive air about it with the infectious sound of the soca beat

emanating from amplifiers and the men dressed with their cowboy hats and boots milling around and cracking jokes with a drink bought from the bar in their hand.

"Going once, going twice, gone" were the words which were expected to be said during the parading of the cattle on sale but it was only said for a ten-year-old milk cow whose owner had one bid of \$50,000 and it was gone. In advertising the cow for sale while its owner paraded it in the ring, the announcer said that she had given birth twice and produces about twenty-four pints of milk a day.

The other eight head of cattle, while they were beautifully groomed did not sway any spectator but the announcer suggested that the prospective buyers approach the owners and negotiate prices.

One of the bulls on sale - 'Tarzan' had a starting price of \$160,000 and weighed 2,700 pounds. And while 'Tarzan' obliged the audience and sprinted around the ring he failed to attract any buyer on the spot.

Lloyd Naljit of

Washington, West Coast Berbice, had a record seven bulls on sale and they were all well groomed but did not have a ready buyer.

The man's bulls stood out as they had red ribbons tied around their necks and they were huge and proud looking animals.

President of the NCFA, Bhopaul Singh yesterday said the event will be an annual one and there are plans to extend it to other areas. Even though the association only came into existence two weeks ago it has been in the making for some two years, Singh said that his association hopes that through the exhibition, farmer to farmer negotiations in cattle sales will be developed.

He also said that the exhibition creates the opportunity to have cattle free of disease on exhibition.

Singh said his vision as the association's president is to see not only animals being bought, slaughtered and taken into the butcher shops but also for the farmers to add value to their products.

Minister of Fisheries, Crops and Livestock,

Satyadeow Sawh in his address implored the farmers to add value to their products and said "we want to make use of the skins, the hooves (and) the horns for ornamental purposes. We want to package, slice and preserve our cuts so that Trinidad & Tobago, for example, would no longer have to import their beef from New Zealand and Australia".

The minister described the event as extraordinary as it is the first of its kind but then added there have been a number of other things that have been happening in the agriculture sector.

He singled out Guyana being declared free of the foot and mouth disease and the soon-to-be-opened milk pasteurization plant as some of the momentous events in the sector.

Also speaking at the exhibition were US Ambassador, Ronald Godard, Project Director of the GDDP, Dr Hector Munoz and vice-president of the Guyana/Mississippi Chapter of the Partners of the Americas, Alex Foster. (Samantha Alleyne)



**Red Man:** This was the name of this strong bull for sale at the cattle exhibition held at the Sophia Convention Centre yesterday. The bull belongs to Lloyd Naljit. (Lawrence Fanfair photo)

# National Cattle Exhibition and Sale held at Sophia

As part of the programme to observe Agriculture Month, a National Cattle Exhibition and Sale was held yesterday at the Sophia Exhibition Centre, Georgetown.

The activity was organised by the National Cattle Farmers Association (NCFA) in collaboration with the National Dairy Development Programme (NDDP) and Partners of America/Guyana Mississippi Chapter.

The exhibition featured several breeds of cattle.

President of NCFA, Mr Bhopaul Singh, said the objective of the exhibition is to bring about farmer-to-farmer negotiations for acquiring animals.

The exhibition is open to

butchers and other persons who will buy animals on a competitive basis. The NCFA intends to make the exhibition an annual national event and will put mechanisms in place for it to be held in outlying regions of the country. It is anticipated that the next exhibition will be extended to Region Three, (West Demerara/Essequibo Islands).

Speaking at the opening ceremony, Minister of Fisheries, Crops and Livestock, Mr Satyadeow Sawh, emphasised the importance of agriculture and cattle farming.

"It is therefore imperative for us as farmers and producers in this country to ensure not only that there is enough for us, but also to help in our



Proprietor of Washington BN&N Farm, West Coast Berbice, Mr Lloyd Naljit, tells Minister Sawh (with hands folded) and United States Ambassador to Guyana Mr Ronald Godard (second from right) about his cattle stock during the exhibition. At left are President of the National Cattle Farmers Association Mr Bhopaul Singh, and Mrs Bena Naljit. (Picture by Winston Oudkerk)

own small way to provide enough for all, so that we can

fight hunger to reduce poverty," he said.

Sawh endorsed the initiative of the farmers' body of adding value to their products by making marketable all that can be produced from the animals. He noted that the skin, hooves and horns of cows could be

used for ornamental purposes.

"We want to slice, package, and preserve our cuts so that Trinidad and Tobago, for example, would no longer have to import their beef from New Zealand and Australia," he explained.

Sawh said that the milk pasteurisation plant that is due to be opened at Mahaica later this year will be a significant boost for Guyana's cattle industry. He said farmers in the Mahaica, Mahaicony and Abary areas, would benefit tremendously. (Jaime Hall)

# Cattle farmers launch national body

Cattle rustling has continued to be a serious problem for farmers and will be one of the burning issues to be addressed by the newly launched Na-

tional Cattle Farmers Association (NGFA).

This was the commitment of the association's president, Bhopaul Singh at yesterday's

## Rustling to be addressed as priority

launching of the association at the Sophia Exhibition Complex.

The launching was described as a watershed in the history of the cattle industry and while the idea has been around for some time it only became a reality on September 27 when the members of the executive were nominated.

The vice-president of the association is Roopnarine Indhal, while Leon Small is the secretary and Shamdai

Mohan is the treasurer.

The launching ceremony was attended by Minister of Fisheries, Crops and Livestock, Satyadeow Sawh; Director of the Guyana Dairy Development Project (GDDP), Dr Hector Munoz; Director of the National Dairy Development Programme (NDDP), Meer Bacchus; Vice-President of Partners of the Americas, Guyana/Mississippi Chapter, Alex Foster; US Ambassador, Ronald Godard; representa-

tive of the Inter-American Institute for Co-operation on Agriculture (IICA), Dr Alexis Gardella; and veterinarian and current Chairman of the Elections Commission, Dr Steve Surujbally. The formation of the association was said to be the brainchild of Dr Surujbally, a former Director of the NDDP.

Singh said that the rustling problem was one of two issues the association planned to address before the end of this year. The other problem is finding land for farmers. According to Singh, cattle belonging to farmers usually roam the streets causing accidents because of the lack of land. Rice farmers have also complained bitterly in the past about the incursion of cattle onto their plots.

Singh said that rustling was prevalent in the area. He described the problem as a major one for the cattle farmers because of the loss of income and the illegal nature of the activity. He said that the national body planned to be formed for the purpose of addressing the problem. The association will be a non-profit organization and will be open for the membership of all cattle farmers. The association will also be responsible for the introduction of a registration system for cattle, for best

Guyana was formally certified as free of the Foot and Mouth Disease earlier this year and this paves the way for exports.

The president said that before the formation of the association farmers spent many days at the IICA office setting it up. There are 54 sub-associations in the country and the national body plans on including all in its effort to solve some of the farmers' problems.

The constitution of the national body has already been drafted and is being reviewed. The body will be registered soon.

Sawh said that the national body will be a major step towards the development of the cattle industry in Guyana. He said that the association will be a platform for the farmers to voice their concerns and to work together to solve their problems. He said that the association will also be responsible for the introduction of a registration system for cattle, for best

# Study finds milk programme improved nutrition - GINA

The Milk Supplementation Programme conducted from February to December 2002 found that the daily supplementation of a child's diet with 250-millilitres of flavoured, sweetened, local milk significantly reduced malnutrition and generally improved the nutritional status of the study population.

According to the Government Information Agency, the programme was conducted in three schools, Novar, Airy Hall and Calcutta Nursery in Region Five (Mahaica/ Berbice). The supplementation and nutrition study was implemented and conducted by the Guyana Dairy Development Programme, the United States Agency for International Development (USAID) and Partners of the Americas.

The main focus of the study, according to Nutritionist Yvette De Freitas, was to decrease malnutrition and increase dairy production through increased utilisation of locally produced milk. The Dantzig Dairy Plant was selected for the study because of its proximity to the schools, while the three schools were selected because of the high number of malnourished cases (about 273) reported by the health centre serving the area.

For the duration of the project, each child was required to consume a 250-millilitre pouch of milk daily. They were not given any milk through the Ministry of Education's School Feeding Programme during the study. The study noted that there was a 69.4 percent reduction in malnutrition rates when the group was assessed by the weight for height indicator while a 75 percent reduction was noted when the assessment was conducted with the weight for age indicator.

The results showed that milk was readily accepted by the children, with strawberry being the preferred flavour.

The study also showed that the programme reduced casual absenteeism and parents even collected milk when their children were absent from school.

# Milk supplementation programme improves nutrition

## — survey among nursery students finds

A SURVEY among nursery school students has found that a milk supplementation programme done last year improved their nutrition and reduced the incidence of malnutrition among the group.

The Guyana Dairy Development Programme (GDDP) this week presented the results to show the effects of the milk supplementation programme on the nutrition status of nursery school children of three schools in Region Five (Mahaboo/Barbicos).

The three nursery schools are Novar, Alry Hall and Calcutta Nursery.

Nutritionist, Ms. Yvonne De Freitas presented the results to a gathering at Novar Primary School, Mahaboo on Tuesday.

The milk supplementation programme was conducted from February to December 2002.

The GDDP, the United States Agency for International Development (USAID) and Partners of the Americas implemented and conducted the milk supplementation and nutrition study.

The main focus of the programme was to decrease malnutrition and increase dairy production through using more locally produced milk.

The project used locally produced pasteurised milk from the

Dantsig Dairy Plant for the three schools because they are next to the plant.

The Dantsig milk plant was

commissioned on Valentine's Day 2002.

It was constructed with funding from the Food and Agricultural Organisation (FAO).

The initiative was intended to utilize and add value to cow's milk while extending the shelf life of local milk.

Strawberry, chocolate, vanilla and natural flavours of pasteurised milk are produced from the plant.

The milk is now available at local supermarkets.

The three schools in the Mahaboo zone were selected because of the high number of malnourished cases reported by the Health Centre serving the area.

Some 273 cases of malnutrition were reported at the time of the study.

The project allowed for each child to consume a 250-millilitre pouch of milk every day during its duration.

The students of the three schools were not given any milk through the School Feeding Programme by the Ministry of Education during the milk supplementation scheme.

The most important finding of the study was that the daily supplementation of a child's diet with 250-millilitres of flavoured, sweetened and local milk significantly reduced malnutrition and generally

improved the nutritional status of the study population.

It was noted that there was a 69.4 per cent reduction in malnutrition rates when the group was assessed by the weight for

height indicator while a 75 per cent reduction was noted when the assessment was conducted with the weight for age indicator.

The results of the study

show that milk was readily accepted by the children.

The findings highlighted that the strawberry-flavoured milk was preferred by the majority of school children.

The distribution of milk at the three schools has also reduced casual absenteeism.

The results have also shown that parents collect milk even when their children were absent from school (GOVERNMENT INFORMATION AGENCY GINA)

## Guyana Dairy Development Project Wins Caribbean Food and Nutrition Institution Recognition

*Greater Georgetown, Guyana* - Partners of the Americas' Guyana Dairy Development Project (GDDP), a dairy program funded by the United States Agency for International Development (USAID), has won first prize in the Caribbean Food and Nutrition Institute's 2002 Nutrition Promotion Awards Competition. The GDDP, which has operated since 2001, aims to increase the nutritional level of Guyanese population, and its children in particular, by improving dairy production and working to increase consumption.

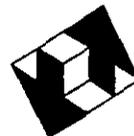
Specifically, the GDDP strives to: strengthen institutions directly involved in the production of milk; improve the quality and accessibility of dairy products to consumers; improve children's nutrition by increasing their consumption of dairy products; and increase the capacity of local institutions and organizations to address challenges of the dairy sector in the future.

Guyana is a country in great need of resources, support, and technical assistance. Guyana's endemic poverty, unemployment rate and malnutrition levels. Partners has been successful, through this project, to deliver such services in bettering the lives of the Guyanese

The Caribbean Food and Nutrition Institute (CNFI) is a specialized centre of the Pan American Health Organization and the World Health Organization. Established in 1967, CNFI works to forge a regional approach to the solution of the nutritional problems of the Caribbean. Each year it uses its Nutrition Promotion Awards to recognize outstanding projects in the Caribbean that demonstrate impact at the community and/or national level; display creativity and originality; possess transferable value; and demonstrate scientific accuracy and validity. The GDDP is the first Guyanese project to win a CNFI award.

Latest developments in the program see Partners associating with the Caribbean Research and Development Associates (CARESDA) in continuing to build the capacity of the Guyanese dairy industry to address the critical issues of poverty, food insecurity, and malnutrition in the country. To achieve the above objectives, Partners and CARESDA have emphasized citizen participation throughout the conception, implementation, and evaluation phases of the initiative. By including representatives of the Guyanese government, private and civil society organizations, Partners and CARESDA have insured that all stakeholders in the country are active participants in the successful implementation and sustainability of the initiative.

Partners was founded in 1964 as the *people-to-people* component of the Alliance for Progress. Today, it is a private, nonprofit and nonpartisan organization, enjoying the support of many committed volunteers, international corporations, public agencies, and foundations. Partners of the Americas is the largest volunteer-based organization in the western hemisphere engaged in social, economic, and cultural development. Partners of the Americas turns ideas into action. We envision a hemisphere in which opportunity is abundant for all and dreams are not bound by borders. The organization works by pairing U.S. states with Latin American and Caribbean countries in 60 "Partnerships." For example, Mississippi is linked with Guyana; New Jersey with Haiti; and Missouri with the state of Pará, Brazil.



**Technical Support to the National Dairy Development Programme  
Training Agenda**

Dates/venue: March 11-12, 03 at the St. Stanislaus Training Centre

<b>DAY 1</b>	<b>Hrs</b>
1. Welcome and introduction	0900
2. Revision of production chain; purpose and expected output Dr. N. Waldron	0910
3. Record Keeping: Importance in farm management Arnold de Mendonca	0940
BREAK	
4. Farm monitoring procedure Autry Haynes	1030
i. Developing farm profiles	
1. Purpose and criterion for identification and selecting farmers	
2. Using the questionnaire	
LUNCH	
ii. Collecting data	
1. Type of data (biological/technical and financial)	1300
2. Instruments	
3. Who to keep/collect	
4. Frequency	
5. Reporting	
iii. Compilation and analysis	

**Technical Support to the National Dairy Development Programme  
Training Agenda**

**DAY 2 (12.03.03)**

- |   |      |
|---|------|
| 1. Lessons learnt based on the current system implemented<br>by GDDP<br>Panday Mansaram | 0900 |
| 2. The role of the Supervisors<br>Autry Haynes  | 1000 |
| BREAK   |      |
| 3. Implementation Plan<br>Autry Haynes  | 1100 |
| 4. Evaluation of training programme<br>Team   | 1130 |

**1. Welcome/introduction and Revision of production chain; purpose and expected output**

1. Welcome and Introduction of facilitators/participants.
2. Objective
  - To put systems in place that will facilitate:
    - The gathering of data from dairy farms serviced by the NDDP.
    - Encourage farmers to keep records and use these records to manage and improve efficiency of production.
    - Improve quality of product by simple, workable on-farm interventions and improved management practices with the ultimate goal of certifying farmers, farms and products.
3. Background
  - For too long services offered to farmers without adequate follow-up or data collection.  
  
Difficult to analyze the results obtained from services offered and to assess the impact of any interventions made.

**Revision of Husbandry and Production Practices**

Three main areas to improve:-

- Nutrition
- Breeding
- Health and General Husbandry

- Nutrition
  - Adequate amount of Good quality forages
  - Concentrates
    - introduce in small quantities
    - diarrhea, bloat
    - according to category and production
    - not Mouldy
  - Adequate quantities of clean fresh water.
- Breeding
  - Objective
    - Cow/Calf/Year

- 9 mths pregnant, 2 mths. Recuperation, 1 mth to get pregnant again (2-3 heats)
- P.D. important - To know if animal is pregnant and give her the necessary care.
- If not pregnant, why? Correct and breed again as quickly as possible
- A.I. Best Option - Bull dangerous and expensive
- A.I. Offspring need a little extra care
- Health - Description of Healthy animal
- Signs of illness
- Causes of illness
- Some preventative measures
  - Deworming
  - External parasites
  - Wounds
- Calf care at birth
  - Breathing
  - Colostrum
  - Navel
- Mastitis - Management Problem

#### Clean Milk Production and Good Milking Practices

- Housing
- Sanitation
- Some Management Tools
  - Separation of herd by categories
  - Culling
  - Quarantine

## **2. Record Keeping Systems for Dairy Farmers**

### **Introduction;**

#### **What is a record?**

A record is a document or a register of data set down for future purposes.

Records are important farm management tools that are necessary for monitoring any livestock operation. Records enable the measurement of technical and financial performance. As such, farmers can use these records to tell a story of the performance of his individual animals and as a whole his farm. This information for the farmer is perhaps the most important tool for him to make decisions about his farm as it makes all other information meaningful. The farmer can use the record as a reference point from which he can measure or compare the performance of animals or even use it to compare different periods of time.

Technicians on the other hand can utilize records to compare different farms and also to obtain a profile of different farmers. Performance indicates a lot about farmers.

Record keeping must be properly instituted if the production operation is to be sustainable and to survive.

#### **Why should a farmer keep records?**

- Farmers should keep records because records assist in improving the overall performance of the farm both in the short term and the long run.
  - A record serves as a reminder of a particular problem. The farmer makes numerous observations during his day at the farm and plans to tackle specific problems in the near future. An ordinary notebook or farm diary can be used for this purpose.
  - Records speed up the correction process. If a crop farmer notices a particular condition in a plant, he removes one of the leaves and takes it back to his house. He makes a note of the nature of the damage – colour, physical disfiguration. By doing this he can describe the problem more accurately to those who might be able to help him. A similar attitude should be associated with mechanical equipment, animals and buildings.
  - Records are essential to efficient daily decision-making. The farmer makes his daily decisions regarding how to combine inputs and what input can be used as a substitute for another and uses his intuition as to understand the effects of its use on the production system. The farmer who has concrete records with reference to information on his farm is in a better position to make informed decisions.

Record keeping is usually taken to be writing down of information of one kind or the other for immediate use but there is more to it. There are aspects of collection, processing, recycling into the system in the short term, storage in the long term, retrieval, rolling summarizations, etc. to facilitate the obtaining of working data to use in budgeting and other planning. There must be a proper transfer chain and the format must provide for easy data entry and retrieval. Records should provide a means of accurate evaluation of progress, on the resources used, and how that use relates to targets set. That information is to be reviewed continuously or at suitable intervals so that it could be brought to bear on future planning activities. The most common summary is done on a monthly basis. Quarterly and Annual Records span a longer period and are less action oriented than the monthly summary, which is made up of current information.

Records can be categorized into the broad groups, Production, Resource/Input and Accounting Financial.

### **What records should the farmer keep?**

The farm manager / farmer decides over time which are the most useful records for him to keep. Generally, as pointed earlier, the objective of the farm record is to provide physical and financial information about the farm business.

- **Physical Records:**

- Physical records detail the operations implemented and the resources utilized in the production system. They also show yield, production and physical performance of the enterprises. Physical records are critical to the evaluating the financial performance of the farm, although generally, no financial information is kept as part of physical records.

- Physical records normally include all records on crop and livestock activities, associated inputs, (tractor repairs and building maintenance), and performance and efficiency (area ploughed by a machine, area planted by number of men, weight gain over feeding rates at different time periods).

- (i) **Farm Maps**

Farm maps can simply show different areas and their sizes, or can show soil type, previous soil treatments, crop yields and livestock in different areas, etc. Generally, the farm map is important to planning because it helps in estimating yield per acre for different crops. It provides a picture of the farm and assist the farmer to organize his work efficiently, whether it is machinery use, animal grazing or crop protection work. *See fig 1.*

(2) **Crop Records**

The crop records have three critical entries: acreage, yield and treatments. Treatments refer to fertilizer applications, land preparation techniques, crop protection measures, etc.

Crop production records should be entered when they are available, i.e. immediately after the action (land preparation or treatment). This ensures both accuracy of the record and that it is done.

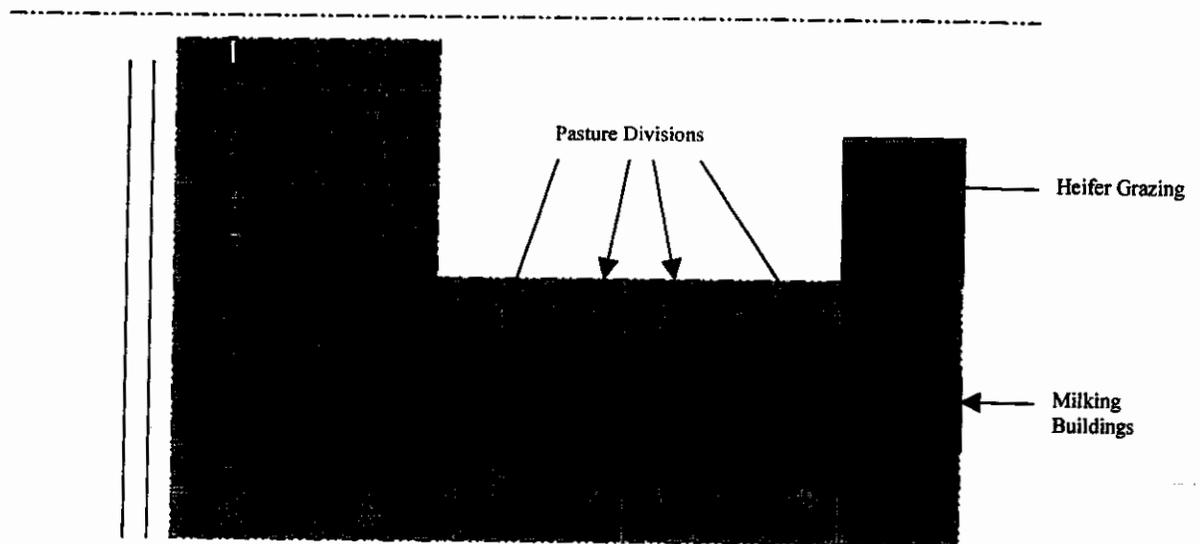
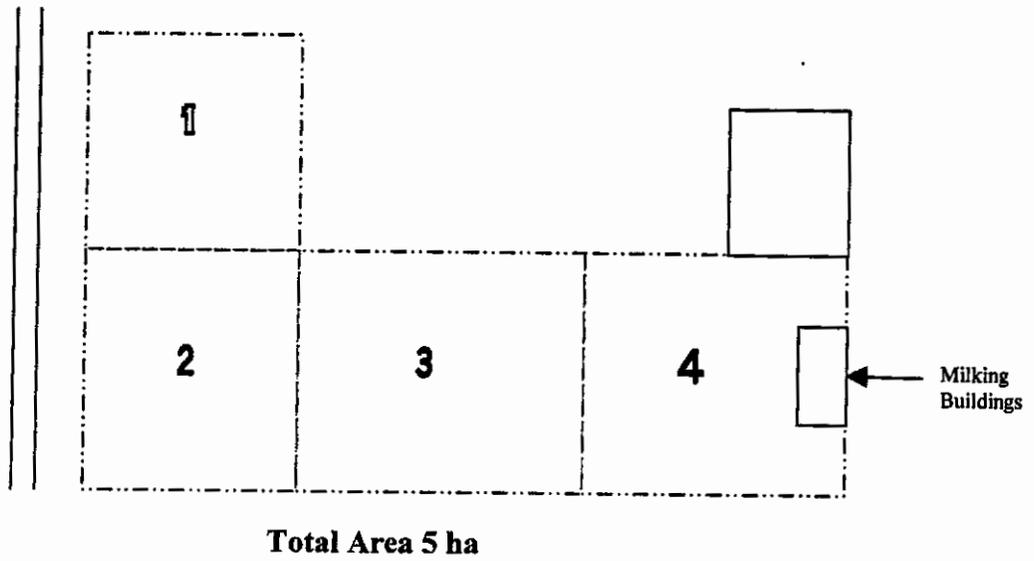
(3) **Livestock Records**

Livestock records can be of several different kinds and forms depending on the size and type of farm. Records can be simple on a general farm – feed used, beef sold, milk sold. However, on more specialized operations, detailed feed and weight gain records are kept with each batch of livestock (broilers, feeder cattle and pigs). Breeding and insemination records are critical if production efficiency is to be high. Milk production records by cow are important to assist in culling animal. Sales of animals must be rationalized with inventory information (see tables 1, 2 and 3).

(4) **Financial Records**

Financial records form the basis of the accounting system of the farm. They are the summary of the financial transactions, which show the business side of the farm (firm). The objectives of the financial records are:

- (i). To determine the expenses and income of the farm;
- (ii). To determine what the business is worth;
- (iii). To provide information for increasing the efficiency with which the farm is run;
- (iv). To provide information on the basis of which taxes can be paid.



**Figure 1: Plan of Farm's Pasture Divisions**



## Table 2: Milk Herd Production Daily Record

### Milk Production Records

Total Milk Production Per Day ( )

Farm's Name \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_

DAY	MORNING	AFTERNOON	TOTAL	DAY	MORNING	AFTERNOON	TOTAL
1				17			
2				18			
3				19			
4				20			
5				21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			
16				TOTAL/MO.	_____ X/DAY	_____ X/COW/DAY	_____



## Tips

### How do you become a good record-keeper?

1. Develop good record keeping habits  
**Remember:** Record on your record sheets all pertinent data as soon as they are received.  
  
Record on your sheets all financial aspects if available as to be able to calculate income and expenses.
2. Pay attention to all details  
**Remember** to record your information in the way that is required as by the record sheet.
3. Follow the directions given by your Record Keeping guide
4. Know and understand how your records will be useful to you in your farm and home Management.
5. Keeping farm records is relatively easy if the farm family develops the habit and has one member of the family "in charge" of the record -keeping.
6. Organizing a special place as a farm office and will make a job of record keeping easier.

### 3. Farm monitoring procedure

**Title:** Training of Supervisors and Technicians of NDDP in the collection of data, compilation and analysis for effective farm monitoring and development of a database.

**Goal:** To contribute to an effective system of data collection from farms to ascertain performance based on interventions and/or technologies adopted and/or practiced and to develop a database of coefficients (technical/biological and financial) of production, ascertain viability and sustainability; and to create an enabling environment for farmers and technicians for dairy farm planning and decision-making.

#### 1. Farm monitoring procedure

**Monitor:** In this sense we hope to watch, observe, and to some extent control what is happening on the farms we will be working with over a period of time with the objective helping the farmer to make decisions concerning improving his farm to the benefit of his family.

**Procedure:** method or manner of proceeding in some action especially sequence of steps to be followed. This is what we hope to achieve together you and us. Along the way we will agree on the best steps and results to be obtained. In an effort to achieve the objective of

implementing a monitoring process on each farm we will discuss the following steps, this training session would be the first step. After this session, we will develop profiles of each farm; implement the monitoring mechanism; create the database.

**Before:** Do you have any questions? .....

I would like to ask you two questions. Since you have been involved in the dairy sector, more particularly active in the process of A. I:

1. What is the current average daily production of milk per cow?; and
2. What is the average national lactation length per cow (mo/days)?

**response:**

1. 4-6 pints per cow per day
2. 6-7 months

Since 1987 at a rate of 1100 inseminations per year, there has been some 15, 000 inseminations completed in Guyana. Let me ask you a follow-up question. What is the result of these inseminations? How do we measure impact of these inseminations? Personalise. What is the objective of A.I? Performance in output of animals and/or milk. A. I therefore is an input that should result in some output (animal performance in the form of Milk! Isn't it?

In addition for each insemination there is a cost attached, while the farmers pay \$100, the actual cost is approximately \$3,600. Over the 15 years this cost is estimated at \$54 million. How and who pays for this expense that is being incurred by Government? Atleast we have to assured that the production system can pay back this expense, even though not literally. How, then can we be sure that the production system is or can pay back for this investment? Or maybe, we shouldn't be concern ourselves about this?

Finally, do you remember when the last consultants to review the cattle sector? Some of you might have worked with them. These and other possibilities of funding for example would require from certain baseline data, such as those just asked. Do you think we presently have suvh information at our disposal for them? Definetely no!

Do you see the picture? The process we are about to embark on will help us and the industry you are involved in will provide such data at the snap of your finger. The result? Quick reaction assistance and possible improvement working conditions for example.

Now let us proceed with the steps to be implemented for the monitoring process. Your involvement in the process will be collection of required data. But you will also be involved in designing the mechanism of that process.

### 1.1 Developing farm profiles

#### a. Purpose:

The purpose of the profiles ideally is to generate a 'before situation' which will be used as the base for comparison when the data from monitoring process is compiled. Some basic information include resource base of the farmer; system of production (define together); potential markets from the point of view of the farmer; production and labour on the farm at specific time.

An important aspect of developing a profile is accuracy of the information. We cannot emphasise this aspect more and would greatly be dependent on you for reliable information. The success of this effort will be as good as the information collected by you. Trust, therefore, has to be the hallmark here. We, therefore have to put our **trust** in you. If trust seems to be a big word. Then it is in no small measure that you have a major role, being the active participants in the field, to play in helping in our determination to mold a renewed attitude or reenergizing the production system. Let us therefore, together give the system, a jolt or kick-start or inject energy into the situation that seems to be decaying, and shake up local elements to such an extent that they will re-discover their dynamism, and create new forms of it. This is in fact our challenge.

### Opportunities

The quantitative demand (>4000 tons/year) of beef in Caribbean countries is very substantial and much larger than Guyana could satisfy even in the long term.<sup>1</sup> The level of fluid milk production in Guyana was about 12.7 million litres in 1983, representing approximately 25% of the nation's requirement. The total demand is estimated at approximately 60,000 liters. Production peaked at almost 40 million litres in 1993 before stabilizing (**estimated**) at about 30.0 million litres towards the end of the 1990s. In comparison, the annual milk import is estimated at 6 million kilogram, valued at **G\$2.9 billion**. These two markets, therefore indicate the potential and opportunity for milk and meat producers in Guyana.

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<sup>1</sup> RDP Final report, Volume II

Guyana has always, because of its large available resources (land and capability) been considered to have the potential to contribute significantly to the sustenance of the region especially in terms of food security. Despite the declining economic and social conditions, **this country is ideally located by its nearness to the potential markets and thus still in a better position and able to meet these challenges and opportunities.** In addition, Guyana is now the only country within South America that has been declared to be FMD free as certified by OIE.

### **1.1.1 Criterion (*Interactive approach*)**

Standard or rule by which the farmers will be selected to participate in the process thereby enabling the achievements of the goal or objective.

- Willingness to participate;
- Willingness to make investment and/or provide inputs (we would not at this stage focus on farms that would require major investment);
- Easy access for monitoring especially during periods of inclement weather;
- Willingness to implement recommendation;
- Dependent on milk for a living;
- That would require small changes to make impact or positive results. (Discuss simple effective technologies)NB: **Dr. Waldron highlighted some of these in his presentation.**

**NOTE:** Participants agreed that each technician will identify 8-10 potential farmers and a meeting will be held with them with a view of ascertaining their support and thereafter allowing them to volunteer to participate. The intention was to get at least four farms per technician.

### **1.1.2 The questionnaire**

The questionnaire was designed to capture as much information as possible, not only related to milk, but also to capture and analyse other economic activity taking place on the farm or by the farmer and to develop a profile of the farmer/farm. It was finalized together with training participants.

**See appendix 1: The questionnaire was discussed with the participants and adjustments made accordingly.**

## **1.2 Collecting data**

The approach will include each technician having to monitor four farmers and the Regional Supervisors are asked to monitor one farm each. The objective to include the supervisors in the monitoring process is that they would have a first-hand exposure/experience in the process and therefore a better appreciation of this effort.

The objective was not to add too much additional work for you or the farmers, but to generate and to indicate where and/or how the information gathered, compiled and analysed can make a difference in improving the production system and realize better economic returns.

- Type of data:  
Two types of data will be of concern:
  - biological/technical and
  - financial or economic
  
- Instruments (**Tables 1, 2, and 3 above**)
  - Two cards – milk and cow
    - Milk
      - Daily production per farm;
      - Twice per month individual production. Twice per day where applicable. (**benefits?**)
    - Cow
      - Have id, D.O.B
      - Date of service or inseminated
      - Date dry
      - Date calved; sex, weight;
      - Health treatment etc.
      - Benefits
  - Farm visit report
    - Self explanatory; discussed, **Appendix 2.**
  
- Who to keep/collect
  - Card will be remain on the farm and information will be compiled by the farmer. These cards will be monitored by you on a regular basis, on every visit to the farm by you.

You will also be responsible for teaching the farmer how to and the type of information to be recorded on the cards.

- Technicians will use the farm visit report to collect data from the farms at every visit i.e twice per month, probably two per week.
- **Frequency**  
Each farm will be visited a minimum of two times per month. What do you think? How will this new/additional duty affect your present work programme?
- **Reporting**  
We would like to encourage and emphasise that you do not delay, repeat: do not delay in forwarding the data collected to your supervisors. This is very important. Here, too is where the element of trust is required.

### **1.3 Compilation and analysis**

- 1.3.2 Technicians collect data from cards and forward to Supervisor on monthly basis;
- 1.3.3 Farm visit report on a weekly basis
- 1.3.4 Supervisors will collate all information and forward to database centre (GDDP office)

**4. Lessons learnt based on the current system implemented by GDDP**

**Cow No. # 555**  
**Name: Shantal**

Lactation 4	Lactation 5	Lactation
23/3/01 calved bull	22/4/02 calved bull	
Dewormed	Died at birth and dewormed (7 ml ivomec)	
18/7/01 served by bull	9/10/02 weight 971 lbs	
14/1/02 dry	13/1/03 weigh 917 lbs	
8/1/02 trt with worm	15/1/03 dry off	
	????????????????????	

**Points highlighted:** The lactation number begins when the cow calves and thereafter all activities in relation to that lactation will be recorded under that particular lactation until the cow calves again. Some of these activities are highlighted in column one above. Under lactation 5, the column was incomplete and participants were asked to fill the blanks and then discussed further.

**5. Role of supervisors**

- 1.3.5 Monitor technicians (to be determined how?)
- 1.3.6 Collect and compile data
- 1.3.7 Monitor one farm
- 1.3.8 Forward compiled data to GDDP, when and format?

**6. Implementation plan**

- Week 1: Mar 17-21: Farmers identification by technicians
- Week 2: Mar 22-31 Finalize farmers selection by technicians and technocrats
- Week 3- 5: April 01 to April 18 Develop profiles of farmers
- Week 6- 7: April 21-May 02 Verification of profiles
- Week 8 - 12: May 05 – June 30 Implement monitoring activities and Verification
- Week 13: June 30 to July 04 Evaluation and recommendation.

**7. List of participants**

P Raghunath - Supervisor Region 3  
 N. O Prasad - Supervisor Region 5  
 N. Yakob - Technician  
 F. Harkissoon - Technician  
 A. Joseph - Technician  
 H. Shivraj - Technician  
 G. Sukhu - Technician  
 S. Shamsohan - Technician  
 M. Jagarnauth - Technician

**Appendix 1: Questionnaire**

**Biographics**

Name of Farmer.....

Address.....

Address of farm (if different).....

Distance of farm from home.....

How long have you been farming?.....

How was your farm acquired? Purchased Inheritance Rented  
Lease  
Other

Age of farmer  <18  19-30  31-40  
 41-50  >50

Gender :  Male  Female

Size of family

0-2	
3-5	
6-8	
> 9	

Age of members of the household

1-10	
11-20	
21-30	
31-40	
41-50	
51-60	
> 61	

**Education**

- Primary
  Vocational  
 Secondary
  Other  
 Tertiary
  None

**Farm type**

1. What type of farm do you operate? Crop Livestock Mixed  
 2. If mixed, which is your main activity? Crop Livestock  
 3. What type of crops do you grow? Vegetables Orchard Cash crops

Other(specify).....

4. What type of livestock do you rear? Small ruminant  
Large ruminant  
Other (list) .....

5. Which is your main activity?  Small ruminant Large ruminant

6. Do you rear large ruminant for  Beef Dairy  
Both

7. If both, which is the main activity? Beef Dairy

8. What type of small ruminant are you involved in? Sheep  
Goats

9. If both, which do you have more of? Sheep Goats



- a. If yes, Is it enclosed? Yes No
- b. Does it have a chute? Yes No
- c. Does it have a dip? Yes No
- d. Does it have a scale? Yes No
- e. Does it have a loading ramp? Yes No
- f. Do you have slaughtering facility? Yes No
- g. Do you have a footbath? Yes No
  - i. If yes, Is it in good condition? Yes No
  - ii. Is it functional? Yes No
  - iii. What type is it/
    - Concrete Mud
    - Wood Other

15. Do you have any of the following machinery/equipment?

- a. Milk Machine Yes No
  - i. Age of machine
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp
- b. Tractor Yes No
  - i. Age of machine
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp
- c. Plough Yes No
  - i. Age of equipment
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp
- d. Harrow Yes No
  - i. Age of equipment

- ii. Functional Yes No
- iii. Made
- iv. Hp
  
- e. Brush cutter Yes No
  - i. Age of machine
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp
  
- f. Slasher Yes No
  - i. Age of machine
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp
  
- g. Truck Yes No
  - i. Age of machine
  - ii. Functional Yes No
  - iii. Made
  - iv. Hp

16. Do you have animal housing? Yes No
- a. If yes, state
    - i. Condition
    - ii. Habitable Yes No
    - iii. Need repairs Yes No
    - iv. Not habitable Yes No
  - b. Number

**Management System**

1. How often do you round up and/or herd count
- None
  - daily weekly
  - monthly quarterly
  - half-yearly
  - Yearly
2. Do you Mark? Yes No

- a. If yes, is it by Tattoo Brand Tag  
Notching Other

3. Do you practice any of the following?

- Deworm: Yes No  
 Vaccination Yes No  
 Use veterinarian: Yes No  
 Use NDDP technician: Yes No  
 Dipping/spraying: Yes No  
 Culling: Yes No  
 Castration: Yes No  
 Hoof trimming: Yes No  
 Dehorning: Yes No  
 Navel dipping: Yes No  
 Pregnancy diagnosis: Yes No  
 Artificial insemination: Yes No  
 Bull rotation: Yes No

4. Do you practice any of the following?

- a. Making silage: Yes No  
 b. Making hay: Yes No  
 c. Making molasses block: Yes No  
 d. Plant legumes/tree crops: Yes No  
 e. Machine milk: Yes No  
 f. Record keeping: Yes No

5. Do you use labour? Yes No

- a. What type of labour? Family Part time Full time  
Mixed

### Herd Distribution

Large ruminants Bulls (mature)  
 Cows (mature)  
 Heifers (1-2 yrs)  
 Heifers (2-3 years)  
 Calf (male)  
 Calf (female)  
 Bull Steer (1-2 years)  
 Bull Steers (2-3 years)

Small ruminants: Sheep Ram (mature)  
 Ewe (mature)  
 Replacement weaned rams

Replacement weaned ewes  
Lamb (male)  
Lamb (female)

Goats      Buck (mature)  
             Doe (mature)  
             Replacement weaned buck  
             Replacement weaned doe  
             Kid (male)  
             Kid (female)

**Land resources**

1.  Tenure:                       Owned                       Transport  
  
    Rented/lease                       Squat                      Other title
2. Acreage(acres)                       None ;                       < 5                       6-20  
    21-50                       51-99  
    101-200                       201-500                       > 501.

**Land utilization**

1. Do you have pasture ?                       Yes                       No
2. What percentage of the land is in pasture?
3. If yes, what type?                       Improved                       Native  
    Both
3. How many acres improved pasture, do you have?.....acres
4. What type of forage? .....
5. How is your pasture utilized?  Continuous grazing  
    Rotational grazing  
    Cut-and-carry  
    Grazing/cut-and-carry
6. Percentage of land dedicated to large and small ruminant production
7. Do you practice any of the following?

- a. Brushing    b. Fertilizing    c. Weed control  
 d. Replanting    e. Pest control

**Feeding system**

1. Do you feed    forage alone                      supplement feed alone  
                     Mixed                                      Others
2. Which do you offer most?    Pasture                      Supplement feed
3. What type of supplement    Rice bran    Wheat bran  
    Copra meal    Fish meal    Broken rice  
    Commercial bran    Mixed
4. Do you feed?    Hay                      Silage
5. Your choices depend on?    Costs                      Availability

**Coefficients of production**

What is the average birth rate?

During what time of year the birth rate of animals is higher?

- January-March                      April-June    July-September  
October-December

Mortality rate?    Adults                      Calves

When do you experience higher mortality?

- January-March                      April-June    July-September  
October-December

Which category of animals experience a higher mortality rate

- Large ruminants    Bulls (mature)                      Cows (mature)  
    Heifers (1-2 yrs)                      Heifers (2-3 years)  
    Calf (male)                              Calf (female)  
    Steer (1-2 years)                      Steers (2-3 years)

- Small ruminants: Sheep    Ram (mature)                      Ewe (mature)  
    Replacement                              Lamb (male)  
    Lamb (female)

- Goats    Buck (mature)                      Doe (mature)  
    Replacement                              Kid (male)  
    Kid (female)

What is the average calving per cow (%)



Large ruminants    Bulls (mature)    Cows (mature)  
Heifers (1-2 yrs)    Heifers (2-3 years)  
Calf (male)    Calf (female)  
Steer (1-2 years)    Steers (2-3 years)

Small ruminants: Sheep    Ram (mature)    Ewe (mature)  
Replacement    Lamb (male)  
Lamb (female)

Goats    Buck (mature)    Doe (mature)  
Replacement    Kid (male)  
Kid (female)

6. What is the average weight at time of sale?

Large ruminants    Bulls (mature)    Cows (mature)  
Heifers (1-2 yrs)    Heifers (2-3 years)  
Calf (male)    Calf (female)  
Steer (1-2 years)    Steers (2-3 years)

Small ruminants: Sheep    Ram (mature)    Ewe (mature)  
Replacement    Lamb (male)  
Lamb (female)

Goats    Buck (mature)    Doe (mature)  
Replacement    Kid (male)  
Kid (female)

7. Do you sell as Live weight    Carcass    Other (explain).....

8. What is the average price per pound ?.....

9. What percentage of your revenue is generated from cattle .....

**Constraints**

Which do you consider to be your major constraint:

Market for your produce    Irrigation    Rustling  
Technical assistance

Credit    Land availability    Breeding stock  
Roads

Transportation    Age    Labour costs    Labour  
availability

Technical knowledge    Equipment    Finances    Others

**General Comments**

What are your plans for the future?

.....  
.....  
.....  
.....  
.....

What do you think are some of the solutions to the problems that you experience?

.....  
.....  
.....  
.....  
.....

**General comments**

.....  
.....  
.....  
.....

.....  
NAME OF PERSON INTERVIEWED \_\_\_\_\_

RELATIONSHIP \_\_\_\_\_

**Appendix 2: GDDP - FARM VISIT REPORT**

DATE.....

- 1. **FARMER'S NAME**.....
- 2. **ADDRESS**..... **REGION**.....

3. **REVENUE**

**a. Milk**

- i. Sold.....pts/lit/lbs/kg
- ii. Used at home.....pts/lit/lbs/kg
- iii. Donated/give away.....pts/lit/lbs/kg
- iv. Price of milk sold .....per lt/lb/kg/pt

**b. Animals**

Animal identification	Weight		Price		
	Actual	Estimated	Lb	Kg	Animal

**c. Humus**

Quantity		Price	
Lb	Kg	Lb	Kg

**d. Other**

Particulars	Unit	Unit price	Quantity


4. **EXPENSE**

**a. Feed**

Feed type	Unit	Unit price	Quantity

**b. Labour**

i. Labour used for?.....

ii. Number of labour: Pat time.....

Full time.....

iii. Rate: Part time.....per hr/day

Full time.....per hr/day

**c. Health**

Description	Unit	Unit price	Quantity

**d. Maintenance**

Description	Unit	Unit price	Quantity

**e. Transportation**

Description	Unit	Unit price	Quantity


5. **COEFFICIENTS**

Cow identification	Calving date		Date		
	Male	Female	Dry	Served	A. I

6. **ACTIVITIES**

a. **Implemented**

- i. ....
- ii. ....
- iii. ....
- iv. ....
- v. ....

b. **To follow up**

- i. ....
- ii. ....
- iii. ....
- iv. ....
- v. ....

# **Guyana Dairy Development Project**

## **LOCAL MILK CONSUMPTION PROMOTION PLAN**

*Yvette De Freitas*

Nutritionist

Georgetown, Guyana  
August 2001

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Table 1. Approximate Cost of Popular Brands of Powdered Milk

Table 2. Fats and cholesterol in one cup of milk

## ACRONYMS

CARESDA	Caribbean Research and Development Associates
CFNI	Caribbean Food and nutrition Institute
IICA	Inter American Institute for cooperation on agriculture
MOH	Ministry of Health
NDDP	National dairy Development Programme
SIMAP	Social Impact Amelioration Programme
UNICEF	United Nations Children Fund
UNDP	United Nations Development Programme

## **EXECUTIVE SUMMARY**

Guyana has one of the lowest Human Development rankings in the Caribbean. Almost one-third of its population lives in poverty, malnutrition is still one of the leading causes of death among children, and many households are unable to adequately meet their nutritional needs.

On the other hand, Guyana has the ability to produce cheap milk, one of the most popular foods in the Guyanese diet. In 1993 over three million gallons of milk was produced locally, but in the latter part of the 1990's when the market for rice became more lucrative, dairy farming experienced a decline. The industry went into a further slump when trade was liberalized, allowing the uncontrolled importation of milk and milk products. Today approximately 80% of the population consumes powdered milk and only 29% consumes fresh cows milk. It has been suggested that the apparent preference for powdered milk may have resulted from the general unavailability of fresh cow's milk. But other reasons have been cited. These include lack of confidence in the quality of local milk and milk products and the untidy appearance of vendors.

In an effort to improve standards in the industry and alleviate the problems of poverty and malnutrition, the Partners of America in collaboration with the Caribbean Research and Development Associates (CARESDA) launched a project that aims to initially revive dairy farming standards and increase milk supply in traditional dairy farming communities and later to expand the dairy industry. The goal of this project is to increasing the nutritional level of Guyanese children and the population in general by improving dairy production. The project is therefore national in scope. The proposed strategy includes the provision of technical support and the identification and removal of constraints that have over the years led to a reduced consumption of fresh cow's milk and local milk products.

The specific objective of this consultancy is to develop a promotion strategy and appropriate promotional and educational materials, which are aimed at increasing consumption of local milk and milk products in traditional milk producing communities. But it is hoped that in time the initiative will spread to non-traditional dairy farming areas.

Following a brief background to Guyana in chapter one, chapter two provides a situation analysis. This analysis focuses attention on the food and nutrition situation in Guyana; findings pertaining to milk consumption; and opinions regarding the quality of local milk. A significant portion of the analysis therefore addresses issues such as poverty, education, household food security, water, and other factors that are known to have a major impact on food and nutrition.

The third chapter, "Main issues to be addressed", highlights communication principles, consumer concerns and other issues that are considered major points of interest in the planning and implementation of the communication and promotion plan. Chapter four

goes on to identify and recommends target audiences for the promotion plan, and chapter five suggests specific ploys that can make the activities and strategic plans more appealing.

The final chapter, a matrix of the promotion plan, provides details of the strategies, message concepts and activities recommended in the promotion plan. The activities, approaches and strategies recommended have all been influenced by literature reviews, researches and interviews with key stakeholders.

## **1. BACKGROUND AND INTRODUCTION**

Guyana has an area of 216,000 square kilometers (83,000 sq. miles). For administrative purposes it is divided into ten regions but geographically it can be divided into a coastal plain, forest zone and savannah lands. Seven-eighths of the country's population resides on the 200-mile stretch of coastland, which is divided into five administrative regions – Regions 2,3,4,5, and 6. The remaining one-eighth of the population is either clustered around the mining town in Region 10, some 160 kilometers inland, or dispersed throughout the hinterlands which is divided into the other four Regions 1,7,8, and 9.

When Guyana attained its independence in 1966, its economy was largely dependent on agriculture. During the 1980s, with the assistance of IICA, dairy farming began to play a major role in this sector, providing many farmers with a steady source of income, while at the same time providing the population with a product of high protein and calcium value. During the decade 1983 - 1993 milk production increased from 3.3 million gallons per year to 8.7 million gallons. However, in the years following the liberalization of trade, there was a drastic decline in milk production. Currently, animals are not milked to their full capacity and reducing quantities of fresh milk are being processed. Meanwhile, the malnutrition rate among children is approximately 13%. This figure is as much as seven percentage points above the 1995-1996 average given for most other Caribbean countries.

Partners of the Americas, in collaboration with the Caribbean Research and Development Associates (CARESDA), have proposed a three year Dairy Development Project as one means of improving this situation. It is anticipated that this project will address the critical issue of malnutrition, and two other problems that impact significantly on nutrition, namely food availability and poverty.

The Dairy Development Project goal is:

**“To improve the nutritional status of Guyanese children and the rest of the population by improving dairy production.”**

Principal objectives:

- To strengthen institutions and organizations directly involved in the production, processing and distribution of milk
- Improve the quality, variety and accessibility of dairy products to consumers
- Improve children's nutrition by increasing their consumption of dairy products; and
- Increase the capacity of local institutions and organizations to address challenges of the dairy sector in the future.

As part of the effort to improve accessibility of dairy products, milk production will be boosted in the traditional dairy farming regions - Regions 2,3,4,5,6 and 10, and the

establishment of new pasteurization plants or the rehabilitation of existing plants would be encouraged. The first plant is slated for Danzic, Mahaica in Region 5.

This aspect of the project is a "*local milk consumption promotion plan*"

### **The consumption promotion plan**

The consumption promotion plan is a consultancy to:

"Assess the status of nutrition in relation to milk/ milk product consumption and develop a local milk/milk product consumption promotion strategy"

### **The Aim**

"To ultimately decrease malnutrition and increase dairy production through the promotion of increased utilization of locally produced milk and dairy products."

### **Constraints to be removed**

Inadequate consumption of local milk and milk products

### **Specific objectives of the consultancy**

- Development of a local milk/milk product consumption promotion strategy and appropriate educational material
- Increased consumption of local milk/milk products in producing areas and areas away from production.

### **The Process**

- Review literature and have discussions with relevant persons and groups.
- Provide a communication strategy plan
- Recommend other strategies for increasing the use of local milk/products

## **2. SITUATION ANALYSIS**

### **2.1 Nutrition And Nutrition Related Diseases**

Nutrition levels for Guyana are extremely low in comparison to the levels reported for neighboring countries. Fourteen percent of children under 5 are underweight. Of these, 11% show signs of stunting and a total of 3% show signs of severe malnutrition (stunting and wasting). According to the 1999 UNICEF sponsored Multiple Indicator Cluster (MIC) survey and the Ministry of Health clinic data for 2000, most of this malnutrition occurs in the rural coast and hinterlands among children 11 – 59 months old. But one year olds are most affected. Among the 12-23 months age group, malnutrition rates in the hinterlands ranged from 21% - 26% in 2000. And along the rural coastlands, the rates ranged from 14% - 19%. In Region 4, which is largely urban and sub-urban, the rate was 14%. In Guyana malnutrition is a leading cause of death during the childhood years,

In comparison to other Latin American and Caribbean countries, Guyana also has a relatively large number underweight neonates (new born babies). During the year 2000, eleven percent of children born in health facilities were reported to be below 2.5kg, the minimum level accepted by the World Health Organisation as normal and healthy for a new born. This indicator is a proxy for the nutritional status of women of childbearing age.

Obesity, hypertension, heart disease and cancer are emerging as major nutrition related conditions among adults. According to the 1997 Micronutrient study, 28.8% of males and 48.4 % of females over 20 years were classified as over weight. Findings also showed that overweight increases with age.

According to recent studies these and other degenerative diseases such as osteoporosis can be controlled through an increased intake of calcium, a nutrient that occurs naturally in milk. Vitamin A another nutrient in milk is also believed to play a role in the prevention of cancer. However, like other food of animal origin, whole milk is a rich source of saturated fats and cholesterol, substances that are associated with many of the conditions mentioned above. In more developed dairy industries these hindrances have been overcome by reducing the fat content of milk and milk products.

## **2.2 Factors That Impact On Nutrition**

### ***Poverty***

According to the UNDP Human Development Indices (1999), Guyana is rated 105<sup>th</sup>. This is the most widely used index, and it ranks countries from 1-173, in declining order of Human Development. The ranking is based on life expectancy at birth, education, and income (all three have equal weight).

In the country's Interim Poverty Reduction Strategy Paper, 35% of Guyana's population was described as existing below the poverty line with 19% living in extreme poverty. It was reported that most of this poverty can be found in the rural areas particularly in interior locations, which are generally isolated from economic activity. Roads to these interior communities are practically non-existent and the cost of travel by air or boat is prohibitive for many.

### ***Education***

A recent UNICEF funded MIC study in Guyana reported that 98% of children living in Guyana attend primary school, and attendance rates remain high (99 - 97%) up to the end of primary schooling. However, the final level of education attained within poor households is relatively low. Less than 14% of the heads of poor households in the hinterlands and rural coastal regions complete secondary or higher levels of education; and in Georgetown, 23% of the heads of poor households complete a secondary or higher level of education. A qualitative study by CFNI also identified low literacy levels among low-income mothers.

### ***Household food security***

At the national level Guyana is regarded as food secure. The caloric supply is in excess of its requirements (108%) and the protein supply exceeds the nation's needs by approximately 39%. However many households and communities are unable to adequately satisfy their nutritional needs over time. To some extent this is due to seasonal rains, the isolated nature of the hinterland communities and the general confinement of nutrition education programme to the coastlands. Because many Guyanese depend on their purchasing power as the main means of obtaining food, the poverty in which nearly half of the population lives, is also a major factor.

According to the Nutrient Cost Index for the first quarter of 2001 is used as a basis for calculation, a basic 2400-calorie diet (the average amount needed for one normal person per day) costs the equivalent of 30% to 38% of the public sector minimum wage (\$19,000.00 a month). This figure is estimated to be much higher in the hinterlands. The Nutrient Cost Index is based on the average cost of foods in the market during specified periods.

### ***Water***

It is estimated that 83% of households in Guyana have access to improved sources of water (Bureau of Statistics). These include water that is piped into dwellings, yards, plots or public taps; water that is pumped from wells; and rain water. However, this is not necessarily safe water, as is substantiated by health records which identify poor water quality as one of the principal reasons for contamination and the spread of waterborne diseases. Further, acute diarrhoeal disease which is often water-borne, is rated among the leading causes of death among children.

When malnutrition was compared against source of drinking water in a recent survey, rates of malnutrition were seen to be higher in communities that relied on standpipes and private catchments. These were generally the communities with the highest poverty rates. This finding supports the argument that there is a strong synergistic relationship between malnutrition and disease.

### ***Food and nutrition programmes***

Currently there are several ongoing government and private sector projects and programmes aimed at increasing household food security and the quality of diet consumed by Guyanese. These include school feeding programmes by religious organizations and the milk and rice supplementation project by the SIMAP agency. The nutrition programmes which the Food Policy Division of the Ministry of Health coordinates, focus primarily on education. This unit has as its mandate the planning and implementation of education programmes that help Guyanese to make wise food and nutrition choices. The unit therefore conducts public education programmes, provides one-on-one counseling at health centres and conducts training sessions for health workers.

## **2.3 Findings Pertaining To The Communication Strategy**

### ***Preferred sources of Information***

In a recent CFNI /Bureau of Statistics study on "Young Child Feeding in Guyana," mothers were asked a series of questions to determine the key sources of influence, advice and support in matters pertaining to infant and young child feeding. This study identified clinic nurses (58%) grandmothers (28%) and other female relatives (10%) as key persons of influence and support. Less than 5% of the participants identified books as a key source and less than one percent of the respondents identified the radio as a source of nutrition information.

Seventy-seven percent of the study population thought that education sessions at health clinics was a good means of providing mothers with nutrition information. However, a qualitative study by CFNI identified deficiencies in the nurse-client relationship. Mothers indicated that this has had a negative impact on the teaching-learning process in these facilities. Less than 10% of mothers in this study favored the television or radio as a means of communicating nutrition information.

### ***Mass media exposure***

The study on "Young Child Feeding in Guyana" also revealed that more than 70% of the women interviewed had access to radio and or television. Of the two, the television was the medium of choice. The captive hours for television viewing were 4 pm through 10 pm, and the most popular programmes were soap operas and news. Very few mothers (11%) tuned into educational programmes on either of the media services. The radio station, "Voice of Guyana," was rated high during the hours preceding 4 pm. The most popular programmes during this time were musical programmes. The Stabroek News and Chronicle newspapers received good readership at weekends

## **2.4 Findings Pertaining To Milk Consumption**

### ***Milk consumption***

The Ministry of Health's micronutrient study of 1997 indicated that milk was one of the most popular foods in the diet of Guyanese. The most commonly used milk was full cream powdered milk. Approximately 80% of Guyanese consumed powdered milk. Of these, 46% used it 2-3 days of the week. The others used milk less frequently.

Fresh cow's milk was the next milk of choice. Twenty-nine percent of the population consumed fresh milk at least once weekly but only 8.3% of the population used this milk on more than two days of the week. Skimmed milk was not popular - 95% of the surveyed population indicated that they did not drink skimmed milk.

Milk was also a popular food in young-child feeding. In the CFNI study on "Young Child Feeding," 56.6% of mothers reported that they gave their young children full cream milkpowder. Only 19.4% gave fresh cow's milk. Other popular foods/dishes with children were porridge/cereal (78.8%) and "crushed ground provision" (64.4%). Milk is a recommended ingredient in the preparation and service of these dishes but this information was not solicited in the study. Porridge was fed a median of four times per

day. Mothers who classified their children as reluctant eaters noted that semi-solids such as porridge were more readily eaten than solid foods.

In the Dairy Development Project document, it was noted that, in countries with a low per capita income such as Guyana, milk consumption was lowest among persons living under poor socio-economic circumstances.

#### ***Desirable characteristics of retail outlets***

The IICA/NDDP survey of 1998 identified the following as the three most desirable characteristics for milk sales outlets:

- Good hygiene
- Appropriate dress of vendors
- Reliable supply

Other qualities that encouraged the purchasing of fresh milk to a lesser extent were, chilling/refrigeration of the product, proper measuring, packaging, and certification by Public Health.

#### ***Factors impacting on consumption***

The IICA/NDDP study identified the following as possible barriers to the use of fresh milk:

- Poor quality - 47% of the population identified poor quality as their reason for not using fresh cow's milk.
- Price - 75% of the study population was not willing to pay more than \$40.00 per pint of milk
- Physical access - 14% of the study population indicated that they did not consume fresh milk because of its general unavailability in retail quantities. Of those using fresh milk, 66% reported purchasing their supplies from itinerant vendors. Farms and retail outlets were not popular choices.
- Storage - This was identified as a problem by less than 20% of the population.
- Taste - 13% of the population reported that they did not use fresh milk because they found the taste unacceptable.

### **2.5 Group Interviews- *Insights Gained***

Following the review of literature, impromptu group discussions were held with mothers attending the following Health Centers:

- David Rose (Region 4 Georgetown)
- Dundee (Region 5)
- Wales (Region 3)

During these sessions the following topics were discussed: the use of fresh milk and the perceived importance of milk at various stages of the life cycle.

### ***Use of fresh milk***

Most of the women at Dundee use fresh milk 3-4 days per week but powdered milk is used more often. They noted that fresh milk was more popular when it was in plentiful supply, but in recent years dairy farmers have been turning to rice farming, thereby producing a shortage of this product. Most of them indicated that they would use more fresh milk if it were available and sold at a lower cost. It is currently sold at \$35.00 - \$45.00 per pint. One woman in Region 4 noted that even at this price it is more attainable for the poor, as it is easier to find \$40.00 than the usual price asked for other forms of milk.

On the other hand, a number of women expressed doubts about the sanitary quality of fresh milk. They noted that it sometimes causes diarrhoea. Others did not like the taste. Some said it was "rank". Yet others noted that children did not like its "oiliness" on the surface. One woman from the city noted that she would feel safer if it had a label indicating the nutritional content etc. Women in Georgetown indicated that it was generally unavailable. When asked about storage, mothers claimed that this was not a problem.

Common dishes/ products made from fresh milk were, porridge, custard, ice blocks/icicles, parsad, keir (sweet rice), peera, sugarcake, mettai, ghee, and vermicelli cake. The women of Region 5 feel that these items will be bought if sold at schools and "cake shops". Parsad and vermicelli cake are currently sold at some eating-houses in Georgetown (Arapaima, Hack's Halaal).

### ***The importance of milk through the life cycle***

The discussion groups felt that milk was good for every one but it was more important for children.

Having examined relevant literature and reviewed issues raised in group-discussions it is recommended that future promotional efforts seek to attain the following objectives:

1. Boost confidence and clarify doubts about local milk/products;
2. Motivate all age groups to make greater use of local milk/products;
3. Motivate mothers to make more use of local dairy products in the preparation of dishes for children and the rest of the family;
4. Encourage food industries and inhabitants of milk producing communities to make greater commercial use of local milk/milk products; and
5. Identify media and communication strategies that are most appropriate for the above-mentioned tasks.

### 3. MAIN ISSUES TO BE ADDRESSED

- **Confidence building – quality and availability**

Many Guyanese have had bitter experiences with local products. It is therefore vital that the population is assured of a good quality product, and that information be given to validate the *constant and ready availability* of high **quality** local milk/milk products. Wide scale use of milk/products by farmers, their families and members of the immediate community should be encouraged and publicized. Certification of producers by standards committees, and successes in product competitions locally and where possible, internationally should also be publicized.

NOTE: Although certification did not rank among the first five barriers to the consumption of fresh milk in the IICA/NDDP study, it should be used as a strategy for enforcing “clean milk production”. It can also be used as a reward to vendors who observe the points identified as desirable e.g. clean dress, hygienic surroundings and storage containers, and accurate measuring equipment.

- **Use of milk and milk products as complementary foods**

It is normal for mothers to want the best for their infants and to feel some amount of anxiety when choosing food for them. It is therefore vital that a tone of assurance is used and that information be given to validate their decision to choose fresh cow's milk e.g. the nutritional value, its suitability for young children and its cleanliness. When their confidence is built, mothers and caretakers are less likely to be influenced by negative information coming from the home or community

Nutritionists and nurses are also concerned about the increase in malnutrition rates after the period of exclusive breastfeeding. This has been linked to finicky eating, inappropriate choices of complementary foods and in some cases frequent bouts of illness. To assist in the promotion of fresh cow's milk, health care workers need assurance that fresh cow's milk is suitable for infants. They also need advice on the use of local milk/products in the preparation of dishes that can be fed as a *complement*, to breastfeeding.

- **The need to increase general home consumption of local milk/products**

It is not unusual to hear milk being described as a food for the young. Explaining the value of milk and milk products to adolescents and adults and providing them with new information on the value of milk would be most useful.

Housewives should also be exposed to new recipes and encouraged to share old milk-based recipes. These should include items that are suitable for the lunch kit.

Food processing plants and persons with an interest in utilizing milk as a basis for cottage industries should be encouraged to access increasing amounts of local milk. Further, the utilization of milk products e.g. ice-blocks, icicles, fudge, ghee, yogurt should be adequately promoted.

Training in the production of items of a high quality should be available.

- **Small income**

The cost of a tin or a pound of milk powder can be prohibitive for the low-income family. Every effort should be made to publicize the fact that fresh milk is cheaper if sold at its current price of approximately \$45.00 per pint.

**Table 1. Approximate Cost of Popular Brands of Powdered Milk**

Type/Brand	Approximate Cost per 900g tin	Yield with 3.4%fat content	Cost per pint
Dutch Lady	\$795.00	13 pts	\$61.00
Klim	\$760.00	12pts	\$63.00
Kerrygold	\$670.00	12pts	\$56.00
Coast	\$ 780.00	12pts	\$65.00

The unit cost of specially prepared follow-up milk formulas for infants is estimated to be much higher.

The risk of causing diarrhoeal diseases through the use of unsafe water when mixing powdered milk can also be used as a promotion strategy if a high standard of sanitation is maintained in the production of fresh cow's milk.

#### 4. TARGET AUDIENCES

During the initial stages of this promotion the focus should be concentrated on milk producing areas and other communities receiving supplies of local pasteurized milk and milk products. As production increases and as the market expands the drive should expand to include other communities receiving these products.

**Primary Audiences:**

*Mothers with children of complementary feeding age (over six months).*

This is the period following the first six months of the child's life of exclusive breastfeeding. After six months the child's health and development can no longer be maintained on breastmilk only. These children often prefer semi-solids and as

indicated above, it is the norm for mothers to utilize large quantities of milk in the preparation of their meals.

*Mothers with young school-aged children*

As indicated in the review, malnutrition rates are also high among young children. Unfortunately, bottled drinks and with their "empty calories" and non-food items such as corn curls are fast becoming a food fashion. It would be of immense value if mothers are encourage to replace these non-foods with nutritious milk drinks and milk-based snacks. Since food preferences and eating habits are developed during the early years, it would also do the industry well to encourage a taste for milk in the up coming generations.

*Older school children and adolescents*

Since many of these children now have the opportunity to make their own food choices they should be encouraged to make nutritious choices e.g. milk instead of aerated drinks, especially when the drink is part of a main meal.

*Adults as potential producers of items for sale.*

As the literature indicated, many Guyanese live below the poverty line. Besides providing jobs for farmers, this promotion can help to create jobs for others by encouraging the production of milk products and snacks for sale.

*Food Industry: Caterers, restaurants etc*

The food industry makes large-scale purchases, it should therefore be a prime target. In addition, through their production and sale of milk drinks and dishes made from local milk products, they may be able to promote a taste for milk and local milk products.

*Adults as consumers*

Adults, especially those suffering from the chronic diseases can be targeted because of the value of calcium and vitamin A in the battle against chronic diseases. However, because of the high levels of cholesterol and saturated fats in whole milk, it will only be morally possible to pursue this market aggressively if:

1. milk products are modified to reduce fat and cholesterol or
2. an equally aggressive promotion is made for high fibre and other foods that assist in lowering cholesterol levels.

**Table 2. Fats and cholesterol in one cup of milk**

Milk	Total fat (g)	Saturated fat (g)	Cholesterol (mg)
Butter milk 1% fat	2.2	1.3	9
Low fat 2%	4.7	2.2	18
Skim	0.4	0.3	4
Whole	8.0	4.9	34

**Secondary Audiences:**

*Influentials:* grandmothers, clinic nurses, food and nutrition teachers, farmers and their families, milk vendors. As these persons can assist in encouraging the use of milk, some aspect of the promotion should be dedicated to winning their confidence, and or providing them with relevant information that they can use to promote local milk and milk products.

**5. MAKING THE APPEAL**

- Messages must be clear and aimed directly at known concerns.
- Care should be taken to avoid appearing to be *forcing* a commitment on the part of potential users. The focus must be on an appeal that would motivate voluntary commitment based on the potential user's own decision.
- Visuals and messages should help potential users to see a reflection of themselves and their concerns.
- Effective communication programmes use a variety of communication approaches. Although some deficiencies exist in their relationship, the health center is attended by over 70% of pregnant women. Deficiencies in interpersonal relationships can be met through the use of visuals and clearly written messages. As supply increases, consideration should be given to the use of the radio, television and newspapers.
- Repetition makes a difference so some priority issues such as cost and quality should be repeated through different media.

See the matrix overleaf for an outline and details of the strategic approach.



ISSUES	APPEAL/ MESSAGE CONCEPT/ ACTIVITY	TARGET GROUP	MEDIA
3. Increasing home consumption	Publicize new information regarding the value of milk e.g. in the management/ prevention of chronic diseases	Adults, especially those suffering from chronic diseases	Leaflets, News papers, Television spots Posters,
	Draw attention to benefits for specific age groups	Adolescents, pregnant women, older persons	
	Make nutritional, cost and other comparisons with other options e.g. aerated drinks, plain icicles, to show superiority	General public	
	Provide -"tips " for making fresh milk more palatable Provide "tips" on foods and food combinations that reduce cholesterol	Mothers	Displays, tasting sessions at market places, clinics, women's groups etc. Articles in newspapers,
	Collect and distribute/publicize recipes which use fresh milk and local milk produce Encourage the exchange of recipes	Persons involved in or with an interest in food preparation	Recipe competitions, recipe books, product labels/ wrappings, displays, demonstrations on television/ video, at clinics etc.
	Provide selected schools and or clinics with free/ subsidized milk beverages and or snacks. (See Appendix 2)	Children	Samples - at schools, maternal and child health clinics, exhibitions, community activities

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ISSUES	APPEAL/ MESSAGES CONCEPT/ ACTIVITY	TARGET GROUP	MEDIA
3. Increase in home consumption (Continued)	<p>Distribute free or low cost samples of dishes/value added products to the general population</p> <p>Make appeals to the public highlighting the benefits to the community and the country</p>	<p>Persons of all age groups</p> <p>As appropriate</p>	<p>Public activities e.g. fairs, markets</p> <p>Public activities e.g. agricultural fairs. Work the concept into TV spots and radio messages</p>
4. Increasing/reviving production of milk based snacks and products	<p>Display and distribute samples of items</p> <p>Provide training and recipes for milk products and milk-based snacks</p>	<p>Persons residing in milk producing communities.</p>	<p>Displays, distribution of samples at exhibitions, market places, schools clinics etc.</p> <p>Training sessions, experiments to improve quality, tasting sessions</p>

ISSUES	APPEAL/ MESSAGES CONCEPT/ ACTIVITY	TARGET GROUP	MEDIA
5. Increased use of local milk/products in the food industry	Make an appeal, showing its benefit to Guyana and Guyanese. Provide samples	Entrepreneurs in the food industry.	Personal contact
6. Small Income	Compare the cost of local milk/products Highlight its accessibility to the wage earner and low-income earner.	Housewives	Posters, TV spots, radio newspapers, nutrition counseling sessions at health centers

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## APPENDIX 1

### Tasting Sessions

1. An institution of choice will prepare known and new dishes involving fresh milk and local milk products.
2. The dishes will be tasted and assessed by a panel of persons for qualities such as texture, flavour, smell, and appearance.
3. The product will be modified in keeping with findings of the assessment until it is considered satisfactory.
4. Samples will be distributed to the public and their impressions will noted.

## APPENDIX 2

The following Health Centers/ villages are possible sites for the free distribution of milk. The selection was based on the total number of malnourished children on register. Those listed are the health centers with the highest number of malnourished cases (over 50) in the 12-24 months age group. Percentage was not used as a criterion for selection as this does not always reflect the true severity of the situation.

### REGIONS 4(East Coast only) & 5

Health Centre	Number of children on Register	Malnourished cases	
		Percent	Number
Melanie	950	24.4	232
BV	1160	19.0	221
Plaisance	1122	22.3	251
Moraikabai	182	97.2	177
Dundee	•	-	273
Rosignol	987	12.0	119
Woodley Park	466	14.0	66
Clonbrook/Annsgrove	453	13.9	63

### REGION 3

Goed Intent	107	17.2	622
Canal #2	84	15.3	547
La Grange	85	15.4	550
Vreed-en-hoop	133	13.9	952
Lenora	79	9.9	792
Den Amstel	142	17.9	792
Vergenoegen	112	16.1	695
Parika	111	28.3	391
Meten-meer-zorg	99	16.3	604
Fort Island	51	46.7	109

Source: Ministry of Health Statistical Unit

Note: There may be an error in the figure reported

**PARTNERS OF THE AMERICAS  
UNITED STATES AGENCY FOR INTERNATIONAL  
DEVELOPMENT**

**REPORT  
ON THE STUDY TOUR OF MEXICO AND COSTA RICA  
November-December 2001**

**GUYANA DAIRY DEVELOPMENT PROJECT**

*Financing Institutions: CMCCAC, IICA, GDDP*

Georgetown, Guyana  
February, 2002

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# STUDY TOUR OF MEXICAN AND COSTA RICAN DAIRY INDUSTRY BY GUYANESE DAIRY FARMERS

November 25<sup>th</sup> – December 6<sup>th</sup> 2001

## 1. ACKNOWLEDGEMENTS

The group of Guyanese farmers who participated in the study tour to Mexico (Tampico, Veracruz and Tabasco) and Costa Rica would like to express their appreciation and gratitude to the persons and institutions that were involved in the organization, coordination and financing of this study trip.

Special mention must be made of:

- a) Ms. Sonia Gonzalez from the Mexican Commission for Cooperation with Central America and the Caribbean (CMCCAC) and to Dr. Juan Jose Salazar from IICA-Mexico for the preparation and coordination and for co-financing the study trip in Mexico.
- b) The Honourable Mr. Satyadeow Sawh, Ministry of Fisheries Crops and Livestock for his total support and efficient way in which he sought the support of the relevant government agencies and the Ministry of Foreign Affairs in Guyana for the support they gave to the farmers for the study trip.
- c) The Venezuelan, Costa Rican and IICA-Guyana offices for their support and coordination offered to ensure the study trip was successful. A special thanks to Dr. Gardella (IICA-Guyana) and her team.
- d) GDDP-PAO project personnel for their support in the planning and coordination of the study trip to Mexico and Costa Rica.
- e) All ECAG personnel for the special treatment offered to the group on their visit to different areas of the school and for the use of the excellent facilities for teaching, research, production, hosting and dining.
- f) Mr. Jose Luis Quiros Cascante Gerente General De COOPE-LECHE for his lecture on Dairy Cooperative and his warm welcome given to the farmers group during their visit to COOPE-LECHE.
- g) Cattle Farmers Association from the northern part of Veracruz and to the Tabasco state for the warmest, wonderful and very cooperative welcome given to the group during the visit to the two states.

The group also expresses its gratitude to the following persons:

1. Mr. Leocadio Del Angel Cruz  
PTE Asociacion Ganadera Local De Ozuluama y  
PTE De La Union De GGAVATT Del Norte De Veracruz
  2. Mr. Hector Del Angel Santiago, Secretario y Coordinador De GGAVATT
  3. Mr. Jose Marcial Lizama Manrique  
Programa De Fomento Pecuario  
Xalapa, Veracruz
  4. Mr. Francisco Animas Enriquez
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- Jefe Del Centro De Apoyo Al Desarrouo Rural  
 No. 5 Ozuluama  
 Panuco Veracruz
5. MVZ Jose Gustavo Ostos Gomez  
 Director Fomento Agropecuario  
 H Municipal Abattoir  
 Ozuluama, Veracruz
  6. Mr. Cesar Gabriel Fernandez Diaz  
 Presidente De La Union Ganadera Regional De Tabasco
  7. Mr. Victor M Monguia Flores  
 Gerente General Fabrica De Aumentos  
 Union Ganadera Regional De tabasco
  8. Mr. Augustin De La Cruz Priego  
 Gerente General Frigorifico y Empacadora De Tabasco, SA  
 Union Granadera Regional De Tabasco
  9. SR. Francisco Gurza Noriega  
 Secretario Del Consejo De Administracion  
 Ultra Lacteos, SA, DE C.V  
 Union Ganadera Regional De Tabasco

## 2. EXECUTIVE SUMMARY

On Sunday 25<sup>th</sup> of November, 2001 five cattle farmers left Guyana via the Cheddi Jagan International airport, in transit at the Piarco International Airport from where they proceeded to the Simon Bolivar International Airport, Caracas, Venezuela.

### VENEZUELA TO MEXICO

Mrs. Jennifer Tiwari – the Guyana Consular, met us at the Airport along with Ms. Hussein-Account for the Guyana embassy in Venezuela. They were very co-operative and courteous and ensured that the group was properly accommodated at their hotel. They spent the entire afternoon period with us.

On Monday 26<sup>th</sup> of November, 2001 the group was met at the Mexican Embassy in Venezuela by Mrs. Roxanne Vandeyar-Executive Officer of the Guyana Embassy who took care of all the necessary travel arrangements and documents for the group to obtain their Mexican visas. Mrs. Vandeyar accompanied the team to the Airport where we departed for Costa Rica. Dr. Hector Munoz, Project Director of Guyana Dairy Development Project, who travelled with the team to Mexico City where we spent the night, joined the group at the Costa Rica International Airport.

### MEXICO

On Tuesday 27<sup>th</sup> November 2001 the group left Mexico City with Dr. Munoz. The team flew to Tampico Airport, Mexico where they were met on arrival by the President and other members of the GGAVATT Group (Group Validation And Transfer of Technology).

The group paid a courtesy call to Mr. Oscar Pulido, Mayor (President) of Ozuluama, which is a town in the state of Veracruz, Mexico. The Mayor welcomed the group and gave a brief history of the state and permission to tour the town and various cattle ranches. The group introduced themselves individually through Dr. Hector Munoz (interpreter). The team leader thanked the Mayor and gave him a brief outline as to the purpose of the visit and presented him with a plaque (wall map of Guyana) on behalf of the Government of Guyana, Minister of Fisheries Crops and Livestock and the five farmers. The Mayor then handed over a wooden plaque to the team leader. The team leader expressed his gratitude to the Mayor on behalf of the Government of Guyana; Minister of Fisheries Crops and Livestock and the group thanked him for the co-operation of his state to Guyana.

The President of GGAVATT, Mr. Leocadio Del Angel Cruz along with other members of their group took us to their headquarters. At the headquarters Mr. Leocadio Del Angel Cruz presented to the group a report and results of the GGAVATT groups related with the technologies transferred and evaluated by the farmers at the farm level. The group also received some information on credit facilities; slaughtering of animals; obtaining semen; health aspects; sanitation and pasture; storage and transportation of milk; marketing of milk, beef and cattle rustling and related issues.

It was also explained to the group that the Cattle Farmers Association of the northern part of Veracruz is the umbrella organization, which is made up of farmers from the various Co-operative societies that are established, for example; the feed manufacturing factory, the veterinary drug store, the cheese factory, milk plant and the abattoir. These Co-operative Societies are made up of farmers and persons other than farmers, many of who are qualified in other areas of development. The Cattle Farmers Association in Ozuluama was formed in the year 1947 and a record of each farmer's land is being kept by the association whether you are a member or not because the slaughtering of animals is done through the Association.

On Thursday 29<sup>th</sup> November 2001 the group left Tampico Airport and flew to Tabasco Airport, another part of Southern Mexico. At Tabasco, the team was met by two Veterinary Surgeons who took the team to the various farms. The group was introduced to the President of the Cattle Farmers Association of Tabasco Mr. Caesar Gabriel Fernandez Diaz who is also the owner of one of the largest ranches in Tabasco. This Association was formed and established in 1936. There were also many Co-operative Societies, which operated, similar to those in Ozuluama. Others operate under the umbrella of the Cattle Farmers Association. There are several by-laws, which govern the Co-operative Societies, which are strictly adhered to, and severe penalties are meted out whenever there is a breach of the laid down principles.

### **COSTA RICA**

On Saturday 1<sup>st</sup> December 2001 the team left Tabasco, Mexico for Costa Rica. In Costa Rica we were accommodated at the dormitory of the Central America Livestock School (ECAG). The group toured the School's Livestock Farms and many other privately owned farms. At all of the farms toured the owners stressed the importance of Farmers Associations and the benefits of being a member of these Associations and Co-operative Societies.

In Costa Rica the group was welcomed by the Director of the National Dairy Programme - Mr. Luis Villegas who pointed out that Costa Rica had reached the stage where the country is self sufficient in the production of milk, all dairy products and beef. He said Politics played no part in the industry and he emphasized the need to have high quality milk at all stages of production. Some of the farms in Costa Rica do organic farming.

The first farm tour the group was a small farm of 8 hectares owned by Mr. Anselmo Rodrigues. The name of the farm is the Hope. The farm produces milk and beef by utilizing organic feeds, grass and legumes. This farm uses the A.I service and Jersey/Holstein bulls. The grasses planted are African Star and Morera (*Morus* sp). Mr. Rodrigues started first with Holstein animals but switched to Holstein/Jersey. He is very satisfied with the results. He processes all the milk he produces into cheese, and collects all the manure, which is sold as humus fertilizer using the California earthworms as the medium of change. For his milking herd he uses the rotational system and feed cut Morera at milking. The animals are fed mainly Morera grass. Pigs are also produced on the farm and are fed with sugar cane, milk whey and mulberry (*Morera*) leaves that are produced on the farm.

The team's next stop was the Livestock Central American School. This well organized institution has students from all over Central America. The school has two herds that total 180 cows. One herd of 103 cows is Brahman/Brown-Swiss, Simmental-Brahman/Jersey and the other herd of 77 are Jersey cows only. The institution uses the A.I service and bulls and produces 12.5 liters per Jersey cow per day. The other herd produces an average 9.5 liters per cow per day. Only the half-breed cows the calf is needed for lactation, when the breed is more than half Brahman the calf is not needed for lactation. In the case of the Jersey the calf is not needed. The feeding system constitutes mainly grass, (*African Star* and *Brachiaria*). Sugar cane and rice bran are used during the dry season. In beef production the heifers are separated from the bulls and the emphasis is on organic feeding, mainly grass and a rotational system employed. The school is self sufficient in all meat products. Bulls are reared up to 400-500 kg and slaughtered on the farm. A modern state-of-the-art slaughterhouse is located on the farm, which is a smaller version of the one observed in Tabasco. The students carry out all of the operations as part of their training.

In Costa Rica, the beef and dairy industry arranges the sale of cattle through auction sales. Two Cattle Auction yards were visited where there sales took place. A Livestock Farmers' Association owns one auction yard and the other is privately owned. The farmers and butchers at the auction welcomed the team. All the animals presented for sale went through a security check with the police to verify ownership and the brands presented. The animals were gathered in open pens. This could have been viewed from the top of these pens by stairways which criss crossed the pens. This enabled the farmers and butchers to have a good view of the type and standard of animals presented for sale. At the beginning of the auction sale the animals are channeled through a small fenced corridor, where once entered they cannot turn back. The only way for the animals to go was forward, onto a computerized scale where the weight is recorded. The farmers were seated in a theatre-like seating arrangement with the seats arranged in a pavilion from top to bottom. A minimum price/kg was flashed on the screen and the bidding process was started. The bidding operation was very fast and only those familiar with the process understood what was happening. There were all sizes and types of animals offered for sale: calves 4-6months, bulls

400kg-1,200kg and heifers and cows of all sizes and weights. Some of the animals were to be slaughtered immediately whilst some were to be relocated to other farms. The other auction sale center was operated under similar conditions but it did not have a computerized system. The animals presented were of various breeds including, the Brahman Charolais, Holstein, Brown Swiss, Simmental, Santa Gertrudis and Zebu.

On Thursday 6<sup>th</sup> December 2001, the four members of the group returned to Guyana leaving behind Mr. Mahadeo Panday Mansaram who had to remain at the school for a further three days, in order to update himself on the more manufacturing of dairy products.

### **3. VISIT TO VERACRUZ, TABASCO, MEXICO AND COSTA RICA THE GGAVATT GROUPS**

The GGAVATT means a group of livestock farmers interested in transfer and valuation of technologies at farm level. Each group is formed with a minimum number of 15 farmers interested in improving production and productivity of their farm by introduction and validation of dairy technologies. At present there are more than 25 GGAVATT in the States of Veracruz and Tabasco.

The farmers come together and form a group. Within the group they select the technologies that they want to validate at the farm. The group contracts and finances the technical assistance to help them to implement and validate the technology. The farmers in the GGAVATT group commit themselves to supply all farm information needed as well as to implement the technologies selected by the group. Farmers receive no assistance from government organizations. The group finances the technical assistance and each farmer pays based on the number of animals at the farm. The results have showed that production and productivity of farms have improved by 150%.

This GGAVATT experience was the most valuable one for the group. The livestock industry is farmer owned and farmers have to help themselves to develop the livestock subsector.

#### **PASTURE, SILAGE AND GRAZING SYSTEM.**

It was observed that almost all of the farms in Ozuama and Tabasco in Mexico had the same type of feeding system, whereby the farmers concentrated mostly on organic feeds and used the rotational grazing system, but on different types of grass in different areas and this was due to the climatic conditions and the soil types. The types of grass used were the Pangola, Signal and African Star. The milking cows consumed about 60 kg of grass per day and in addition 3 kg of concentrate as a booster. It was observed that when calves are one day old they are taken away from their mothers and fed artificially with a special type of nipple attached to a bucket. After three weeks they are released in the pastures to graze and the amount of fresh milk given is gradually reduced, as they grow older. A small amount of concentrate is usually fed. It was also observed that heifers were treated almost similar to the milking cows. They were also on a rotational grazing system

These farms experienced two seasons, the wet and the dry season. During the dry season the animals grazed the pastures and during the wet season, farmers prepare silage, which was made up mainly of corn, sorghum and small amounts of other concentrate that are available to them. Most of these farms are operated or managed by the family with the employment of one or two farm hands. An up-to-date record is usually kept on each animal from birth to maturity.

#### **INVOLVEMENT OF FAMILY MEMBERS**

Most of the farms appeared to be managed by both husband and wife along with one or two farm hands and possibly some children. The wives seemed to be taking care of activities in the milking parlour and did the recording keeping (birth weight, weaning weight, gestation length, milk production etc). In general the farms had information on each individual animal.

Children of farmers visited each other and the farms also served as recreational facilities for them.

#### **EQUIPMENT AND MACHINERY**

It was observed that both Mexico and Costa Rica used the same type of milking machine and associated equipment such as the pump used to pump the milk into the cooling tanks for storage (until it is collected by the milk plant). At the milk plants the milk is further tested and subsequently processed into various products, such as chocolate milk, vanilla, strawberry, non-fat milk, full-cream, yogurt e.t.c

In Tabasco one of the most modern state-of-the-art International Abattoirs was observed in operation. The stages include electrocution, slaughtering, skinning etc. Everything was done under strict hygienic conditions. In both countries feed factories that were established, produced feed from raw materials that were mostly grown in the countries. Small amounts of other concentrates that were imported and sold to farmers through their co-ops at a reasonable price.

#### **BEEF CATTLE**

It was observed that most of the farms visited reared dual-purpose animals. These animals were reared to produce both milk and beef at the same time. Great emphasis was placed on improved breeds of animals, such as the Brahman-Holstein, Brahman-Brown Swiss and the Brahman-Jersey. Some farms used the artificial insemination service and some well fed bulls, and their returns from the dual-purpose animals are very high. The farms also placed great emphasis on organic feed that is the rotational grazing system with a small amount of concentrate as a booster to fatten the animals, so that whenever the animals are slaughtered they have a lean type of fat. Most of the animals that are fattened to slaughter weigh about 500 kilograms in two and a half years and are slaughtered under strict hygienic conditions. There are strict laid down rules for the sale and slaughtering of animals at the various abattoirs.

In Tabasco the most modern state-of-the-art abattoir was seen in operation. A large quantity of beef is currently exported through this abattoir to the Middle Eastern, oil rich countries (Muslim Communities). But before this is done a Muslim Priest reads a verse from the Holy Qur'an and slits the throat of the animal after it is electrocuted, so it becomes halaal meat.

In Costa Rica two modern state-of-the-art auction yards were visited. The process of selling and buying was of great interest. The animals came through a paddock and entered the auction sale paddock where an electronic scale is fitted and the weight of the animal registered and the bidding begins immediately from a stated amount to the highest price paid. Beef production in both countries is mainly based on grass and legumes with a small amount of concentrate and other feeds. This helps to make beef production economically viable.

A rotary system of grazing is used and calves are separated from their mothers after 2 days. They are then given a ration of 3 liters of milk daily, which is reduced to 1 liter over a three-month period, with grass and concentrates as soon as they could start eating. After three months the heifers are separated from the bulls. In most cases the suitable heifers are retained for dairy purposes. A system of A.I services and bulls are available on most of the farms. On some farms the bulls are fattened in a 6 months period and sold at 250 kilograms to other farmers who will fatten them to 500 kilograms. While some farmers raised their animals to full maturity, approximately 500-600 kilograms. In this state animals are not sold for slaughtering below 400 kilograms.

The climate is mild and all animals are healthy looking with a good supply of grass. All the input such as, all types of feeds, milking machine, drugs and credit are available through the Farmers Associations.

Our next stop was the state of Tabasco in southern Mexico. The farms in this area are bigger with approximately 1,500 heads and have more cows. All the farms in this area are involved in both milk and beef production. For beef production grass is the main source of feed and it is usually supplemented by about 20% with other concentrates and feeds. On some farms the calves are separated from their mothers after 3 months, while some are separated after 24 hours and fed with milk for 3-4 months. All the farms in the state use the A.I service. The bulls are separated from the heifers and the best heifers are retained for milking purposes and replacement heifers. The breeds used mainly for beef production are the Brahman, Simmental, Brahman-Brown Swiss, Brahman-Jersey and Zebu. Some of the farmers find the European Brown-Swiss a stronger animal that could cope with the dry season. On all the farms there is a feeding programme for beef production. Some farms raise animals at one farm for 6 months and then transport them to another farm for fattening. All animals graze on a rotational system and feed is transported on a daily basis to the various paddocks. The animals on most of these farms attain a weight of 500 kilograms in two to two and a half years. The grass used is the African Star, Pangola and Bahia. Some farms grow Brachiaria and Tanner.

All the farmers in the state of Tabasco belong to a Farmers Association. All the cattle in Tabasco are slaughtered at the cooperative's slaughterhouse. The co-op is the only buyer and the only seller. The Union or Association also decides what animals to slaughter and no animal that weighs less than 400 kilograms can be slaughtered at the Union's slaughterhouse. The animals are picked up at the farmer's gate with all the necessary Security Police and the brand is checked when it arrives at the Union paddock. Eighty percent of the money for the animal is made available to the farmer if he needs it.

At the Union pens there is a system of paddocks where the animal is guided to a scale, which weighs the animal, and the weight is registered on a computer. The animal then begins a trek through one of the most up-to-date and state of the art slaughtering houses, where no part of the animal is touched by human hands. The animal is first directed to a corridor where it is shocked with an electric gun on the front of its face, thus immobilizing the animal. The animal is not yet dead and is placed on a conveyor where the throat is slit and the blood allowed to drain.

The animal is hooked-up by the hind joint and raised airborne in a vertical position. While the animal moves around the head is cut off. Skinning the animal commences with about six persons involved. The tail area is secured in plastic bags to avoid contamination. On the same conveyor system the hide is pulled off in one operation and an electric saw divides the animal in two halves. The carcass is then passed to the processing plant where it is prepared in the various cuts of beef. The head of the animal and entrails are carefully examined by the veterinarian present for any disease. This slaughterhouse processes about 260,000 animals per year.

Beef production in both countries is based mainly on the feeding of grass and legumes with a minimum amount of concentrates and other supplemental feed added to the feeding system. This helps to make beef production economically viable. The climate is mild and both countries are mountainous. The farmers select the best breed that thrives in their environment.

#### **MILK PRODUCTION AND PROCESSING**

In Tabasco, Mexico, a milk plant, which processed about 500,000-800,000 liters of milk per day, was visited. The plant processed three flavors of yogurt and in addition, white cheese. When the production of milk is low due to the weather, the plant processed hard cheese.

In Costa Rica the Coopeleche Milk Plant was visited. This plant processed about 12,000 gals of milk per day and produces products like White Cheese, Queso Blanco, Cheddar, Sour Cream, Cream Liqueur, Yogurt and Flavoured Milk. In both countries, farmers have to supply a certain amount of milk to the plant on a contractual basis. The farmers store their milk in the cooling tank until collection time which is done by the milk plant. At the time of collection a test is done and if water, antibiotics, starch or any other substance is found for the first time, the company suspends your supply. If the farmer is caught a second time with contaminated milk he is made to pay for the whole tank of milk. If the farmer is caught for a third time with the same type of milk you are thrown out as a supplier. Whenever farmers are caught with contaminated milk, the staff from the plant adds a certain type of chemical to the milk so the farmers cannot sell the milk to any other firm or person.

On Mr. Panday's return, he prepared some of the different types of cheese that he was exposed to. A tasting session was held at the St. Stanislaus Training Centre, where cheese, yogurt, and "sweet meat" from milk were sampled. Invitees were given the opportunity to sample some of the products and to give their views on various characteristics of the product.

#### **FARM ORGANIZATIONS**

The farmers are well organized and had access to credit facilities at low interest rates. In Mexico the team was met on arrival by the president and other members of the GGAVATT (Group

Livestock Farmers on Validation And Transfer of Technologies). The President of GGAVATT, Mr. Leocadio Del Angel Cruz along with other members of the association took us to their headquarters. At the headquarters we were shown slides and were told about the organizational structure of the association; the requirements of farmers to be members; record keeping of their herd; credit facilities; slaughtering of animals; obtaining semen; health aspects; sanitation and pasture; storage and transportation of milk; marketing of milk, beef and cattle rustling and related issues.

It was also explained to the group that the Farmers Association is the umbrella organization, which is made up of farmers from the various Co-operative societies that are established, for example; the feed manufacturing factory, the veterinary drug store, the cheese factory, milk plant, milk plant and the abattoir, which were all Co-operatives, were members of the Livestock Association. These Co-operative Societies are made up of farmers and persons other than farmers, many of who are qualified in other areas of development. . All the inputs such as, all types of feeds, milking machine, drugs and credit are available through the Livestock Farmers Association. All the farmers in the state of Tabasco belong to a Livestock Farmers Association Union. All the cattle in Tabasco are slaughtered at the Union's slaughterhouse. The Union is the only buyer and the only seller. The Union also decides what animals to slaughter and no animal that weighs less than 400 kilograms can be slaughtered at the Union's slaughterhouse. The Union controls the milk plant and all the farmers carry their milk to the plant. The milk is processed and products such as chocolate milk, yogurt, non-fat milk, full-cream milk and cheese are produced. The feed factory is part of the Union's organization where the farmers are able to purchase feed and they are given a discount of 7-20%.

The general observation was that the Cooperatives and associations had a long history that go back to the 1930s. Farmers wished that they could emulate this high level of success in Guyana.

### **ORGANIC FERTILIZER PRODUCTION**

Both Mexican and Costa Rican Farmers were involved in humus production, utilizing cow manure as the base. They used Red California Earthworms. The materials required for the production process were very simple. They were wooden boxes (8'3" x 8"), wire mesh and saran netting. Production required a dark environment.

Harvesting required the utilization of 6" PVC pipe. The process is as follows: Fresh manure is put into the pipes causing the earthworms to leave the "old" manure in the boxes to go into the fresh manure (into the pipes). Earthworms removed in the fresh manure are then placed into new boxes to once more begin the process of breaking down the fresh manure to organic fertilizer (humus). The process seemed to take a maximum of 3-4 weeks depending on the number of earthworms. After harvest the humus is put to dry out for 2-3 days before being placed into a motor driven shaker/sifter, which pulverizes it. In Costa Rica, it was observed that the final product is placed into 1kg bags and sold for US\$1.00/kg.

At the ECAG in Costa Rica, the humus production process was somewhat different. Manure for all of the pens (cattle, horse and pigs) was collected and placed into one heap in a barn. The heap was then soaked with water every other day for two weeks to get out the ammonia. During that

period of time the heap is turned over several times. After the two-week period, the manure is then put into long concrete boxes and the earthworms introduced.

This was a larger scale production process. Harvesting was done in one week. Harvesting was done different from the previous system mentioned. The process is as follows: a two-inch layer of fresh cow manure is placed on top of the one week old manure. The earthworms soon leave the eaten out manure (at the bottom) to go up to the fresh manure. In this way they are easily scooped from off of the top and placed into other boxes to continue their task of humus production.

#### **4. NEW VISION AND LESSON LEARNED**

The tour of the cattle industries of Mexico and Costa Rica has given us farmers a new vision about what is possible and what we need to do as farmers. We now have a stronger conviction that we have to help ourselves to make a difference. It is now clear that:

- Our dairy and beef enterprises could and perhaps should operate side by side;
- We need to manage our own affairs;
- Cooperatives and farmer groups can work despite the negative view in Guyana, we who have been exposed have to spread the good news;
- Individual farmers are nothing without the groups;
- Farmers control their own affairs at all of the various levels (local, regional national);
- Cooperatives and farmer groups in both countries signaled wealth and an improving lifestyle (and the Guyanese farmers were happy to see this);
- As cooperatives and farmer groups, farmers are more likely to receive different types of assistance from Governments and other agencies.

#### **5. RECOMMENDATIONS**

Based on all that was witnessed and discussed on the tour of Mexico and Costa Rica, the group recommends the following:

##### ***To Other Cattle farmers***

- The dairy and beef enterprises should be more fully integrated along with humus production;
- We should move swiftly to manage our own affairs through cooperatives, associations or farmer groups (the negative view about cooperatives in Guyana is unfortunate, we can prove that view wrong. If Mexico and Costa Rica could do it we could do it as well);

- Cooperatives and farmer groups in both countries signaled wealth and an improving lifestyle and Guyanese farmers should use the same route.

***To MFCL, NDDP, GDDP***

In addition, we the farmers perceive that the following equipment and facilities could be useful in Guyana's cattle industry: abattoir, collection centers and transport equipment and feed plant. Assistance in streamlining the cattle industry to make the export of beef a reality is also considered to be an urgent necessity. We understand that the final project proposal to the CMACC of Mexico would require significantly more study and input by agencies such as the GDDP and NDDP; as the benefits should be to the benefit of the entire cattle industry.

**ANNEX 1**

**Composition of Group**

The group comprised:

- Mr. Roopnarine Indhal - Team leader and Vice-President (NCFA) and Chairman (RCFA)-Region 6;
- Mr. Leon Small - Secretary (NCFA) and Secretary Urban Cattle Farmer Association
- Mrs. Shamdai Mohan - Treasurer (NCFA) and Treasurer Lusignan Dairy Farmers Cooperative Society
- Mr. Joseph Farinha - Executive member (NCFA) and President Mahaica Mahaicony Milk Producers Cooperative Society Ltd.
- Mr. Mahadeo Panday Mansaram - Manager of the St. Stanislaus Dairy Farm
- Dr. Hector Munoz - Visit Coordinator.
  
- Dr. Enrique Olivera Cazares- Coordinacion General De Ganaderia- Departamento Produccion De Leche  
Sagarpa Technician assigned to the group by Sagarpa and CMACC-Mexico

**ANNEX 2**

MINISTRY OF AGRICULTURE, LIVESTOCK, RURAL DEVELOPMENT, FISHING AND -----  
LIVESTOCK SUB-DELEGATION

VISIT OF EXPERTS FROM GUYANA, NOVEMBER 27<sup>TH</sup> - 30<sup>TH</sup>

VERACRUZ, MEXICO

NOVEMBER 27<sup>TH</sup>

8.00	8.30	Arriving to Tampico, Tamaulipas airport.
8.30	9.30	Breakfast in Tampico
9.30	10.30	Travel from Tampico to Ozuluama, Local Stock Association
11.00	12.00	Speech "The GGAVATTs of the North Zone"
12.00	14.00	Visit to a GGAVATT Ranch, to see the strain practices
14.00	15.00	Travel to the second validation area
15.00	16.00	Visit to the Ranch
16.00	17.00	Lunch
17.00	18.00	Return to Ozuluama

NOVEMBER 28<sup>TH</sup>

8.00	9.00	Breakfast in Ozuluama
9.00	10.30	Travel to Cheese Factory "Quehua" in Tepetzintla
10.30	12.00	Speech about Cheese cooking
12.00	13.00	Travel to a validation area
13.00	15.00	Visit to the Ranch
15.00	16.30	Return to Tampico
16.30	17.30	Lunch
17.30	18.30	Registration at the airport
18.55		Travel to Villahermosa, Tabasco
21.00		Reception at the airport in Villahermosa

TABASCO, MEXICO

NOVEMBER 29<sup>TH</sup>

7.00	8.00	Breakfast at the Hotel
8.00	9.20	Visit to the Ranch "El Edén", Jalapa, Tabasco, explanation of the milk production system
9.20	11.00	Visit to the Ranch "La Trinidad", Tacotalpa, Tabasco, explanation of the milk production system and bullock finishing system
11.00	13.00	Visit to the Ranch "La Milpilla", Macuspana, Tabasco, explanation of the milk production system
13.00	13.50	Visit to the Ranch "La Poma" Macuspana, Tabasco, explanation of the milk production system
13.50	15.20	Travel to Hotel and Lunch

NOVEMBER 30<sup>TH</sup>

8.00	8.10	Travel to the Livestock Unit
8.10	9.00	Reception at the Livestock Regional Unit
9.00	9.40	Visit to a cold-storage and packing unit in Tabasco
9.40	10.20	Visit to the "Ultralacteos" installations
10.20	10.40	Visit to the Balanced Food Plant
10.40	11.00	Visit to the Transport cooperative
11.00	11.15	Visit to the Animal Health Laboratory
11.15	12.00	Visit to the Livestock Consumption Cooperative
12.00	12.25	Visit to the Livestock Credit Union
12.25	12.35	Return to the Hotel

**MEMORANDO**  
*Coordinación de Capacitación*

MSc. Rodolfo Sibaja, Ing. Luis A. Vázquez, DPA Uriel Rojas, Ing. Rodney Cordero, MSc. Manuel Campos.

Ing. Diego Argüello Ch.  
Coordinador de Capacitación.



Noviembre 28 del 2001

**Visita de técnicos de Guyana.**

Del 1º al 7 de diciembre nos estarán visitando el Dr. Muñoz del IICA y 6 técnicos de Guyana interesados en el campo de la Industria láctea y el Cooperativismo. Parte del servicio vendido es un recorrido por las unidades productivas de la ECAG, por lo que solicito su colaboración para la atención del mismo según programa propuesto.

7:30 am. Planta de Lácteos. DPA Uriel Rojas.  
7:50 am. Ganado de Leche. MSc. Rodolfo Sibaja.  
8:10 am. Ganado de Carne. Ing. Luis Vázquez.  
8:30 am. Tratamiento de desechos, lombricultura e hidroponía. Ing. Rodney Cordero.  
9:00 am. Mariposas. Ing. Rodney Cordero  
9:20 am. Unidad Caprina. MSc. Manuel Campos  
9:40 am. Cocodrilos. Ing. Diego Argüello Ch  
10:00 am. Charla sobre "Cooperativismo en el área lechera, experiencia de Coopeleche"  
MSc. Jose Luis Quiroz Castro

El recorrido será con el Tractor y la Carreta saliendo de la Sala de Capacitación.

Agradeciendo su colaboración.

Copia: Archivo  
Subdirección General

CC-165-01

**COSTA RICA**

- 01-12-01 Visit to a dairy farm and humus production based on cow manure. Mr. Anselmo Rodrigues produ  
Visit to a Holstein's dairy farm (Mrs. Lana Rodriguez) in high lands of Costa Rica.  
Courtesy visit to the Munoz family.
- 02-12-01 Visit to small dairy farmers in the Rio Frio, tropical low land.
- 03-12-01 Visit to the Central American Livestock School, Dairy Cooperatives Conference and Small  
Factories in the COOPE-BRISAS area Costa Rica.
- 04-12-01 Visit to COOPE-LECHE. Small dairy Farmers COOP in San Ramon.  
Participation of team in Cattle Sale on Muelle de San Carlos.  
Overnight in the San Carlos area.
- 05-12-01 Visit to COOPE-ISABEL, small dairy farmers in the low tropical areas of Pital de San Carlos
- 06-12-01 Departure to Caracas- Trinidad and Tobago
- 06-12-01 Dairy Products Development, In-service Training Course
- 07-12-01 Visited the ECAG Dairy Plant.
- 08-12-01 Departure of Mr. Mahadeo Panday Mansaram to Caracas- Trinidad and Tobago.



Photo 1: British High Commission Staff and family buy Good Morning Products

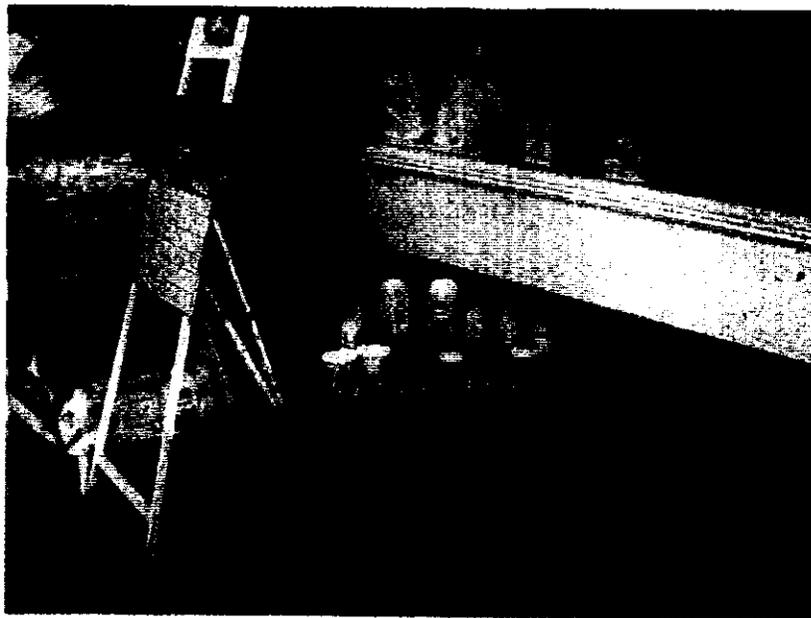


Photo 2: Display in Front of Supermarket



Photo 3: GDDP NPC Kelvin Craig Lecturing to Alcorn University Students

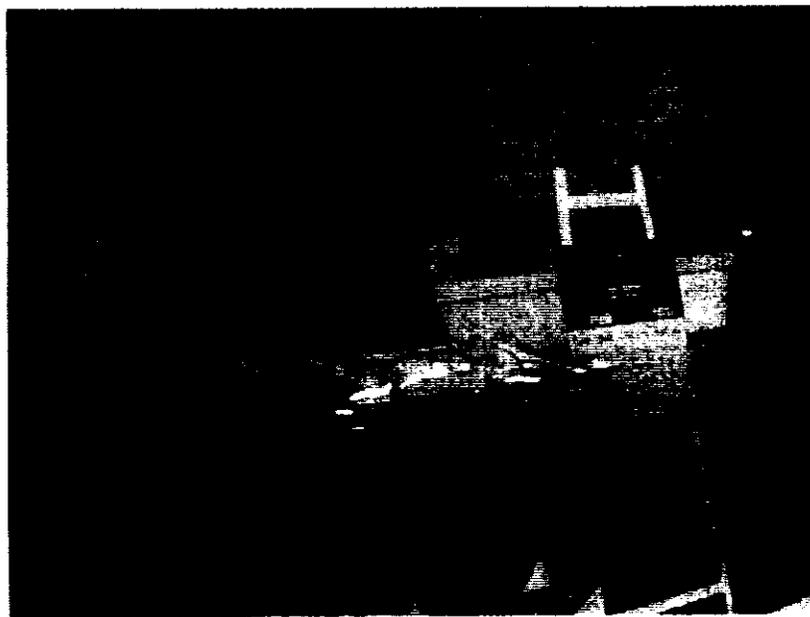


Photo 4: Good Morning Girl Ready to Give Out a Sample in Front of Supermarket

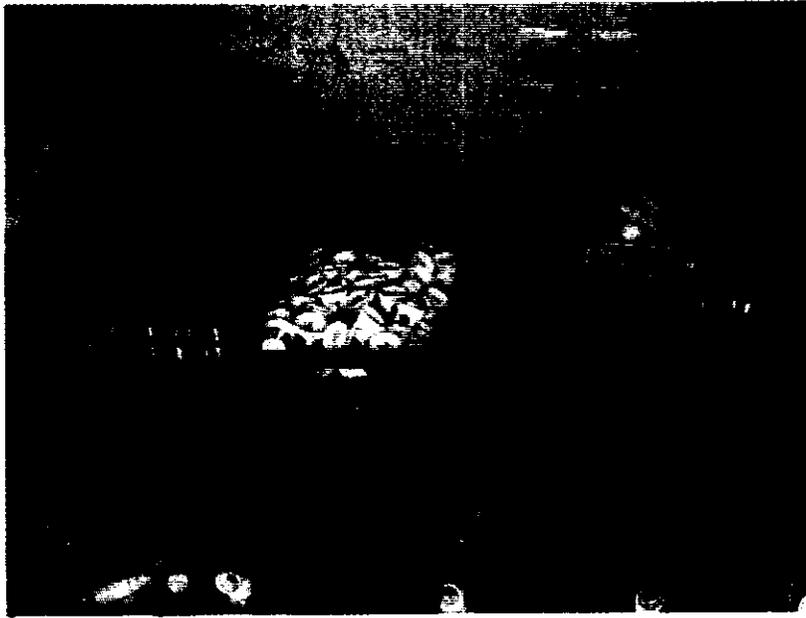


Photo 5: Good Morning Products in Cool Room

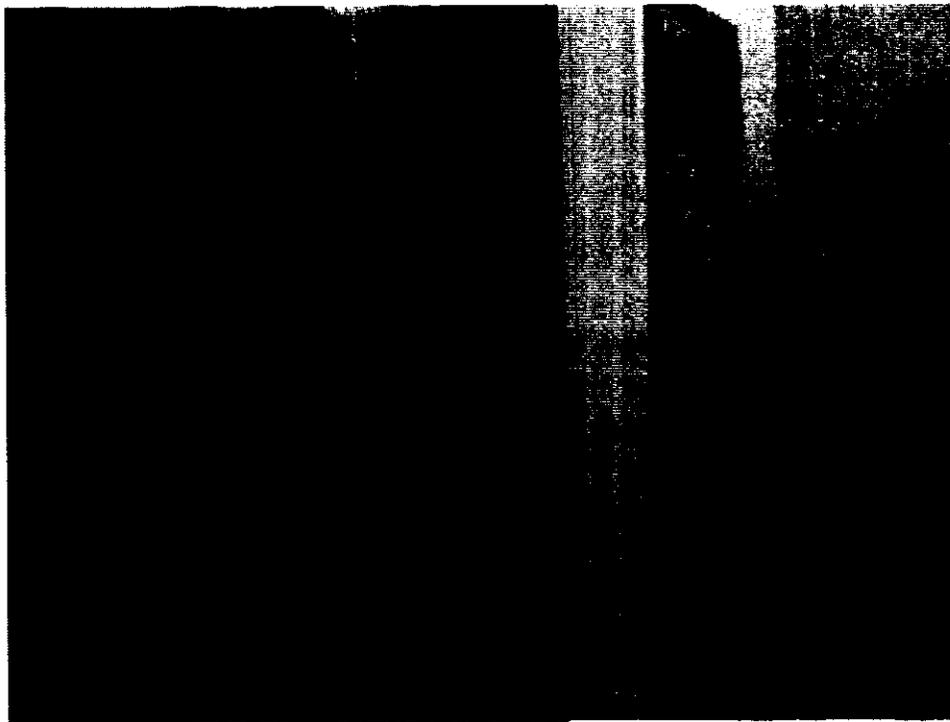


Photo 6: Good Morning Products on the Shelf of a refrigerator at Bounty Supermarket (Good Morning stands up against New Zealand US Barbadian products)

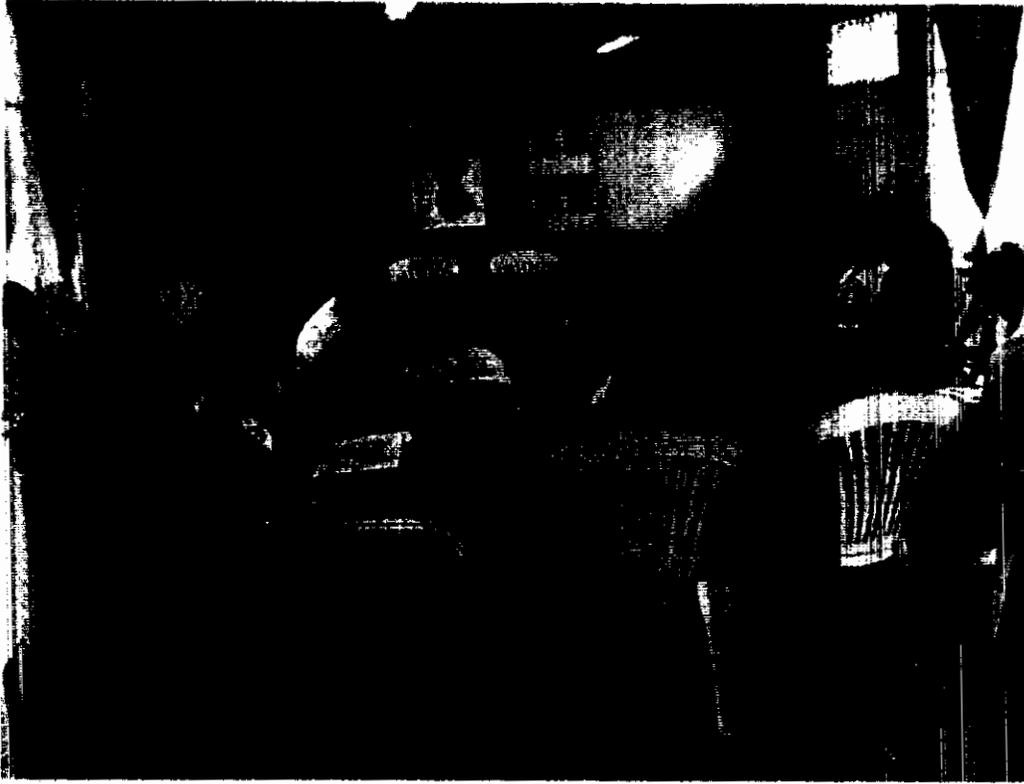


Photo 7: IICA Rural Development Specialist Cromwell Crawford Lecturing to Visiting Alcorn University Students

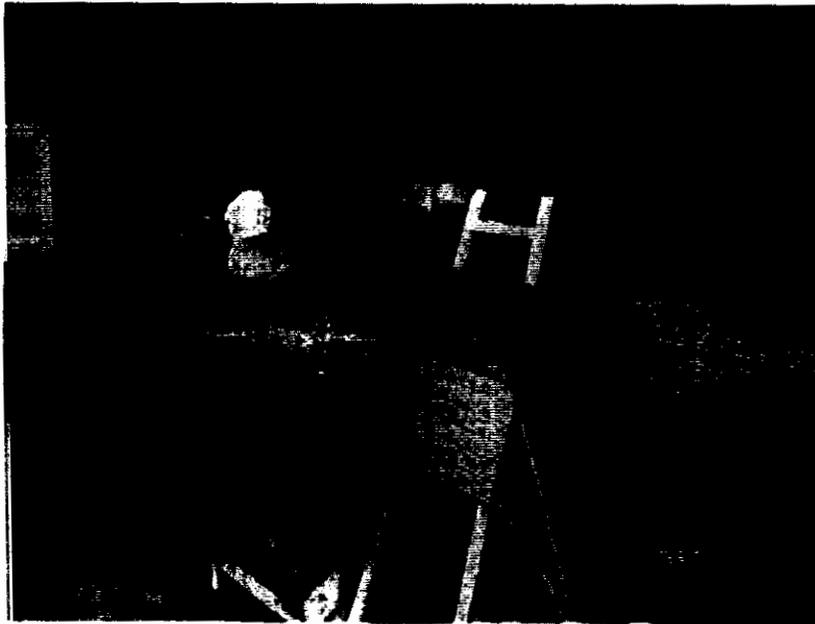


Photo 8: Introducing Good Morning Dairy Products to a Shopper at Bounty Supermarket.



Photo 9: Sampling Tray inside of Supermarket.



Photo 10: Two Good Morning Young Ladies Ready to Give a Sample of Products



Photos 11: World School Milk Day 2003 Oct 17

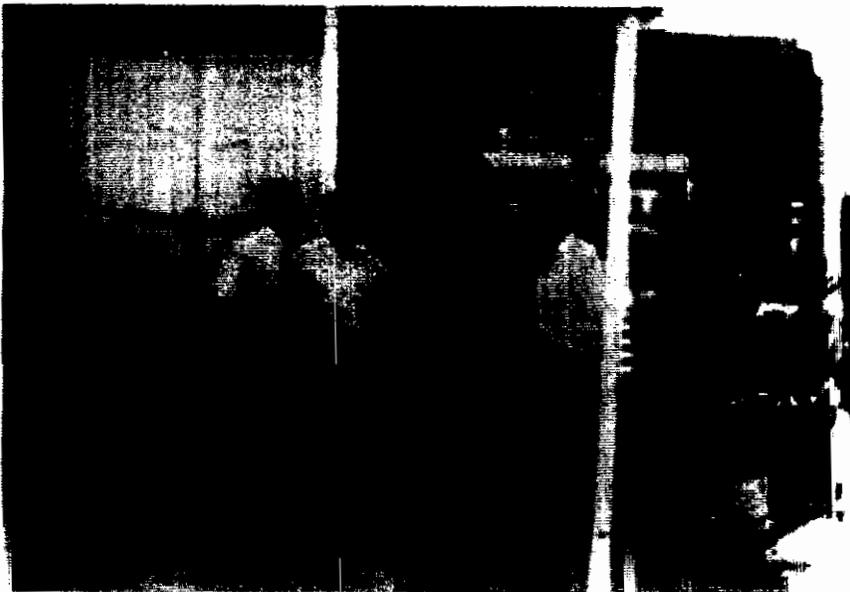


Photo 12: DPU - GDDP staff Minutes Before the Launching of the DPU (Nov 17 2003)

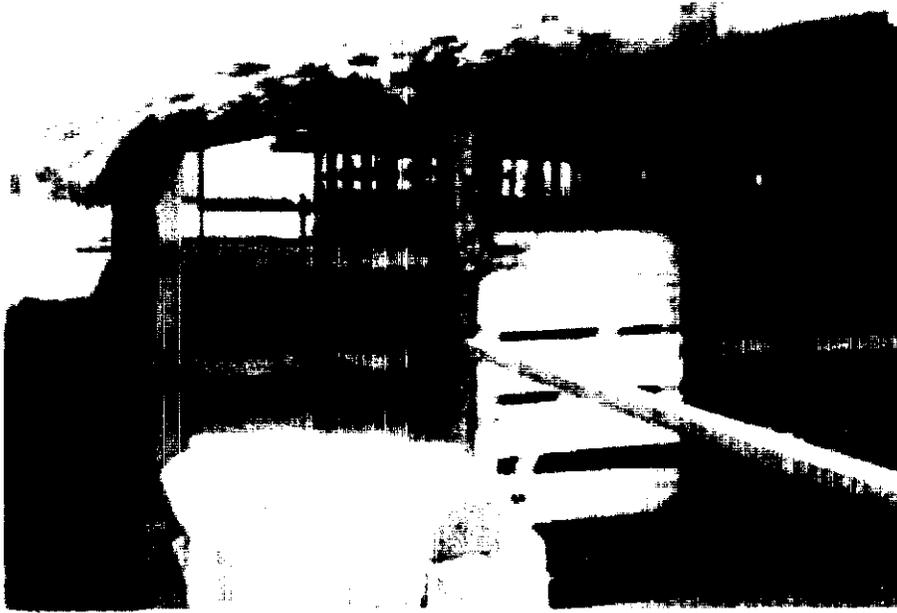


Photo 13: SSCF -Part of Humus Production Unit (Palm Leaf Roofing Material Keeps the Worms Cooler than zinc sheets



Photo 14: DPU under Construction - Still Early Days

## *Launching of the National Cattle Farmers Association (NCFA)*



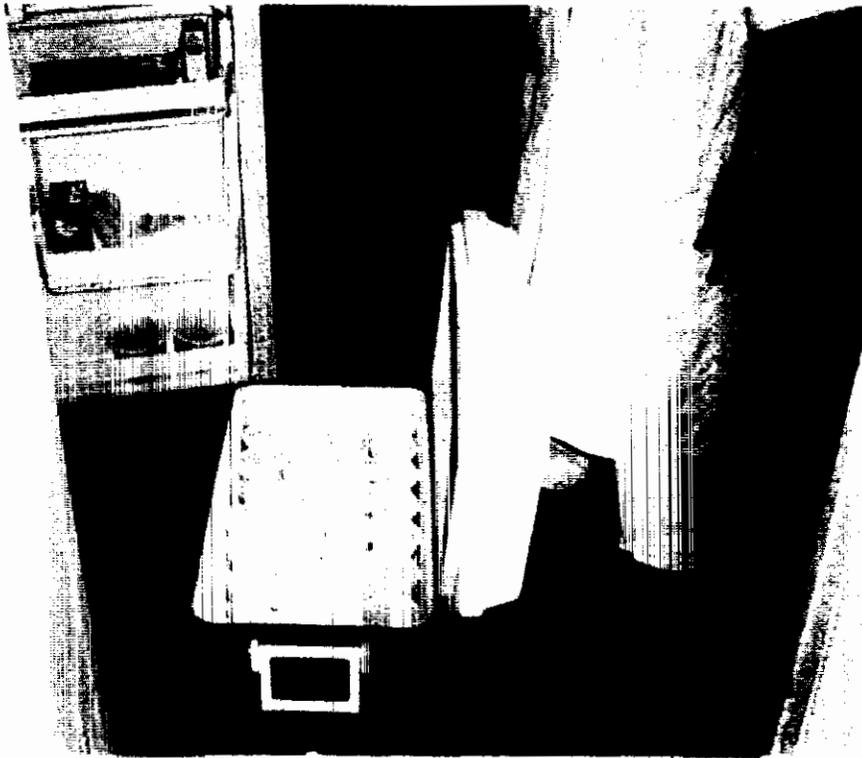
Minister Shaw at the Podium. Also shown: Mr. Alex Foster, Partners of the Americas; Mr. Meer Bacchus, Director NDDP; Dr. A. Gardella, IICA Representative; Mr. R. Godard, US Ambassador; Mr. B. Singh, NCFA President; Dr. H. Munoz; Mr. R. Indhal, NCFA Vice-President; Mr. Leon Small, NCFA Secretary



Farmers and Invitees



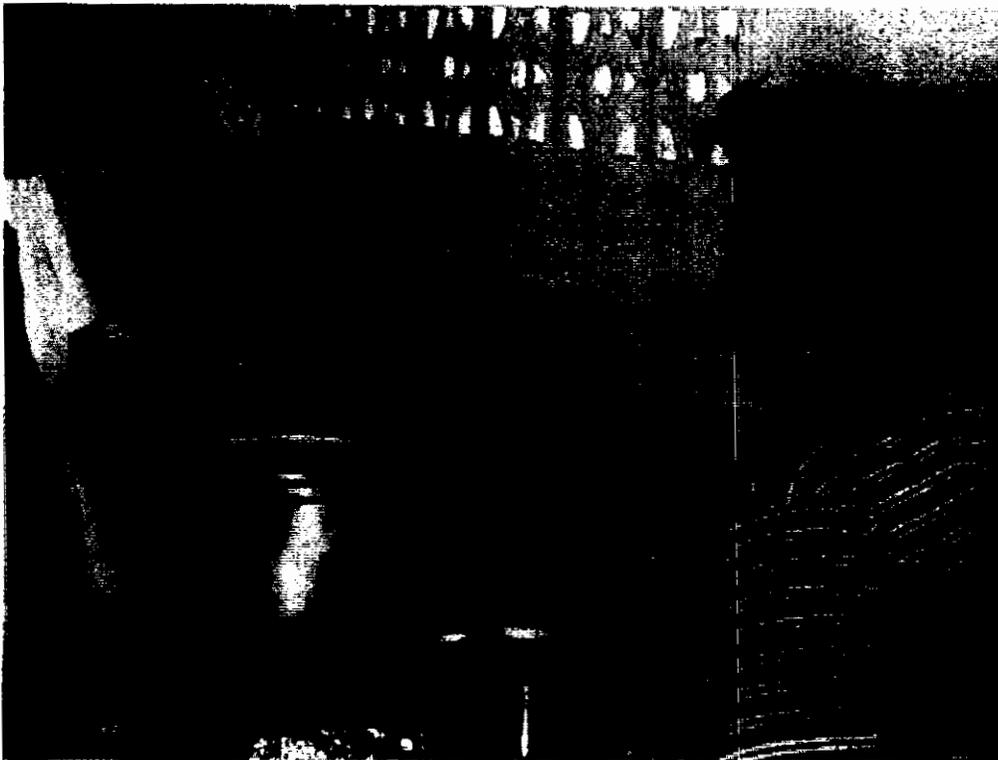
*Photo 1. Dairy Products Course at Saint Stanislaus.*



*Photo 2. Dairy Products Course at Saint Stanislaus.*



*Photo 3. Dairy Products Course at Saint Stanislaus.*



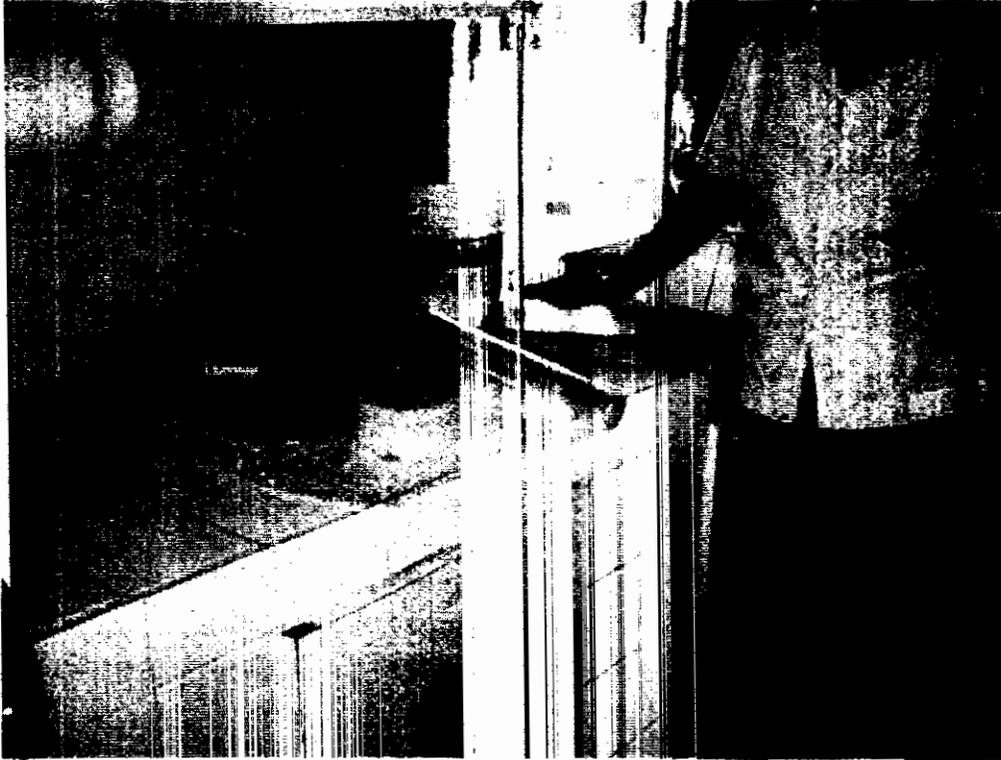
*Photo 4. Making cheese - Milk temperature, Windsor Forest Region 3*



*Photo 5. Making cheese - Adding citric acid, Windsor Forest Region 3*



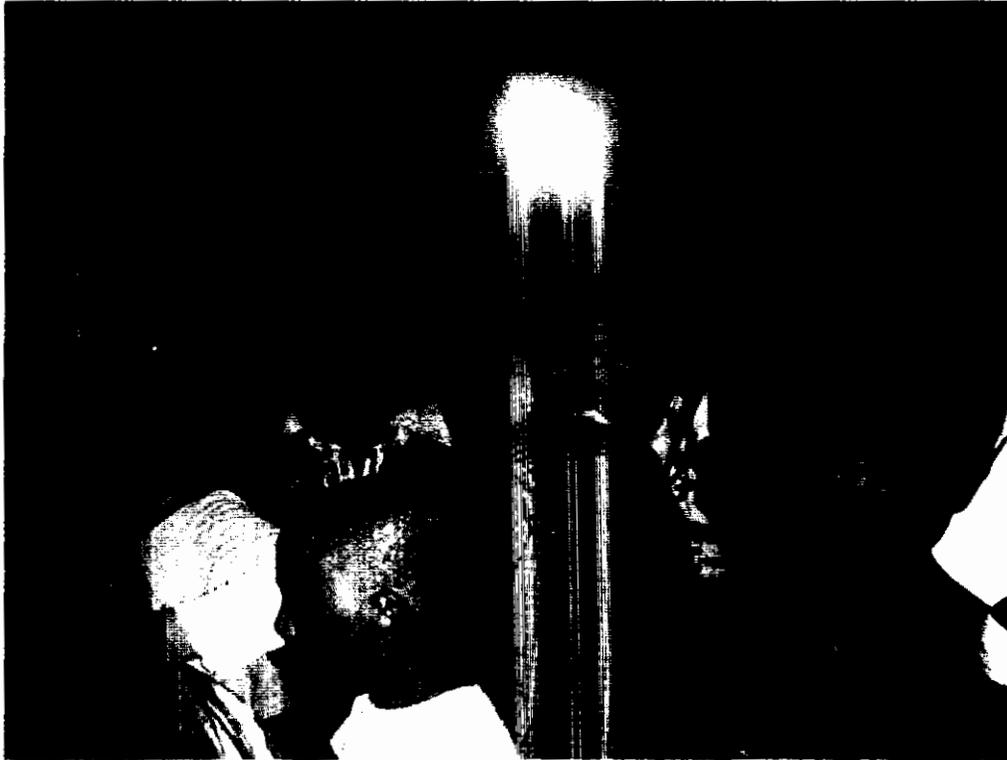
*Photo 6. Making cheese – Bringing milk to boil, Windsor Forest Region 3*



*Photo 7. Making cheese – Cheese at last! Windsor Forest Region 3*



*Photo 8. Guyana Nite - Women who made dairy products for the Exhibition*



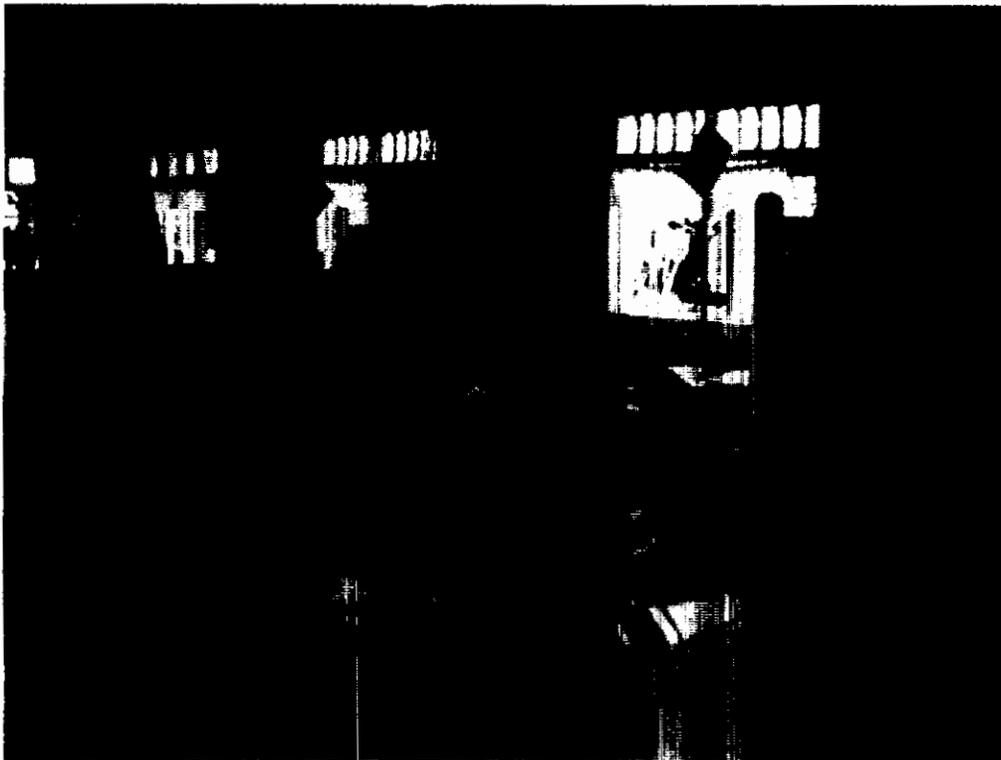
*Photo 9.* Guyana Nite – The Prime Minister visits the GDDP Booth



*Photo 10.* Elections Day at the Mahaica Mahaicony Milk Producers Coop.



*Photo 11. School Supplementation Program – Calcutta Nursery School.*



*Photo 12. School Supplementation Program – Airy Hall Nursery School.*

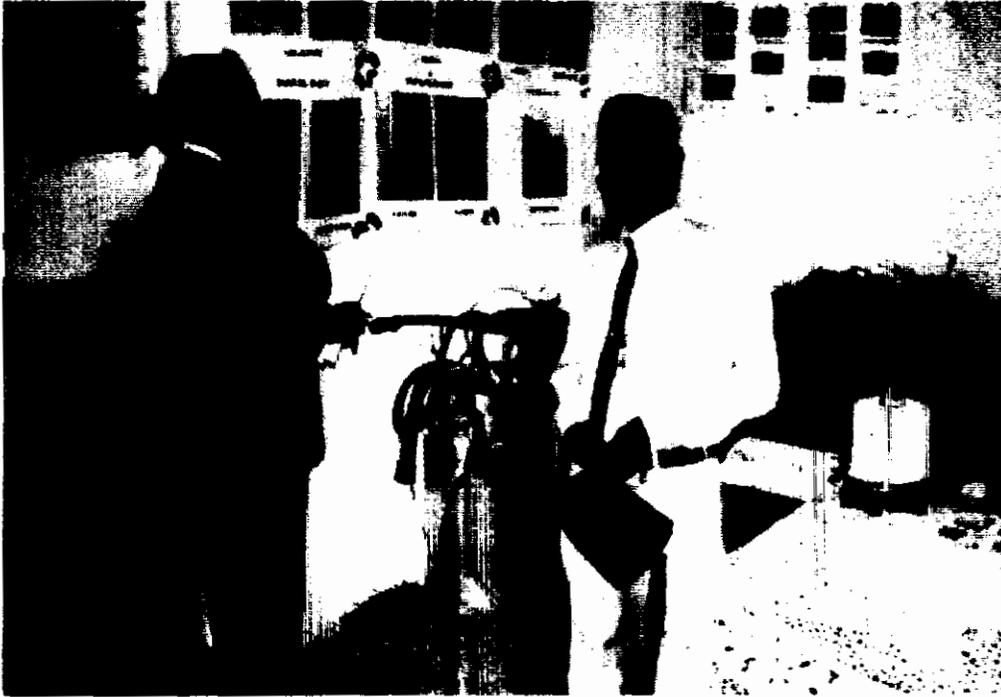


Photo 1: GUYEXPO 2002 – GDDP Extension agent speaking with visitor.



Photo 2: Secondary School Students at Training Session at St Stanislaus Training Centre



Photo 3: Agriculture Month Activity Region 3 Farmers Visit a Beef FeedLot



Photo 4: Dantzig Dairy



Photo 5: Deeroop's Dairy Farm - one of the Model Farms



Photo 6: USAID Mission Director Dr. Sarhan Chatting with FAO Consultant GDDP Project Director, President MMMP Cooperative President Local Partners Chapter GDDP Technician



Photo 7: Kiritpal's Model Farm – Dr. Sarhan observing the doors in the Milking Palour



Photo 8: Farmers Training Activities in Region 6



Photo 9: From Hand Milking to Machine Milking at Kiritpal's Cattle Farm - A Model Farm

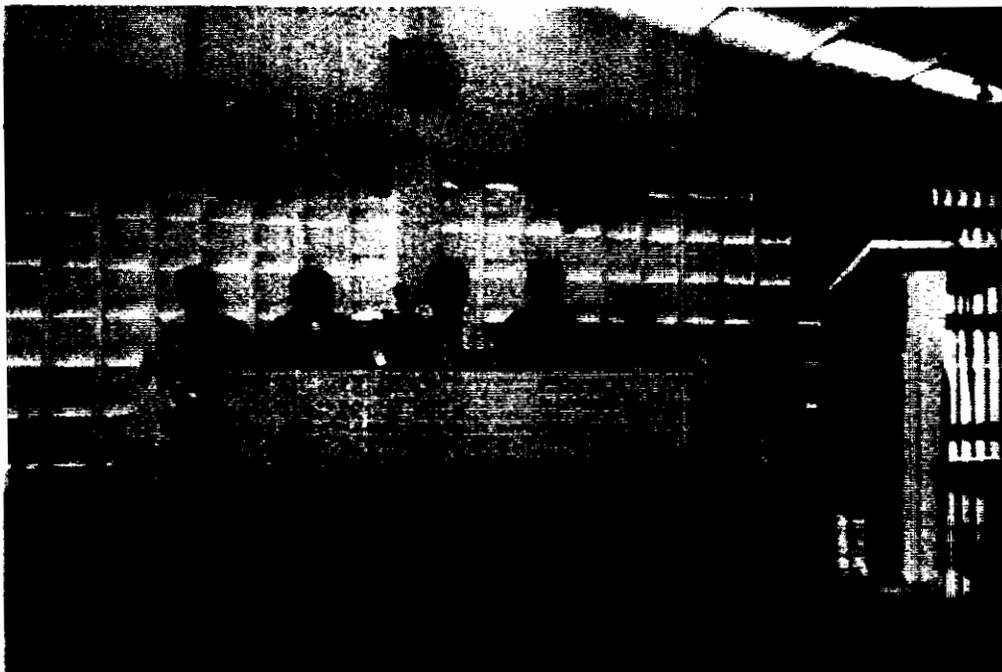


Photo 10: World School Milk Day Celebrations in Guyana Deputy Headmistress Calcutta Nursery School Commenting on the Positive Results of Partners GDDP Milk Supplementation Study October 2002



Photo 11: Introducing New Forage Species Region 3 Model Farm (Before Intervention)



Photo 12: Introducing New Forage Species Region 3 Model Farm (After Intervention)

Photo(s) 13:  
The Caribbean Food & Nutrition Institute (CFNI) PAHO/WHO  
CFNI-sponsored Nutrition Promotion Competition



Dr. Leslie Ramsammy, Minister of Health, presents the winner's trophy to Mr. Kelvin Craig, Coordinator, Guyana Dairy Development Project. Others affiliated with GDDP also pose with trophy.

The award received special attention on the CFNI Web site.

Special Events - Microsoft Internet Explorer

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Address <http://www.cfni.paho.org/pages/events.htm> Go Links

**CFNI** Special Events

**NEWS RELEASE**

**GUYANA STARS IN LINEUP OF CFNI NUTRITION PROMOTION WINNERS**

Done Internet