USAID FROM THE AMERICAN PEOPLE	**Rwanda Dairy Competitiveness Program II**	LAND O'LAKES, INC. INTERNATIONAL DEVELOPMENT Innovative Solutions for Global Prosperity

RWANDA DAIRY COMPETITIVENESS PROGRAM II

Quarterly Report

April 1 – June 30, 2015

CA# USAID-696-A-12-00002

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QUARTERLY REPORT

April 1, 2015 – June 30, 2015

Name of Project:	Rwanda Dairy Competitiveness Program II
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ACRONYMS AND ABBREVIATIONS

ABS	African Breeders Services, Total Cattle Management Limited
AI	Artificial Insemination
BDS	Business Development Services
BFS	Bureau of Food Security
COMESA	Common Market for Eastern and Southern Africa
COP	Chief of Party
DCA	Development Credit Authority
DCOP	Deputy Chief of Party
DPPD	Dairy Public Private Dialogue
DSWG	Dairy Sector Working Group
DQAL	Dairy Quality Assessment Laboratory
EADD	East Africa Dairy Development project
EDPRS	Economic Development and Poverty Reduction Strategy
EMMP	Environmental Mitigation and Monitoring Plan
ESADA	East and Southern Africa Dairy Association
IEE	Initial Environmental Examination
INGO	International Non-Governmental Organization
GoR	Government of Rwanda
MCC	Milk Collection Center
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Economic Planning and Finance
MINEDUC	Ministry of Education
MINICOM	Ministry of Trade and Industry
MINALOC	Ministry of Local Government
MINISANTE	Ministry of Health
MS – DSWG's	Milk Shed – Dairy Sector Working Groups
MSME	Micro, Small and Medium Enterprise
NDS	National Dairy Strategy
PLWHA	People Living with HIV and AIDS
PMP	Performance Management Plan
PSF	Private Sector Federation
PSTA III	Strategic Plan for the Transformation of Agriculture in Rwanda – Phase
RAB	Rwanda Agriculture Board
RALIS	Rwanda Agriculture and Livestock Inspection Services
RARDA	Rwanda Animal Resources Development Authority
RBS	Rwanda Bureau of Standards
RDB	Rwanda Development Board
RDCP II	Rwanda Dairy Competitiveness Program II
RMSA	Rwanda Milk Sellers Association
RNDB	Rwanda National Dairy Board
SOQ	Seal of Quality
SP	Service Providers
TOT	Training of Trainers
UCD	University of California – Davis

INTRODUCTION AND HIGHLIGHTS

This is the quarterly report for the period April 1 to June 30, 2015. USAID's Rwanda Dairy Competitiveness Program II (RDCP II) project was designed to reduce poverty through expanded marketing of quality milk that generates income and employment, and improves nutrition of rural households. Over the last 3.5 years RDCP II has achievedthis by linking existing and new smallholder dairy producers through their cooperatives to expanding market demand driven by improved quality, reduced transaction costs and increased investment all along the dairy value chain.

Program highlights for the past quarter ending June 2015 include the following:

RDCP II Leadership transition

As per project design, RDCP II changed leadership with Dennis Karamuzi, formerly DCOP, assuming the role of COP from Frank O'Brien who left at the end of his contract. While Dennis is new to this role, he is very familiar with the expectations of both USAID and the host government, having worked in the Rwandan livestock sector for over 10 years in key leadership positions. He has a good working relationship with host government through MINAGRI and affiliated agencies at both central and decentralized level. In addition, Dennis has strong experience in program management, finance and accounting and required leadership skills for this role. RDCP II under Dennis' leadership will continue on the same path to achieve program objectives.

Figure 1: Dr. Dennis Karamuzi (R) has assumed the role of COP from Mr. Frank O'Brien whose contract ended in June.

Visiting Land O'Lakes Board Applaud USAID Collaboration

During this quarter, RDCP II received a high level delegation comprised of Senior Executives and the Board of Land O'Lakes, Inc. who visited Rwanda in April. The delegation took time off from their busy schedule after a board meeting in South Africa. While visiting project sites in Gicumbi district, the members applauded USAID support and collaboration towards strengthening the dairy sector in Rwanda. Land O'Lakes' Board is dcomprised of members from several different US states, many of whom are large dairy farm owners. They were accompanied to Rwanda by the Senior Vice President of Land O'Lakes International Development Division, Jon Halverson.

Figure 2: Land O Lakes Board members and Executives listen to IAKIB coop Manager Mr. Twine Dacien during their visit to RDCP II activities in Gicumbi District

Land O'Lakes Talent Acceleration Program Associate Concludes 5-month Placement

Under the Land LO'Lakes corporate Talent Acceleration Program (TAP), a Dairy Supply Chain Associate, Andi Musselwhite, was placed to support the quality activities of RDCP II for a 5-month assignment beginning in January 2015. The RDCP II team was happy to be one of the pioneer projects for this new program, which provides a unique field-shared learning opportunity for dairy professionals. During Andi's time in Rwanda, she supported 3 dairy processors: Blessed Dairies, Ingabo Dairies and Zirakamwa Meza.

In addition, she facilitated development of cheese processing training materials and assisted with the Cheese Expo and Competition in May 2015. The processors as well as the program team benefited from her US industry experience.

Model Farmer Training

This quarter, in order to increase the number of model farmers trained for wider dairy extension delivery, a new cohort of 353 model farmers from across the 17 districts wherewhere RDCP II esoperates were trained.

Cheese and Butter Expo 2015

In collaboration with Rwanda National Dairy Platform, RDCP II hosted the 2nd annual cheese expo and competition in May. This year's event also showcased new butter products processed locally in Rwanda. Both the expo and competition attracted an increase in attendees and products compared to last year. This annual event will continue to grace the dairy calendar with RNDP interested in continuing to showcase the sector's development.

Figure 3: Ms. Andi Musselwhite (L) supported the project team to organize cheese competition and expo held in May

Technical Support to Mukamira Dairy Processing Plant

In June , RDCP II provided technical support to Mukamira processing plant, located in Nyabihu District. This followed a request from the Ministry of Agriculture and Animal Resources (MINAGRI), to provide technical support towards operationalization of the dairy plant. In response to the request, RDCP II hired two consultants: Kobus Mulder – a dairy processing expert, and Paul Schoen – a financial analyst, to refine the Mukamira business plan and ascertain the quality of purchased Equipment. Both consultants were officially engaged to provide technical support as requested under the joint supervision of both MINAGRI and Ministry of Trade and Industry (MINICOM). A refined business plan was presented and recommendations for the plant to become operational were discussed with the responsible officials.

Figure 4: Mukamira processing plant is expected to boost Rwanda's dairy sector

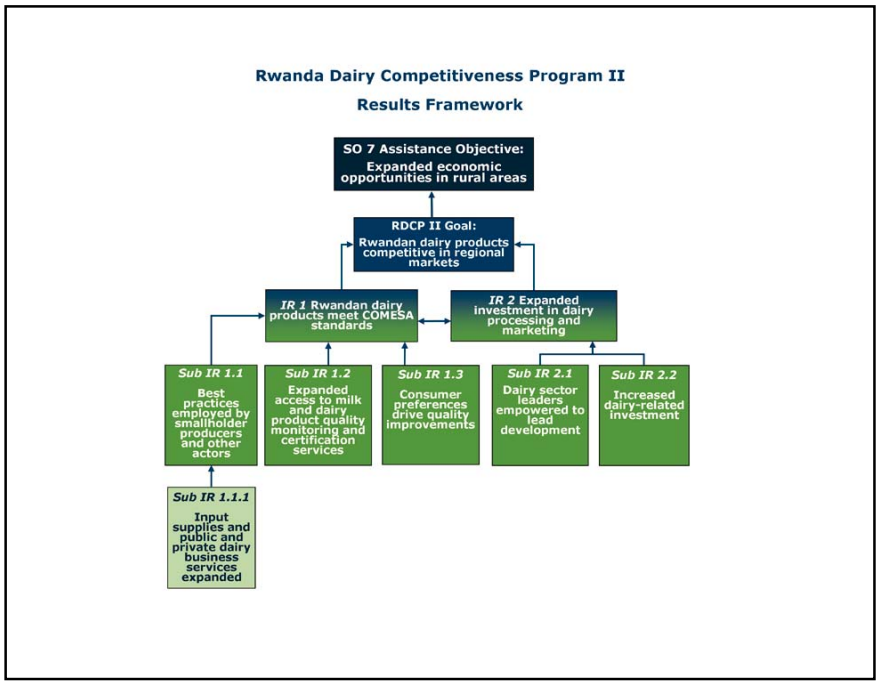
Key outputs of the consultancy include;

- Three management options were proposed for government exit
- New product plan proposed based on market demand
- Financing plan reduced by more than half to Rwf 600M with appropriate investment breakdown proposed.

Visit by aBi Trust Uganda

Land O'Lakes has received regional recognition for its contribution to the dairy sector. In this regard, on June 23, 2015 **aBi Trust Uganda,** upon its request, was hosted on a one day field visit to some of the RDCP II program partnerspartners in Gicumbi district. ABi Trust is a multi-donor funded trust operating in Uganda that supports private sector development through a number of value chains including dairy. The purpose of the visit to RDCP II was to assess how aBi Trust can act as a development partner to help improve the dairy sector in Uganda.

Figure 5: aBi Trust Uganda team during a visit to one of the RDCP II project clients, IAKIB cooperative in Gicumbi district



IR 1: RWANDAN DAIRY PRODUCTS MEET COMESA STANDARDS

Rwanda produces over 500 metric tons of milk annually which is largely marketed through poorly regulated informal routes. This results in losses to the dairy sector, both in volume and value of dairy products marketed. RDCP II aims to position Rwanda as a hub for high quality dairy products by benchmarking local standards to regional COMESA standards and working with sector actors to achieve the same through a reward mechanism for implementing a range of best practices under the Rwanda SoQ program. During this quarter there was progress across the dairy value chain among artificial insemination service providers, dairy farmers trained and milk transporters engaged, as well as dairy processors and MCCs enrolled and encouraged to drive this process. However, in April, because of Genocide commemoration events, program activities were, as is always the case, were subdued.

In an endeavor to introduce a sustainable farmer to farmer knowledge transfer system, a new cohort of 353 model farmers was trained and equipped to train farmers in their villages. The model farmers trained last year continued to disseminate knowledge and skills through convening meetings with dairy farmers in their communities. During the quarter, feedback on the draft Ministerial Instructions on Milk Handling, Transportation and Improved Quality (Ministerial Instructions) was received from the Inter-ministerial Cabinet Committee. The committee called for revisions that make the Ministerial Instructions focus on commercial dairy stakeholders such as traders, transporters and MCCs. The suggested revisions have been done; however, the Ministerial Instructions have to go through the full review process. Despite this delay, it is still anticipated that once promulgated the Instructions will have broad legal backing, and hence enable enforcement of best dairy practices across the entire dairy value chain from production through transportation, handling and processing. This will be the fulcrum for a fully functional national inspection and certification program under RALIS.

Figure 6: RDCP II works with all stakeholders including districts' authorities on the practice required to channel milk collection through MCCs.

IR1.1 Best Practices Employed by Smallholder Producers and other Actors

Key achievements for this period:

- This quarter, 7,075 (4,541 Male; 2,534 Female) individuals including dairy farmers and other value chain actors benefited from training on dairy best practices, gender and BDS skills. This brings the cumulative number of individuals that have benefited from training to 37,460.
- 2,877 vulnerable households benefited from RDCP II interventions giving a cumulative total 14,371 vulnerable households reached since the beginning of the RDCP II program.
- 3,774 MSMEs including targeted farms received business development services during the quarter giving a cumulative total of 3,917 for year 2015 and 10,395 since the beginning of the program
- 207 full-time equivalent new jobs (173 Male; 34 Female) were created as a result of RDCP II interventions during the quarter. Cumulatively, as at the end of the quarter, 9,799 jobs have been created.

Figure 7: Equipping and establishing the model farmer system is a strategic consideration for sustainability when RDCP II closes in 2017

- 4,648 (3,021 Male; 1,627 Female) farmers and other dairy actors applied improved dairy technologies and management practices during this quarter giving a cumulative total of 25,258 since the beginning of the program.
- 3,231 cows (for 3,231 vulnerable dairy farmers) inseminated this quarter by nine (9) AI service providers. The beneficiaries of this service were vulnerable farmers (most of them from "One per Family Program) from Bugesera, Gasabo, Gicumbi, Huye, Kamonyi, Kayonza, Kicukiro, Musanze, Nyagatare, Nyanza, Rubavu, Ruhango, Rulindo, and Rwamagana
- 353 model farmers (185 female; 168 male) were trained during this quarter, making a cumulative number of 702 model farmers so far trained since the model farmer training program started in 2014.
- 25 para-veterinarians and veterinarians (4 female; 21 males) from 14 sectors of Kayonza District were trained by RDCP II in response to a special request from Kayonza District.

In an endeavor to achieve the four core products/activities in relation to best practices i.e., the Feed Flow Plan, the Herd Health Plan, the Reproduction Plan, and the Clean Milk Production Plan and the Seal of Quality, this quarter, RDCP II continued to conduct farmers' trainings using trained service providers and model farmers. As has been reported before, the approach taken was to train selected service providers and model farmers on best dairy practices and then use them as TOTs to train and advise farmers. Increasingly, the model farmers have become the predominant disseminators of dairy best practices to farmers. As reported previously, model farmers disseminate knowledge and lead discussions on the core dairy best practices, particularly milk production and quality improvement, dairy farming as a business, gender mainstreaming and cooperative management.

This quarter, in order to increase the number of model farmers trained for wider dairy extension delivery, a new cohort of 353 model farmers from across the 17 districts of RDCP II operation were trained. As for previous model farmer groups, the training of this new model farmer cohort was hosted at Organic Farming Training Center (GAKO in Kigali) from May 5 to June 26, 2015. Each training session of four days was attended by, on average, 40 farmers. Unlike in previous sessions where selected farmers from across the 17 districts of RDCP II operation were in each individual training group, the 40 farmers were selected from two districts in the same milk shed. Clearly, bringing together farmers from the same district and milk shed improved the quality of discussions and enhanced social cohesion. At the end of each training session, individual model farmers were given Mucuna and/or Calliandra legumes seeds for planting and testing, training manuals with the course notes to use for reference and training other farmers, and jackets identifying them as model farmers for use during training and demonstration sessions.

Figure 8: RDCP II has focused its efforts on training farmers on improved feeding technologies that will increase dairy productivity

Implementation of Activities

During this quarter, RDCP II trained, through service providers, 5,695 farmers (2,312 female & 3,383 male) from all 17 districts of RDCP II operation. The percentage of women trained was 40.6% which is higher than in previous quarters. In order to increase women attendance during training, new strategies were adopted including using training sites near residential areas. In addition, RDCP II instructed service providers and sector officials to actively invite women to attend and to mainstream gender in their activities. As in previous sessions, the training covered the standard best practices including cattle feeding, breeding, disease control, milking hygiene, milk handling, dairy business management, gender, and cooperatives management.

Figure 9: In addition to herd health management , BDS and gender intergration, model farmers have received practical demonstration of milk quality testing.

The new RDCP II-trained cohort of 353 model farmers (185 females & 168 males) reported above consists of 52% women and 48% men. The high percentage of women was a deliberate attempt by RDCP II to achieve gender equity in the model farmer groups. It should be stated that the selection of women was not an affirmative action but genuinely based on merit. When the 353 model farmers trained areare taken into account, the cumulative number of model farmers trained across the 17 districts is now 702. Some of the model farmers have performed beyond expectations, and hence RDCP II proposes to have a higher level category of super model farmers that could be trained to acquire high level technical skills such as AI.

As briefly stated above, a total 25 para vets and vets (4 females & 21 males) from Kayonza District were trained by RDCP II. This training was conducted after a special request from the District to train its District Veterinary Officer, sector vets and para vets on, among other topics, dairy best practices and dairy business management. The training was conducted from 25 to 29 May, 2015. While the training was appreciated by the District, the District requested RDCP II to offer AI and pregnancy diagnosis training. Unfortunately, the requested training can only be offered through RAB. However, RDCP II is negotiating with RAB to support national AI activities which may cover training and providing equipment to inseminators.

During this quarter, RDCP II supported nine AI service providers to inseminate 3,231 cows belonging to 3,231 vulnerable farmers (1,149 females & 2,084 males) from 15 districts where RDCP II operates.

A total of 4,648 individuals applied improved dairy technologies and management practices. These include mainly farmers who joined dairy cooperatives / MCCs to benefit variety of services offered to members (training, milk testing, milk bulk transport & marketing, animal feeds kiosk, linkage with banks across the milk sheds, AI service etc.) Included are also MCCs staff, transporters, input suppliers engaged with the program especially in new sectors covered by the program in the framework of activities scale up and extension of area covered by the program. The total number of farmers applying improved technologies during this fiscal year will be estimated after the annual farmers survey expected to be conducted end of August 2015.

A total 207 full-time equivalent jobs were recorded this quarter making a cumulative total of 616 full time jobs since beginning of year 2015 and a cumulative total of 9,799 full time (new and continuing jobs) since the beginning of RDCP II program (see FTMS Table). In general, job creation is associated with increased milk deliveries to MCCs and quality standards requirements associated. More milk aggregation points were created and number independent milk transporters (by bicycle and motorcycle) from farm to processors and MCCs increased significantlysignificantly. This was mainly observed in Musanze, Nyabihu, Rubavu, Rwamagana, Kayonza, Kamonyi and Nyanza Districts. The number of jobs is likely to increase when new jobs at farm level are included after the annual farmers survey is carried out by the end of August 2015.

The forth coming survey will also provide information about other farm level indicators. In addition to job creation and adoption of improved dairy technologies above mentioned, the survey will also collect information on dairy household income, incremental sales and gross margin per dairy cow. Related progress will be reported on in the 4th quarter / annual report of the fiscal year 2015.

IR 1.1.1 Input supplies and publicppublic and private dairy business services expanded Key achievements were as follows:

RDCP II built the capacity of 289 model farmers (99 female & 199 male) through additional training and distribution of equipment for demonstrations. The program facilitated service providers from 17 districts of RDCP II operation to train farmers. The service providers trained 5,695 farmers (2,312 Female & 3,383 Male). Additional number of individuals were trained through the model farmers system at farm level and through AgPro approach for SMEs. Farm level trainings focused on dairy feeding technologies, herd health, reproductive management, milk hygiene and handling, farming as business, cooperative management and gender mainstreaming in the dairy sector (Table 1).

Table 1: Number of farmers trained by service providers this quarter across the 17 districts of RDCP II operation

#	District	Farmers Trained	Male	Female
1	Bugesera	343	216	127
2	Gasabo	91	51	40
3	Gatsibo	71	38	33
4	Gicumbi	172	137	35
5	Gisagara	574	345	229
6	Huye	427	218	209
7	Kamonyi	225	82	143
8	Kayonza	415	242	173
9	Kicukiro	233	117	116
10	Musanze	765	430	335
11	Nyabihu	751	474	277
12	Nyagatare	356	239	117
13	Nyanza	162	113	49
14	Rubavu	232	168	64
15	Ruhango	165	78	87
16	Rulindo	475	307	168
17	Rwamagana	238	128	110
	Total	**5,695**	**3,383**	**2,312**

RDCP II trained a new cohort of 353 (185 female & 168 male) model farmers (Table 2) that were selected from 17 districts of RDCP II operation; this brings the cumulative number of model farmers to 702 for the whole duration of RDCP II operation. Even after the end of RDCP II, the model farmers are expected to continue advising farmers on dairy best practices and link farmers to input suppliers and markets for milk. RDCP II intends to link the model farmers to the national Twigire extension system. This will enable farmers to access inputs and services in a sustainable and comprehensive manner.

Table 2: New model farmers trained per district of RDCP II operation

#	District	Total Model Farmers	Male	Female
1	Bugesera	20	9	11
2	Gasabo	22	13	9
3	Gatsibo	17	4	13
4	Gicumbi	29	22	7
5	Gisagara	26	13	13
6	Huye	21	10	11
7	Kamonyi	15	9	6
8	Kayonza	20	5	15
9	Kicukiro	10	4	6
10	Musanze	23	7	16
11	Nyabihu	24	16	8
12	Nyagatare	22	8	14
13	Nyanza	22	13	9
14	Rubavu	19	13	6
15	Ruhango	17	8	9
16	Rulindo	25	8	17
17	Rwamagana	21	6	15
	Total	**353**	**168**	**185**

A total 25 (4 female & 21 male) para vets and vets from Kayonza District were trained by RDCP II. As reported above, this training was conducted after a request from the District. The training was conducted from 25 to 29 May, 2015. It focused on best practices in feeding, herd health, reproductive management and milk quality best practices. RDCP II welcomes similar training requests from districts because district extension staff are key players in perennial dissemination of information and knowledge to farmers at the last mile. Also, linkage of RDCP II to district extension structures that are permanent is desirable for sustainability of extension services provision to farmers.

Nine AI service providers conducted AI on a total 3,231 cows that belong to 3,231 (1,149 female & 2084 males) vulnerable farmers from 14 districts of RDCP II operation (Table 3). Contrary to expectations, artificial inseminations were not conducted in three districts, Gatsibo, Gisagara and Nyabihu. The reason forfor the failure to conduct AI in these districts was lack of ovulation synchronization hormones that are required to induce cows to ovulate and be inseminated at the same time. The Rwanda Agriculture Board RAB) that acquires the hormones now distributes the hormones through districts offices. Under this new arrangement, AI service providers (AISPs) contracted by RDCP II have to secure hormones from districts. Unfortunately, the AISPs engaged by RDCP could not get hormones from the three districts where inseminations were not undertaken. These districts were not willing to give hormones to AISPs and, in general, were insisting that RDCP II should supply hormones for its inseminations. As has been repeatedly communicated to the districts, because of USAID rules and regulations, RDCP II cannot buy hormones. Regrettably, RAB has discontinued the acquisition of hormones program; instead, it is now promoting cow breeding based on natural heat observation. It is therefore unlikely that the unaccomplished

inseminations across the districts will be completed. Further in this regard, RDCP II will terminate the AI delivery contracts. RDCP II is currently in discussion with RAB to explore ways to support continued delivery of AI services under the new approach.

Table 3: Artificial inseminations conducted by artificialartificial insemination service providers (AISPs) in 14 districts.

#	District	AI SPs	Target	AIs Done	Beneficiaries		
					Total	Male	Female
1	Bugesera	Nyamata Agri-inputs Ltd	300	270	198	198	72
2	Gasabo	COOVIGI	300	40	40	30	10
3	Gatsibo	Agrojoy Ltd	250	0	0	0	0
4	Gicumbi	COOVIGI	300	64	64	39	25
5	Gisagara	SPAD Ltd	450	0	0	0	0
6	Huye	SPAD Ltd	300	300	300	167	133
7	Kamonyi	NIR HOPE Ltd	300	240	240	159	81
8	Kayonza	Agrojoy	300	199	199	134	65
9	Kicukiro	Nyamata Agri-inputs Ltd	300	138	138	59	79
10	Musanze	A.T.VET Ltd	300	270	270	164	106
11	Nyabihu	UPROCENYA	300	0	0	0	0
12	Nyagatare	BARICE Ltd	300	300	300	228	72
13	Nyanza	Nyanza Agro Center Ltd	300	300	300	160	140
14	Rubavu	BAIR	300	300	300	139	61
15	Ruhango	Nyanza Agro Center Ltd	300	300	300	180	120
16	Rulindo	A.T.VET Ltd	250	225	225	131	94
17	Rwamagana	BARICE Ltd	300	285	285	194	91
	Total		**5,150**	**3,231**	**3,231**	**2,084**	**1,149**

IR 1.2 Expanded Access to Milk and Dairy Product Quality Monitoring and Certification Services

MCC Competitions and Awards

To promote a culture of best practices, RDCP II introduced a MCC competition that would reward best performers. In collaboration with partners including MINAGRI, RAB, RALIS and RNDP, RDCP II developed criteria for assessing MCC performance. Based on available information on functional MCCs, 45 out of an estimated total of 96 MCCs were selected for the initial performance assessment. The selected MCCs were located across the four Rwanda milk sheds. Using the developed assessment criteria which had performance ratings (scores) for activities including cooperative management, quality control and hygienic milk handling practices, environmental compliance, and milk handling infrastructure, the best 15 MCCs were identified. In order to further the performance of the 15 MCCs, milk samples were collected from individual MCCs and were tested for Somatic Cell Count (SCC) and total bacterial count (TBC). The final performance scores for individual MCCs were derived from summation of the initial performance evaluation using the assessment criteria and the milk sample test scores.

Based on the combined scores,the 15 MCCs were ranked. The top three MCCs in the rankings were awarded prizes. To this end, the best MCC was awarded a a motorized tri-cycle, a trophy and a certificate (Table 4). The runner up was awarded ten 50-liter stainless steel cans, a trophy and a certificate. Awards of ten 50-liter milk cans, trophies and certificates were given to each of the four provincial winners. The best MCC was IAKIB which is located in Gicumbi District. IAKIB also won the Northern province provincial award. The awards ceremony was presided over by the Minister of Agriculture and Animal Resources, Dr.Geraldine Mukeshimana. The activity was organized as part of the Annual Livestock Day events at the 10th Kigali Agricultural Show held at Mulindi Show Grounds. In order to continue encouraging MCCs to improve their performance, the MCC performance competition is expected to become an annual event. Notable during this year's MCC competition was the strong support from partners in both government and private sector to sponsor the event. FieFie Rwanda Ltd, a local supplier of tricycles in Rwanda donated the motorized tricycle to the overall winner while LISP – a government program donated the 50-liter stainless steel milk cans. Below is a summary table indicating winners by province/milkshed;

Table 4 : Winners in the National MCC competition

Position	Winners	Award description
Winner, National Level and Winner, Northern Province	IAKIB – Gicumbi District	1 motorized tricycle, 10 50-liter milk cans, national and provincial winner's trophies & certificates
Runner-up, National Level Winner, Western Province	Kivu Dairy – Rubavu District	20 50-liter milk cans, 10 for National Runner-up, 10 for provincial winner, and trophies & certificates for each of the two categories
Winner, Eastern Province	Dukundamatungo – Rwamagana district	10 milk cans, provincial trophy & certificate
Winner, Southern Province	CoopérativeCoopérative des Eleveurs de Kayenzi (COOPEKA) – Kamonyi District	10 milk cans, provincial trophy & certificate

The remaining 11 MCCs out of the short-listed 15, received commendation certificates for achieving the minimum score for good performance. These MCCs included Agiragitereka, BMCC, CTSOR, Gwizumukamo Busoro, Kibondo Dairy Farmers Coop, Kinazi Dairy Cooperative (KIDACO), KOAIBU Urumuri, Matimba

Tworore Kijyambere (MATWOKI), Nyagatare Dairy Marketing Society Cooperative (NDMSC), Rwimbogo Dairy Business Coop, and UPROCENYA.

Milk Quality Activities in Different Milk Sheds

Seal of Quality Activities

During this quarter, KOINDAMU and KOPEZIRU MCCs in Bugesera District, and others MCCs in the Northern Milk Shed (Table 5) joined the SoQ program. All MCCs in Bugesera District are regularly testing milk for hygienic quality and keeping records. In general, MCCs in Bugesera have improved the level ofrecord keeping. Results for all milk quality parameters tested are being recorded for individual farmers.

Table 5: List of new partners enrolled under the SOQ program

#	NAME OF INSTITUTION	NO.of SITES	DISTRICT
1	AYERA DAIRIES	5	MUSANZE
2	MAGIRIRANE	5	MUSANZE
3	FROMAGERIE LA LUMIERE	N/A	MUSANZE
4	KOPURUYA	4	RULINDO
5	COTEGI	5	RULINDO

As part of improved documentation of technologies and best practices adoption, three MCCs/Processors adopted record keeping. These are Agiragitereka-Kinigi, Ingabo Cheese Unit, and Muhe Farm in Western/Northen milkshed.

Usage of the Seal of Quality (SoQ) kits/equipment

After training on how to conduct SCC testing using the PortaSCC™ test, milk from farms that regularly fail to pass the alcohol test was subjected to the PortaSCC™ test. Specifically, technicians visited the farms whose milk previously and regularly failed to pass the alcohol test (Table 6).

Table 6: On-farm Somatic cell (SC) count testing results

#	Names of Farmers	SC Counts x 10^3
1	Mukanoheri Rachael	750
2	Tegera Ntare	775
3	Amiel Mitatu	575
4	Kayijuka Faustin	400
5	Nzabanita Ania	875
6	Gasumuniari Charles	1475
7	Munyazoboneye Dominick	1375
8	Safali Isaac	650
9	Munyazikwiye J paul	925
10	Nkotanyi	475

11	Munyejabo Enock	912
12	Nzabakurikiza Felicien	725
13	Mbanabucya	2600
14	Mahoho	1000

The SCCs for all the farmers (farms) exceeded the ideal maximum 300,000 count limit The SCC counts above 600,000 would normally indicate clinical mastitis cases. The results clearly show some serious cases of mastitis on the farms where cows were tested. Technicians from the MCC followed up the cows and treated those that were affected by clinical mastitis. If mastitis is to be controlled in Rwanda, all MCCs should adopt this practice and also promote mastitis prevention practices including teat dipping with disinfectant.

Milk quality training in Nyagatare and Gatsibo districts

A total 429 (92 female: 337 male) new dairy farmers from Katabagemu and Remera Sectors of Nyagatare and Gatsibo districts, respectively, were trained. The training focused on proper milking and transportation procedures to avoid milk losses due to poor handling from farm to MCC.

IR 1.3 Consumer Preferences Drive Quality Improvements

In this quarter, the Prime Minister's Office returned the Ministerial Instructions on Milk Handling, Transportation and Improved Quality (Ministerial Instructions) to MINAGRI for further corrections. A team consisting of RDCP II staff, two MINAGRI directors general, Rwanda Agriculture Board and the MINAGRI Legal Advisor addressed the corrections and issues raised by the Prime Minister's Office. As reported previously, this second round of review after the Inter-minsterial Committee instructed that the Ministerial Instructions focus more on the market end – regulating transportation, handling, distribution and retail. In addition, the Committee recommended that the farm level component of the Ministerial Instructions should be delivered through on-going extension provided by various agencies and organizations as well as private sector entities.

Figure 10: Roadshows have been launched in rural Rwanda, conveying nutritional messages through drama skits

As mentioned in previous reports, the main purpose of the Ministerial Instructions is to set guidelines for milk handling from collection centres/aggregation points to the market end/consumption. These will be a legal basis for enforcing hygienic practices in the dairy sector for it to be competitive and safe. RDCP II actively participated in drafting of the Ministerial Instructions and providing requisite technical assistance to the GoR.

Dairy Consumer Campaign Focuses on Nutrition Improvements among Rwandans

The Shisha Wumva campaign is still going on, but this time it is going beyond best hygienic practices and including nutrition. Specifically, it is highlighting the importance of milk in nourishing the body, particularly for the vulnerable family members such as children and pregnant mothers. This quarter, RDCP II produced framed posters and flyers with information on nutritional benefits of milk. The posters and flyers are now being distributed to all key establishments and offices as well as stakeholders and their household members. While selling milk is necessary to generate income, the message emphasizes

the importance of saving milk for home consumption. These materials were first given out to stakeholders at Nyabihu district JADF Open Day which was attended by more than 700 people for the two days it was running. At this function, RDCP II was a key facilitator. The message was emphasized by the RDCP II-hired drama team through a skit that role played a good family that sells milk but saves some for household consumption and another family that does not give milk to the family but instead sells all the milk and consumes all the money. The family that consumes milk has children that are smarter in school and are strong with higher body immunity to fight diseases, and hence better physical and mental development.

IR 2: EXPANDED INVESTMENT IN DAIRY PROCESSING AND MARKETING

RDCP II aims to increase both public and private investment in human and financial capital to enable Rwandan dairy products to become locally and regionally competitive. This calls for concerted efforts and increased stakeholder engagement to improve both policy advocacy and leadership development within dairy organizations and businesses.

IR 2.1 Dairy Sector Leaders Empowered to Lead Development

Rwanda National Dairy Platform legally registered

During this quarter, the Rwanda National Dairy Platform (RNDP) received the much awaited notification to register with the Ministry of Labour and Public Services and thus officially introducing RNDP and its statutory instruments to the Office of the Prime Minister. This final step means the RNDP statutes will be announced in the National Gazette as legally binding instruments for the organization. This in effect, concludes over 12 months of inter-agency discussions leading up to the formal recognition. This is a key milestone for RDCP II as this private sector entity will be the major dairy sector advocacy organization when RDCP II exits.

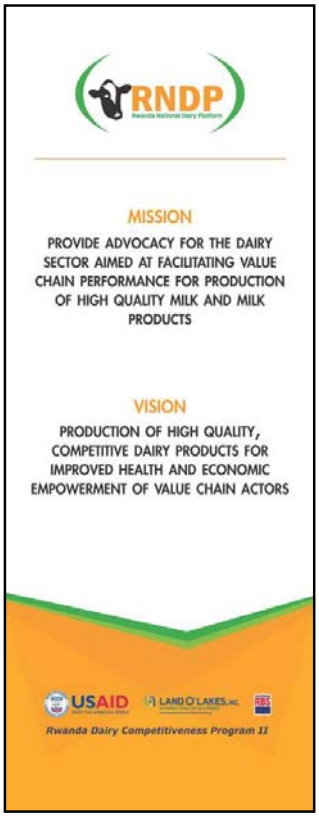


Figure 11: With RNDP now legalized, the platform's brand is steadily growing among stakeholders

Supermarket operators and retailers training

In May, RDCP II organized and facilitated a half-day merchandising training for retailers, distributors and cheesemakers on storing, presentation and sale of cheese in end markets i.e. supermarkets and other retail outlets. The purpose of the training was to help supermarket operators, distributors and cheesemakers appreciate the need to appropriately handle, store and market dairy products in a way that minimizes spoilage and increases appeal to the consumers.

Specifically, the training focused on the history of cheese making, manufacturing processes of cheese; the different cheese categories, which included tastings of samples from each category; the uses of cheese by consumers and the catering trade and receiving, storing and merchandising of dairy products with special reference to cheese. Also, the focus was on preventing losses through proper handling, attractive displays to enhance customers satisfaction and increased sales. 16 participants attended the training that was held at RDCP II Head Office.

Second Cheese Expo and Competition

In May, RDCP II organized and facilitated the 2nd Rwanda Cheese Expo and Competition. The Expo was held for two days at Kigali City Tower entrance and attracted 12 cheese makers and one foreign company from Kenya that supplies cheese ingredients.

The purpose of the Cheese Expo and competition was to showcase cheese quality improvements which have taken place since the start of RDCP II, the variety of cheeses that are currently being made, and the technical knowledge and skills of the cheese makers. In addition, the Cheese Expo was expected to set quality benchmarks for cheeses in Rwanda.

Prior to the Cheese Expo, RDCP II organized and facilitated cheese and butter competitions. The competitions involved submission of cheese and butter product samples by 12 cheese makers for judging. Five judges , supervised by the RDCP II consultant (Kobus Mulder) sampled and graded the cheeses and awarded quality scores for the cheese and butter entries. Compared with the first competition held last year that attracted 9 cheese makers, the second competition attracted 12 cheese makers. Also, the number of cheeses entered for the competition increased from 23 to 47 – an increase of 104%.

Both the Cheese Expo and Competition attracted butter products from the first two butter processors in Rwanda, Blessed Dairies and Fromagerie la Reine. Each of the two contestants entered a sample of unsalted butter. It was the first time butter was being showcased and introduced to the Cheese Expo and Competition in Rwanda. The two companies began making butter after receiving training on butter making from RDCP II in February 2015.

10th National Agriculture show

As in previous years, in collaboration with MINAGRI and the private sector, RDCP II facilitated participation of 15 dairy enterprises and 3 service providers to participate in the 10th National Agriculture Show (Agrishow) that took place from 4 to 11 June. These dairy enterprises and service providers show cased and sold their dairy products and services. More than 5,000 participants visited stalls of these exhibitors and the RDCP II's "Shisha Wumva" branded exhibition stall. The retail exhibitors realized high sales of their products clearly demonstrating that such Agrishow opportunities to display products can expand markets for their goods. For example, Kalisimbi ghee processors, a newly identified partner, sold ghee worth at least Frw 420,000 during the Agrishow. As a result of contacts obtained during the Agrishow, one week after the Agrishow, it sold ghee worth Frw 1,200,000 in one week. Also, Gishwati Farms sold cheese products worth Frw 1,002,000 during 7-day duration of the Agrishow. The highest purchases were made by supermarkets and hotels who had first hand interaction with the cheese makers. This is the area with most potential that the cheese makers will pursue. Additionally, home owners had the opportunity to buy directly during the expo. According to the business owners, it had not crossed their minds that they could earn such large amounts of money in a short period.

Figure 12: Minister of State for Agriculture inspects cheese products stand at the National Agri-show in June.

Figure 13: New butter products made their maiden appearance on this year's cheese and butter expo held in Kigali

Butter training and marketing

In May, RDCP II facilitated additional butter making training for Blessed Dairies technicians at its processing plant in Gicumbi District. Blessed Dairies technicians had initially been trained in February 2015. However, at that time Blessed Dairies did not have butter-making equipment which was subsequently acquired in April. In May, Kobus Mulder, visited the Blessed Dairies processing plant to review progress on butter making and offered technical advice on how to improve and make the best butter. Currently , Blessed dairy has started making butter, and is promoting it on the local markets. There is anecdotal evidence of high demand for butter which needs to be met; until now, all butter used in Rwanda has been imported.

Mozzarella training for cheese makers

Again, in May , RDCP II, with the help of Kobus Mulder, facilitated a one-day refresher training on making mozzarella cheese. Eleven cheese makers attended the training. The training took place in Rubavu where majority of the cheese makers are based.

Support to cooperative development

RDCP II supported cooperatives and other SMEs through business and quality related training, and technical support in management of cooperatives. Using the LOL AgPrO tool, targeted cooperatives were given a permanent RDCP II appointed technician to assist the selected cooperatives and SMEs in improving business performance including financial and administrative management and marketing. During this quarter, a total **2,469** (898 female & 1,571 male) members of producer organizations benefited from RDCP II AgPrO program assistance. The increase in the number of beneficiaries is a result of extension of the RDCP II area of operation from 51 sectors at the beginning of the program to the current 111 sectors in 17 districts. The figure below indicates the numbers of new members of cooperatives engaged in the program activities.

Figure 14: The products range and presentation of local cheeses has remarkably improved

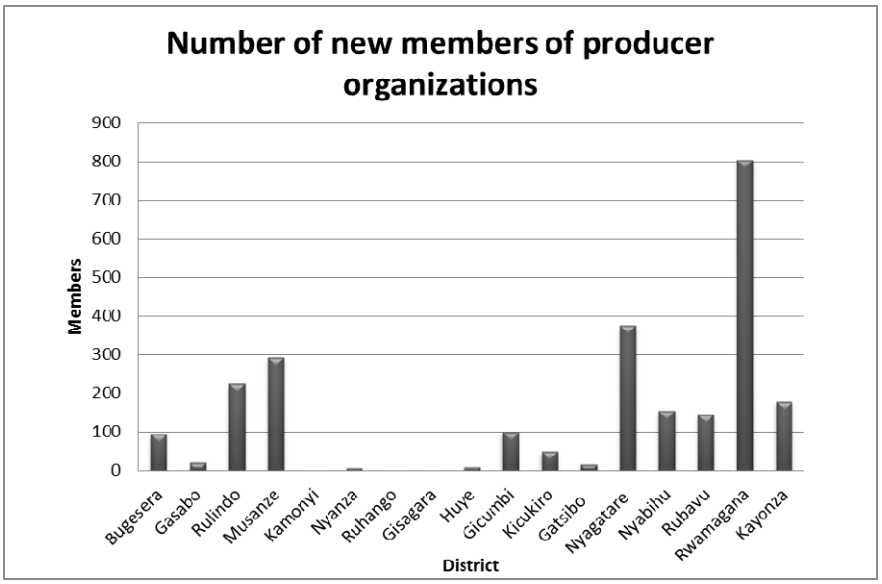


Figure 15: Number of new members of producer organizations across districts

The above trend is attributed to closer engagement with service providers, introduction of the AgPrO tool to cooperatives through STTAs and collaboration with community leadership. Notably, in addition to existing cooperatives recruiting new members in Rwamagana district, RDCPII has engaged a new cooperative KAMIRABOSE in Muhazi sector.

Number of MSMEs, including farmers, receiving business development services

3,774 micro, small and medium enterprises including farmers received BDS services from RDCP II supported Service Providers. These MSMEs include mainly dairy coops, agri-vet shops, model farmers and individual targeted farms. The majority of MSMEs supported are in the category of micro enterprises (as per the indicator definition) which are composed mainly by model farmers engaged by the program through intensive training and provision of basic kits to provide proximity services to dairy farmers. Model farmers are part of RDCP II scale up plan which is expected to improve dissemination of improved dairy technologies and best practices to more than 50,000 dairy farmers by end the program. During the quarter, RDCP II engaged 353 model farmers in addition to 349 engaged during the previous quarters. RDCP II support includes training, provision of basic kits and inputs and continuous technical support. RDCP II plans to integrate the model farmers into the MINAGRI extension system (TWIGIRE MWOROZI) for more efficiency and sustainability. Another category of micro enterprise that benefited services from the program are individual farms that benefited AI services. The service included selection of cows, training of farmers, cow synchronization and insemination.

Dairy businesses applying new technologies and management practices

During this quarter, a total 92 for profit organizations benefited from new technologies, trainings and applied at least 1 new management practice. Some of the new technologies and management practices applied included introduction of mastitis control by BAIR, milk testing and chilling by Kamirabose, legal registration by Ayera dairy, reopening of milk business by Agiragiteraka in Huye, recruitment of milk transporters by CODEAM and Turengere Aborozi Muyira, product and service marketing, record keeping, planning, milk quality trainings, recording of rejected milk against farmer name for traceability and improved quality at farm level. Some of the dairy businesses that applied new technologies and management practices are listed below:

Table 7: Technologies/best practices adopted by business organizations

Dairy business	New technology/management practice activity
KOINDAMU	Milk collection, member recruitment and milk quality testing
KOPEZIRU	AgPrO (Leadership, adaptive capacity, MCC management, supply, processing & marketing, operations, productivity & financial management)
Kigali Milk sellers cooperative	Study tour to Nyanza
Ndoli supermarket, VIVA supermarket, HOREBU, Fly investment, Carrefour and woodland supermarkets	Improved marketing and quality management for milk products specifically cheese
BAIR	Mastitis control
KAMIRABOSE Muhazi	Starting milk business, milk testing, chilling, market identification & linkage

HOK-Nyagatare	Cooperative formation, management & farming as business, milk quality testing and marketing
Turengere Aborozi Muyira	Starting milk business, engagement with milk transporters
MUFCOS, GAFCO & COABONDE Mccs	Milk quality testing and recordkeeping
Agrovet-Juma	Business advisory: record keeping of periodic purchases and sales to determine profitability, customer care and farmer follow up
Pharmacie Veterinaire-Claude	
Gwiza Agrovet	
Agrovet Pharmacy-Mutesi	
Agroveto-Eugene	
Agroveterinaire-Kayitesi	
Agrovet-Venuste	
Agro Veterinary Pharmacy-Mutabazi	
Agroveto- Oreste	
Agroveto-Kigabiro	
Kalisimbi ghee processors	Product marketing
NOTS solar lights, Sarura (Agri-inputs), and Fromagerie La Lumiere	Market linkage to farmers

Volume of milk marketed/sold by milk collection centers (in liters)

The quantity of milk that passed through the MCCs across the 17 districts of RDCP II operation during the quarter was 12,225,172. 28% of this milk was marketed under the SoQ. This milk was sold to processors including Nyanza Dairy, Zirakamwa Meza Nyanza, Inyange and Blessed Dairies.

District numbers are shown in the graph below as per district:

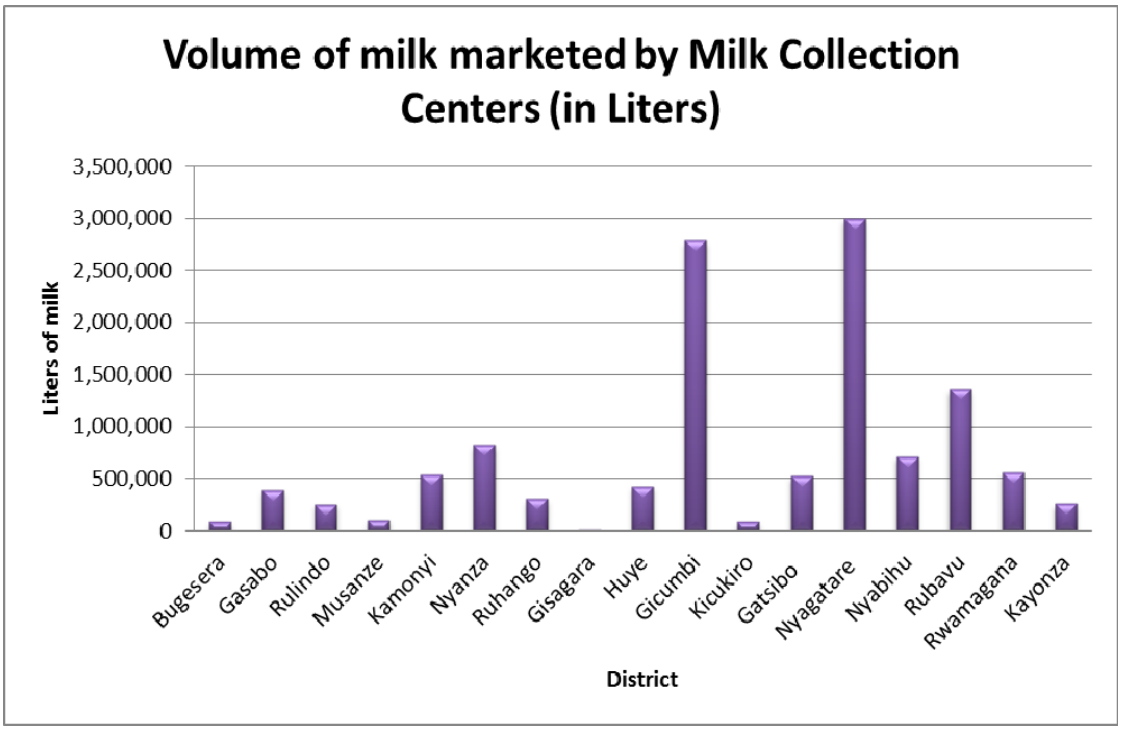


Figure 16: Volume of milk marketed by MCCs by district CT

Progress on AgPrO tool implementation

RDCP II began implementing the AgPrO program in January 2015. The program ran for 3 months. An additional one month was spent cleaning up the data and compiling reports on the key outcomes. Nine STTAs were hired to implement the program. During implementation, the STTAs largely focused on improving leadership and management of the cooperative/MCC businesses. The success of the program was attributed to thecooperative/MCC leadership and local leaders' willingness to collaborate.

Figure 17: Improved filing at BCRK in Nyagatare District

During this quarter, 28 dairy cooperatives/MCCs benefited from the AgPrO program. In fact, they were able to register 78 new members (26 female & 52 male).

The supported dairy cooperatives/enterprises benefited from improved business management that led to higher profit, operational efficiency and access to business development services. It was observed that cooperatives

improved in the areas of record keeping, role of cooperative leadership and members, and filing and documentation. In addition, cooperatives were introduced to legal frameworks and requirements such as payment of income tax and fulfilling Rwanda Utilities Regulatory Authority (RURA) requirements. For example, Dukundamatungo Kigabiro MCC in Rwamagana was assisted in the latter regard. The cooperatives that substantially benefited from the AgPrO program include Rwimbogo Dairy Farmers' Cooperative (RDFC) in Gatsibo, COOPEKA in Kamonyi, COOPEMOBU in Gicumbi, Agiragitereka Kinigi in Musanze, Gwizumukamo in Nyanza, and KIDACO in Huye.

It is evident that cooperative have now started to plan and strategize on key activities that can drive their businesses to grow. The 28 cooperatives under AgPrO were able to generate their own strategic plans, 2015 annual action plans, and human resource and milk quality procedures. Staff and management of these entities have started to run these businesses (MCCs) as profitable ventures. Below is picture of one of the MCCs with improved filing systems.

The AgPrO tool was appreciated by the hired AgPrO STTAs and one of them Kalina Faustin volunteered to translate the PM2 into Kinyarwanda for cooperatives to easily adopt. The translated version is under review and a final translated PM2 will be out soon. On a monthly basis, cooperatives were assessed to examine progress. Below is a sample of how one of the cooperatives – COOPEKA -s progressed over the initial 4 months.

In the case above results showed that COOPEKA Kayenzi has positively acted on all performance areas, especially supply, processing and marketing, and productivity and financial performances. As a result, their milk supply increased which necessitated them to purchase a second cooling tank. The COOPEKA Staff and management committee are committed to develop their business and improve farmers' lives in the COOPEKA catchment area. In the fourth RDCP II quarter for the year, RDCP II will focus on full roll out of the AgPrO tool and SME capacity assessment to the participating cooperatives/MCCs and business partners.

IR 2.2 INCREASED DAIRY-RELATED INVESTMENT

Promote Investment in Dairy

During this quarter, a total Rwf 163,781,299 (USD 221,326) was invested by dairy enterprises in the Rwanda dairy sector. Kigali milk shed actors invested the largest amount, Rwf 62,892,657 (USD 84,993), followed by those in the Northern Milk Shed that invested Rwf 51,749,317 (USD 69,932). The Southern and Eastern milk sheds took the third and fourth positions, with Rwf 38,395,677 (USD 51,886) and Rwf 10,741,647(USD 14,516), respectively (Table 8).These investments were paid for using loans and own capital (equity).

Stimulate Supply and Demand for Dairy-related Financial Services - Loan Approvals and Disbursements

Table 8: Value of dairy sector investments across the Rwanda milk sheds

DISTRICT	LOANS (USD)	Equity (USD)	TOTAL INVESTMENT (USD)
Gatsibo	3,947.95		3,953.35
Kayonza	4,041.10		4,046.63
Kayonza	958.90		960.22
Nyagatare	2,465.75		2,469.13
Rwamagana	3,082.19		3,086.41
Gicumbi	39,726.03	45,212.33	84,992.78
Musanze	34,246.58	-	34,293.49
Rubavu	6,849.32	19,863.01	26,721.71

Rulindo	8,904.11		8,916.31
Gisagara	1,623.29		1,625.51
Huye	9,589.04		9,602.18
Kamonyi	34,575.34		34,622.71
Nyanza	2,739.73		2,743.48
Ruhango	3,287.67		3,292.17
Grand Total	**156,036.99**	**65,075.34**	**221,326.08**

Apart from showing investments in the dairy sector, Table 9 above displays loans that were accessed and invested bydairy partners during this quarter from across the four milk sheds. In general, a total Rwf 115,467,380 (USD 156,037)was recorded in loans. Loans were mostly accessed from cooperatives, saccos, banks including Bank of Kigali (BK) , BDF and Urwego Opportunity Bank (UoB) .

The Southern Milk shed came first in terms of loan access ranking, with Rwf 38,343,151.80**,** borrowed by 13 partners from Kamonyi, Ruhango, Nyanza and Huye. Urwuri Rwizihiye Cooperative located in Kamonyi District had the biggest share of the loans worth Rwf 25,000,000. The cooperative used the money to start up a milk collection center. The Northern Milk Shed came second, with a total Rwf 37,000,007 borrowed by 70 partners. In the Northern Milk Shed, loans were mostly accessed from saccos located in Gicumbi and Rulindo. While in Musanze one cooperative accessed Rwf 25, 000,000 Rwf from UoB.

Kigali Milk shed came third with Rwf 29,397,262 mainly borrowed by Gicumbi producers while the Eastern milk shed came fourth with Rwf 10,726,959. Most of the borrowers include small scale producers from Rwamagana, Gatsibo, Nyagatare and Bugesera Districts. Borrowers indicated they accessed loans from saccos and BK. They used the money for dairy related activities such as upgrading cow sheds, and purchase of milk cans, and paying up school fees.

Stakeholder Collaboration

This quarter, the RDCP II team participated in several stakeholder activities as follows: MINAGRI joint sector review (JSR) meeting and field visiits, MINCOM SME forum, milk shed dairy sector working group meetings, and RAB collaboration meeting.

MINAGRI joint sector review meeting and field visits

This was the highlight of the quarter after changes in Cabinet members at MINAGRI. The JSR is a bi-annual stakeholder forum for collaborating partners with MINAGRI. The Forward Looking Joint Sector Review was held on May 20 and was preceded by a field visit to selected sites to inform the deliberations of the meeting. The forum provided partners with an opportunity to review and discuss MINAGRI priorities for the Fiscal Year 2015/2016, budgets and key targets. Also discussed were policy actions recommended during the previous period and recommendations for improving internal policy dialogue.

MINICOM SME Forum

RDCP II has continued to collaborate with the Ministry of Trade and Industry (MINICOM) to account for the impact of dairy related businesses in the SME ecosystem. The RDCP II BDS Specialist participated in the organization of the SME activities led by MINICOM that were hosted in one forum during this quarter. The forum which was presided over by the Minister of MINICOM, Hon. Francois Kanimba, brought together different business clusters, including dairy, to discuss business issues/challenges and the role of development partners in success of the ecosystem, share opportunities, and jointly plan with MINICOM its “Joint Imihigo” plan to fast track improvement in sales, and jobs created by SMEs.

Additionally, through the same collaboration with MINICOM, 10 RDCP II partners were trained in business skills. Specifically, the topics covered were leadership, product marketing and market identification, strategy, customer care and financial management. The four-days training was conducted on 19, 20, 25 and 26 June at LEMIGO Hotel, Kigali, and was followed by field visits and advisory sessions, which will be maintained as an on-going service. The trainers were from the Arc Initiative under the University of British Columbia and Sauder School of Commerce, both in Vancouver, Canada.

Milkshed Dairy Sector Working Group Meetings (DSWG)

One DSWG meeting organized by the DSWG team members, in collaboration with RDCP II, was held in Musanze. It brought together 5 districts that make up the Northern Province: Musanze, Burera, Gakenke, Rulindo and Gicumbi. The meeting was driven by sector members' desire to meet quarterly and brainstorm on what can help to develop their dairy sectors that arekey economic activities in the province. The purpose of the meeting was to review progress on the National Dairy Strategy (NDS) implementation, and learn about other partners' interventions in the sector. It was an opportunity for all actors to learn about progress of the NDS, share best practices and initiatives. In addition,the role of the RNDP in sustaining similar forums going forward was presented. The output of the meeting was that knowledge on the dairy sector was shared and partners were informed on the way forward to improve the dairy sector in Northern Province largely through positive collaboration.

Rwanda Agriculture Board Collaboration Meeting

As RDCP II prepares the annual work plan for 2015/2016, a meeting was held with RAB to discuss key priorities for successful implementation of production related activities which RAB promotes nationwide. Themeeting identified areas of collaboration that RDCP II will focus on over the remainder of the program. These include AI training for technicians, AI kits, and equipment required to decentralize AI services, and support extension through proposed Twigire Mworozi network. While the need for support to the sector is high, the latter interventions largely influence AI success and cow productivity. Discussions are ongoing about the approach to implement each of the identified priorities.

Gender Mainstreaming

As the tradition is for RDCP II, gender mainstreaming was implemented as a key component across all project activities during this quarter. Consistent with the Mid Term Evaluation (MTE) recommendation that more effort should be put in training and equipping female model farmers, this quarter a majority of female model farmers from the 17 RDCP II districts were trained at GAKO organic farming training center (GAKO) over a period of eight weeks. Specifically, out of a total 353 trainees, 188 were female (52.5%). As in previous trainings at GAKO, the to be model farmers were trained on dairy best practices. Specifically they were trained on(cow feeding, disease control, breeding, forage production, milk quality, farming as a business, gender mainstreaming, nutrition/behavior change and cooperative development, and were equipped with basic materials to be used for training other farmers. Also, given that there was a large increase in female model farmers trained this quarter, it is anticipated that more

Figure 18: Mrs. Agnes mukangiruwonsanga, Chairperson of IAKIB Cooperative, is a sound testimony of women participation in cooperative governance and decision making

female dairy farmers will be trained by the female model farmers. In fact, it is well-established that women socialize more with fellow women than men.

It was also noted that all the trained female model farmers revealed that during the training they gained confidence and skills to conduct dairy farming as a business and earn revenue that can support their financial needs. With regard to concerns pertaining to whether all female and male agree that women should have access to socio-economic and political resources, qualitatively, all model farmers were in agreement that women should have and that they deserve access to socio-economic and political resources as their male counterparts.

Out of the trained model farmers, 10 (5 female & 5 male) were selected to be "super" (high performers) model farmers that would promote gender mainstreaming. The 5 male super model farmers were selected to act as role models because they embraced gender equality during the training. They were particularly tasked to promote the positive masculinity approach.

With regard to other trainings such as those conducted by service providers, female farmers trained constituted 35% of trained farmers while female farmers trained by by model farmers across the 17 RDCP II districts was 36%.

One of the female cooperative/MCC leaders that have been mentored by RDCP II, the chairwoman of IAKIB cooperative, led IAKIB cooperative to success. In this regard, IAKIB MCC emerged the best MCC out of top fully functioning 45 MCCs that were assessed in a national competition. The competition evaluated gender mainstreaming compliance, and, among others, MCC governance, volume and quality of milk collected, and business profitability. The success of IAKIB under female leadership breaks the stereotype that women are not good managers and demonstrates that females are capable of performing at the highest level of competence. The IAKIB Chairwoman will serve as a role model for women in the dairy sector and other businesses in Rwanda.

RDCP II has worked towards integrating and recognizing females' participation in dairy business. This has been achieved as demonstrated by the beneficiary females and males agreeing that women, as the case with men, should be recognized. In addition, as for men, females should benefit from dairy businesses through access to, and control over, resources accrued from dairy. As a result of this realization, males have recognized that women have higher workload and therefore men should share this workload with women. RDCP II, in its gender mainstreaming trainings and nutrition, has also focused on promoting behavior change in the latter regard and others to encourage men to engage in activities that were traditionally undertaken by women. These activities include accessing nutritive foods for household consumption such as saving enough milk for the household and taking part in purchasing and feeding the right food to their families.

During this quarter, RDCP II hosted a USAID delegation at Agiragitereka Coop, in Kinazi Sector, Ruhango District, where they had discussions with coop members with a focus on gender equality, women empowerment and development and how RDCPII interventions have contributed to this.

Grants and Grant Monitoring

During this quarter, RDCP II submitted to USAID two large grant proposals for approval. These were for the RALIS Ministerial Instructions implementation and RNDP operationalization.

RDCP II reviewed and approved a grant proposal for Urunana Development Communication, a local NGO, which will develop a year-long radio drama story line to promote awareness of nutritional benefits of consuming milk. This grant proposal will be submitted to USAID for approval in the next quarter.

During this quarter, RDCP II reviewed 14 grant proposals which were for support to 10 MCCs and 4 cheese processing plants. After the review process by the grant evaluation committee, 6 milk collection centers were selected to receive grants to improve the milk collection and transportation. RDCP II will submit these grant proposal to USAID for approval in the next quarter.

Subawards close-out and extension

This quarter, RDCP II extended by three months the subaward agreement with Ihuriro Agiragitereka Huye, a MCC, to give them an opportunity to properly use its grant equipment and increase the volume of milk collected.

RDCP II extended by two months the subaward agreement with Hobas Ltd, a service provider, to give it more time to finalize pregnancy diagnosis of cow inseminated under the RDCP II AI program.
Presently, property title under Land O'Lakes cooperative agreement for RDCP II states that all equipment purchased ultimately belongs to the GoR and, specifically, to the project's line ministry, in this case MINAGRI. RDCP II has discussed with USAID if this clause can be modified to allow equipment to be passed directly to project beneficiaries. USAID has requested that this modification be communicated directly so that it may be amended. If approved, this change would streamline disposal of goods to project beneficiaries.

Environmental Compliance

RDCP II has continued to mentor and advise partners regarding environmental compliance. The purpose of this is to improve general hygiene, and enhance concern for the environment and its protection.

MCCs

During this quarter, the field staff trained buyers and MCC staff at Cezonyi, Cemo,Zirakamwa Mizingo and Rwimbogo cooperatives in the Northern and Eastern milksheds respectively. Recommendations to keep training records well-filed for future reference were provided. They also had issues with storage of reagents. In this regard, during the quarter, Cezonyi cooperative purchased a cupboards for storing reagents in a more hygienic environment. Waste disposal management at Cezonyi has been improved and waste is now better managed with an appropriate disposal pit. A key area for improvement in general has been record keeping for milk rejections at MCCs. Commendable success was registered at Rwimbogo Dairy Cooperative which improved record keeping for all milk purchases, and sales, and now keeps track of services accessed by farmers. Also, the records include those of rejected milk and names of affected farmers. Additional environmental compliance achievements by the MCC/cooperative include:

- Installation of a fire extinguisher
- Record keeping both hard and soft
- Installation of hand washing facilities
- Direction signs at the Offices
- Designed an annual action plan

Processors

In Q2, processors were advised to put in place safe and appropriate product packaging and storage. In this quarter, Fromagerie La Reine invested in a vacuum sealer. Ingabo Dairy that did not have proper waste management including for rejected milk, installed a waste disposal pit during this quarter.

Monitoring and Evaluation and Knowledge Management

Following the Mid Term Evaluation carried out by dTs Team in March 2015, RDCP II organized during the quarter an M&E learning teleconference on the Mid Term Evaluation findings and recommendations. Participants to the teleconference were RDCP II Kigali HQ team and Land O'Lakes regional and IDD HQ office. The conference allowed participants to review lessons learnt from the MTE, issues in dairy value

chain and market systems in Rwanda and exchanged on key approaches to ensure sustainability of RDCP II achievements.

Also, during this quarter RDCP II received a visit from USAID AOR, Ms. Fina Kayisanabo. The visit focused on a scaling up plan of the main improved technologies at farm and MCC level, sustainability of RNDP future activities, management of MCCs, enabling environment on milk quality, grant plans, milk consumption campaign, contribution to improved nutrition and project management in general. Suggestions and recommendations made during the visit will be integrated in the annual plan for fiscal year 2015/2016 and in the RDCP II sustainability plan.

During this quarter also, RDCP II finalized the district annual reports and developed district action plans for the year 2015/2016 for 17 districts of RDCP II operation. RDCP II commitments were fulfilled in most of the districts, and where there was underachievement, measures were taken to address the issues; in addition, district action plans for the next fiscal year included the unaccomplished activities and the commensurate budgets. Furthermore, the district action plans integrated recommendations made during the USAID/AOR's visit, and those from the Mid Term Evaluation and District JADF partners' evaluations.

Finally, in order to comply with the Rwanda Directorate General of Immigration and Emigration (DGIE) registration requirement for international NGO, the RDCP II M & E unit participated in a training organized by DGIE on the new on-line INGO Registration system. The RDCP II M & E unit will facilitate implemention of the latter system at the program level.

Implementation challenges

While RDCP II has made significant progress towards its objectives, some challenges still exist including the following:

- The national agricultural extension system is nascent; however, the livestock extension component is still weak. To address the latter, in its exit plan, RDCP II will support integration of the RDCP II-trained trainers into the emerging livestock extension system.

- Sustainable delivery of commercial AI services has been hampered by inordinate engagement of public sector employees that are unable to provide comprehensive attention and time to AI service delivery. This has further hampered provision of support to commercial AI service delivery; however, RDCP II has engaged RAB to develop sustainable commercial AI service provision models, particularly at the last mile.

- Despite all the messages disseminated about importance of increasing individual cow productivity through feeding concentrates, dairy farmers have not taken up commercial concentrate use to the expected level largely because of low economies of scale and high prices. RDCP II, in its exit strategy, has focused attention on promoting maximum use of home-derived feeds and engaging feed processors to reduce costs by, among other strategies, stockpiling ingredients during harvest periods when prices are low.

ANNEXES

A: FTFMS Table

B: Success Story – Rwanda Cheese Expo and Championship gets bigger and better

C: Mukamira Business Plan

D: Cheese Training Report by Kobus Mulder

Annex A: FTFMS Table

Indicator / Disaggregation	Baseline Value	2015 Target	2015 Results				2015 Annual Achievement	Cumulative Achievement for all previous years
			Quarter 1 Oct-Dec 2014	Quarter 2 Jan-Mar 2015	Quarter 3 Apr-Jun 2015	Quarter 4 July-Sept 2015		
4.5(2): Number of jobs attributed to FTF implementation	**0**	**11,652**	**9,191**	**9,592**	**9,799**	**0**	**9,799**	**9,799**
Location		**11,652**	**9,191**	**9,592**	**9,799**	**0**	**9,799**	**9,799**
Urban	0	0	0	0	0	0	**0**	0
Rural	0	11,652	9,191	**9,592**	**9,799**	0	**9,799**	9,799
Disaggregates Not Available	0	0	0	0	0	0	0	**0**
New/Continuing		**11,652**	**9,191**	**9,592**	**9,799**	0	**9,799**	9,799
New	0	2,500	39	401	207	0	647	647
Continuing	0	9,152	9,152	9,191	9,592	0	9,152	9,152
Disaggregates Not Available	0	0	0	0	0	0	0	0
Sex of job-holder		**11,652**	**9,191**	**9,592**	**9,799**	0	**9,799**	**9,799**
Male	0	9,914	8,429	8,821	8,994	0	8,994	8,994
Female	0	1,738	762	771	805	0	805	805
Disaggregates Not Available	0	0	**0**	0	0	0	**0**	0
4.5(10): Total increase in installed storage capacity (m3)	**0**	**50**	**8**	**2**	**14**	**0**	**24**	**82.50**
Dry storage	0	0	0	0	0	0	0	**0**
Cold storage	0	50	**8**	2	14	0	**24**	**82.50**
Disaggregates Not Available	0	0	0	0	0	0	0	**0**
4.5.2(5): Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance	**0**	**14,000**	**1,125**	**4,648**	**4,063**	**0**	**9,836**	**25,258**
New/Continuing	0	14,000	1,125	4,648	4,063	0	**9,836**	**25,258**
New	0		1,125	4,648	4,063	0	9,836	**25,258**
Continuing	0		0	0	0	0	0	0
Disaggregates Not Available	0		0	0	0	0	0	0
Sex	**0**		**1,125**	**4,648**	4,063	0	**9,836**	**25,258**
Male	0	10,000	847	3,021	2,488	0	6,356	16,105
Female	0	4,000	278	1,627	1,575	0	3,480	9,153
Disaggregates Not Available	0	0	0	0	0	0	0	0
4.5.2(7): Number of individuals who have received USG supported short-term agricultural sector productivity or food security training	**0**	**18,000**	**2,341**	**3,490**	**7,075**	**0**	**12,906**	**37,460**
Type of individual	0	**18,000**	**2,341**	**3,490**	**7,075**	**0**	**12,906**	**37,460**
Producers	0	17,650	1,653	2,488	6,800	0	10,941	34,707
People in government	0	300	0	76	0	0	76	195
People in private sector firms	0	50	688	923	275	0	1,886	2,553
People in civil society	0	0	0	3	0	0	3	5
Disaggregates Not Available	0	0	0	0	0	0	0	0
Sex	0	**18,000**	**2,341**	**3,490**	**7,075**	0	**12,906**	**37,460**
Male	0	12,000	1,193	2,313	4,541	0	8,047	23,980
Female	0	6,000	1,148	1,177	2,534	0	4,859	13,480
Disaggregates Not Available	0	0	0	0	0	0	0	0
4.5.2(13): Number of rural households benefiting directly from USG interventions	**0**	**34,532**	**26,855**	**30,345**	**37,420**	**0**	**37,420**	**37,420**
New/Continuing	0	**34,532**	**26,855**	**30,345**	**37,420**	**0**	**37,420**	**37,420**
New	0	10,000	2,323	3,490	7,075	0	12,888	**12,888**
Continuing	0	24,532	24,532	26,855	30,345	0	24,532	**24,532**
Disaggregates Not Available	0	0	0	0	0	0	0	**0**
Gendered Household Type	0	**34,532**	**26,855**	**30,345**	**37,420**	0	**37,420**	**37,420**
Adult Female no Adult Male (FNM)	0	6,362	4,520	5,142	6,045	0	6,045	6,045
Adult Male no Adult Female (MNF)	0	3,362	2,388	2,701	3,172	0	3,172	3,172
Male and Female Adults (M&F)	0	24,808	19,765	22,320	28,021	0	28,021	28,021
Child No Adults (CNA)	0	0	182	182	182	0	182	182
Disaggregates Not Available	0	0	0		0	0	0	0
4.5.2(14): Number of vulnerable households benefiting directly from USG interventions	**0**	**13,152**	**9,979**	**11,494**	**14,371**	**0**	**14,371**	**14,371**
New/Continuing	0	**13,152**	**9,979**	**11,494**	**14,371**	**0**	**14,371**	**14,371**
New	0	4,000	827	1,515	2,877	0	5,219	5,219
Continuing	0	9,152	9,152	9,979	11,494	0	9,152	9,152
Disaggregates Not Available	0	0	0	0	0	0	0	0
Gendered Household Type	0	**13,152**	**9,979**	**11,494**	**14,371**	**0**	**14,371**	**14,371**
Adult Female no Adult Male (FNM)	0	3,683	2,506	2,786	3,312	0	3,312	3,312
Adult Male no Adult Female (MNF)	0	882	614	746	962	0	962	962
Male and Female Adults (M&F)	0	8,587	6,777	7,880	10,015	0	10,015	10,015
Child No Adults (CNA)	0	0	82	82	82	0	82	82
Disaggregates Not Available	0	0	0		0	0	0	0
4.5.2(23): Value of incremental sales (collected at farm-level) attributed to FTF implementation	**$4,606,135.00**	**$26,253,821.40**	**$0.00**	**$ 3,180,598.65**	**$0.00**	**$0.00**	**$3,180,598.65**	**31,651,822**

FTF 4.5-4 : Gross margin per dairy cow	**$162.22**	**$220.44**	**$0.00**	**$149.69**	**$0.00**	**$0.00**	**$149.69**	**$185.96**
4.5.2(27): Number of members of producer organizations and community based organizations receiving USG assistance	**0**	**4000**	**192**	**1,758**	**2,469**	**0**	**4,419**	**22,776**
Type of organization	0		0	0	0	0	0	0
Producer organization	0	4,000	192	1,758	2,469	0	4,419	22,775
Non-producer-organization CBO	0	0	0	0	0	0	0	1
Disaggregates Not Available	0	0	0	0	0	0	0	0
Sex	0	**4,000**	**192**	**1,758**	**2,469**	**0**	**4,419**	**22,776**
Male	0	3,000	99	1,287	1,571	0	2,957	14,403
Female	0	1,000	93	471	898	0	1,462	8,373
Disaggregates Not Available	0		0	0	0	0	0	0
4.5.2(28): Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practicies as a result of USG assistance	**0**	**904**	**819**	**897**	**989**	**0**	**989**	**989**
Type of organization	0		**819**	**897**	**989**	**0**	**989**	**989**
Private enterprises (for profit)	0	773	601	646	682	0	682	682
Producers organizations	0	103	111	141	191	0	191	191
Water users associations	0	1	1	1	1	0	1	1
Women's groups	0	2	2	3	4	0	4	4
Trade and business associations	0	21	101	103	105	0	105	105
Community-based organizations (CBOs)	0	4	3	3	6	4	6	6
Disaggregates Not Available	0	0	0	0	0	0	0	0
New/Continuing	0	**904**	**819**	**897**	**989**	**0**	**989**	**989**
New	0	150	65	78	92	0	92	92
Continuing	0	754	754	819	897	0	897	897
Disaggregates Not Available	0		0	0	0	0	0	0
4.5.2(29): Value of Agricultural and Rural Loans	**$0.00**	**$700,000.00**	**$61,901.15**	**$348,621.00**	**$156,036.99**	**$0.00**	**$566,559**	**$1,196,427**
Type of loan recipient	0	**700,000**	**61,901**	**348,621**	**156,037**	**0**	**566,559**	**1,196,427**
Producers	0	200,000	41,716	64,847	66,174	0	172,737	377,889
Local traders / assemblers	0	280,000	13,592	83,774	86,575	0	183,941	444,109
Wholesalers/processors	0	200,000	6,594	200,000	0	0	206,594	360,699
Others	0	20,000	0	0	3,288	0	3,288	13,729
Disaggregates Not Available	0	0	0	0	0	0	0	0
Sex of recipient	0	**700,000**	**61,901**	**348,621**	**156,037**	**0**	**566,559**	**1,196,427**
Male	0	400,000	34,216	59,096	19,403	0	112,714	440,647
Female	0	100,000	7,500	39,752	8,436	0	55,688	78,899
Joint	0	200,000	20,185	249,773	128,199	0	398,157	676,880
n/a	0	0	0	0	0	0	0	0
Disaggregates Not Available	0	0	0	0	0	0	0	0
4.5.2(36): Value of exports of targeted agricultural commodities as a result of USG assistance (for bilateral missions)	**$85,979.00**	**$16,411,626.00**	**$0.00**	**$ 3,955,533.00**	**$0.00**	**$0.00**	**$3,955,533.00**	**$25,972,022.69**
4.5.2(37): Number of MSMEs, including farmers, receiving business development services from USG assisted sources	**0**	**5,000**	**65**	**78**	**3,774**	**0**	**3,917**	**10,395**
Size of MSME	**0**	**5,000**	**65**	**78**	**3,774**	0	**3,917**	**10,395**
Micro	0	4,900	38	72	3,757	0	3,867	10,206
Small	0	80	23	6	9	0	38	169
Medium	0	20	4	0	8	0	12	20
Disaggregates Not Available	0	0	0	0		0	0	0
MSME Type	0	**5,000**	**65**	**78**	**3,774**	0	**3,917**	**10,395**
Agricultural producer	0	4,900	5	30	**3,730**	0	3,765	9,445
Input supplier	0	0	10	0	35	0	45	98
Trader	0	80	37	37	8	0	82	682
Output processors	0	20	12	11	1	0	24	136
Non agriculture	0	0	1	0	0	0	1	33
Other	0	0	0	0	0	0	0	1
Disaggregates Not Available	0	0		0	0	0	0	0
Sex of owner	0	**5000**	**65**	**78**	**3,774**	0	**3,917**	**10,395**
Male	0	3,200	34	59	2,359	0	2,452	6,335
Female	0	1,800	21	14	1,387	0	1,422	3,778
Joint	0	0	10	5	28	0	43	282
n/a	0	0	0	0	0	0	0	0
Disaggregates Not Available	0	0	0	0	0	0	0	**0**

FTF Indicator 4.5.2-38: Value of new private sector investment in the dairy sector or food chain leveraged by FTF Implementation	**$0.00**	**$5,000,000.00**	**$399,548.63**	**$ 395,763.00**	**$221,326.08**	**$0.00**	**$1,016,637.71**	**$3,522,997.51**
4.5.1(24): Numbers of Policies/Regulations/Administrative Procedures in each of the following stages of development as a result of USG assistance in each case: (Stage 1/2/3/4/5)	**0**	**2**	**1**	**1**	**2**	**0**	**4**	**9**
Sector	0	**2**	**1**	**1**	0	0	2	**9**
Inputs	0	0	0	0	0	0	0	0
Outputs	0	0	0	0	0	0	0	0
Macroeconomic	0	0	0	0	0	0	0	0
Agricultural sector-wide	0	2	1	1	2	0	4	9
Research, extension, information, and other public service	0	0	0	0	0	0	0	0
Food security/vulnerable	0	0	0	0	0	0	0	0
Climate change adaptation or natural resource management (NRM) (ag-related)	0	0	0	0	0	0	0	0
Disaggregates Not Available	0	1	0	0	0	0	0	0
Stages of development	**0**	**2**	**1**	**1**	0	0	**2**	**7**
Stage 1 of 5 Number of policies / regulations / adminitstrative procedures analyzed	0	2	0	0	0	0	0	2
Stage 2 of 5 Number of policies / regulations / adminitstrative procedures drafted and presented for public/stakeholder consultation	0	0	0	0	0	0	0	1
Stage 3 of 5 Number of policies / regulations / adminitstrative procedures presented for legislation/decree	0	0	0	0	1	0	1	3
Stage 4 of 5 Number of policies / regulations / adminitstrative procedures prepared with USG assistance passed/approved	0	0	1	1	1	0	3	3
Stage 5 of 5 Number of policies / regulations / adminitstrative procedures passed for which implementation has begun	0	0	0	0	0	0	0	0
Disaggregates Not Available	0	0	0	0	0	0	0	0
First name	Last name							

Indicator / Disaggregation	Baseline Value	2015 Target	2015 Results				2015 Annual Achievement	Cumulative Achievement for all previous years
			Quarter 1 Oct-Dec 2014	Quarter 2 Jan-Mar 2015	Quarter 3 Apr-Jun 2015	Quarter 4 July-Sept 2015		
Custom Indictor 1 a : Volume of milk marketed by Milk Collection Centers (in Liters)	**16,067,127**	**22,493,978**	**10,678,505**	**11,377,640**	**12,225,172**	**0**	**34,281,317**	**96,021,025**
Custom Indictor 1.1.1 a: Value of inputs and services used by members of targeted cooperatives (USD)	**$1,782,168.68**	**$6,137,115.69**	**$0.00**	**$ 1,120,950.86**	**$0.00**	**$0.00**	**$1,120,950.86**	**$7,361,364.76**
Custom Indictor (a): Change in net dairy income among targeted households(in USD)	**$2,823,967.12**	**$8,626,750.39**	**$0.00**	**$ 4,002,530.79**	**$0.00**	**$0.00**	**$4,002,530.79**	**$14,668,998.27**
Custom Indictor 1.2 a: Number of new milk quality assessment technologies\protocols adapted\implemented	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**5**
Custom Indictor 1.3 a: Number of new products awarded SOQ	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**19**
Custom Indictor 1.3 b: Percentage of milk marketed under SOQ	**0**	**20%**	**56%**	**65%**	**28%**	**0**	**65%**	**65%**
Custom Indictor 2.1 a: Number of dairy related firms and organizations newly aligned within and provided a voice by dairy sector affinity organizations	**0**	**70**	**0**	**0**	**0**	**0**	**0**	**70**

Custom Indictor 2.2 a : Number of dairy enterprises with upgraded production facilities resulting from successful financing applications		600	0	0	0	0	0	72
Custom Indictor 2.2 b : Liters of additional daily milk processing resulting from financing assisted by RDCP II	0	30,000	73,622	81,794	0	0	155,416	61,871
Number of promotional and educational events/program on dairy consumption implemented/conducted	0	10	0	0	0	0	0	11
Number of people reached during the milk consumption promotional campaign	0	200,000	-	0	0	0	0	200,000
Percentage of consumers that are aware of nutritional and health benefits of milk	0	50%	0	0	0	0	0	0
GNDR-2 : Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income or employment)	0	50%	49.2%	34%	36%	0	38%	36%
GNDR-3 : Proportion of females who report increased self-efficacy at the conclusion of USG supported training/programming	0	80%	0	0	0	0	0	76%
GNDR-4 : Proportion of target population reporting increased agreement with the concept that males and females should have equal access to social, economic, and political opportunities	0	80%	0	0	0	0	0	84%

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SNAPSHOT

Rwanda Cheese Expo and Championship gets bigger and better

I managed to sell cheese worth 1,300 US dollars in just two days and acquired more business contacts — Mr. Emmanuel Kageruka ,

Gishwati Farms CEO

Three years ago, the Rwandan cheese industry struggled with a plethora of challenges, including poor quality products, a small range of cheese variety, unattractive packaging and an ineffective marketing approach. Despite these setbacks, the industry proved to have untapped potential – Rwandan cheese makers just needed a way forward.

In 2012, the Rwanda Dairy Competitiveness Program II (RDCPII), funded by the U.S. Agency for International Development and implemented by Land O'Lakes International Development, led a series of brainstorming sessions with Rwandan cheese makers to generate ideas on how to build up their product portfolios and transform the local cheese sector market.

Key initiatives emerged from the brainstorming sessions, including the need for capacity building and new equipment, but one of the most critical was the need for a more robust marketing strategy. Seeing a need for exposure to increase product demand and standardization, stakeholders established the inaugural Rwanda Cheese Exhibition and Championship in 2014 with financial and technical support from RDCP II.

After just one year, the event has already grown in popularity, with participation of local cheese makers increasing from 9 in 2014 to 12 in 2015. RDCP II facilitated a hands-on processing training for cheese makers, to display ways to make a variety of cheese. As a direct result, the variety of cheese entries also increased from 23 to 47.

The Rwanda Cheese Exhibition and Championship is now the sole annual promotional event in Rwanda dedicated to local cheese makers. Mr. Emmanuel Kageruka, a local cheese maker, based in Rubavu District, Northern Rwanda remarked, "I was impressed by the organization, media buzz and turn-up for this year's exhibition. My sales virtually doubled from last year's exhibition. I managed to sell cheese worth 1,300 US dollars in just two days and acquired more business contacts. I am looking forward to participating in next year's event."

In addition to increased participation, it was clear that cheese makers are progressing in their efforts to improve quality, particularly in cheeses such as Gouda, mozzarella and feta. Packaging of local cheeses has also improved.

Telling Our Story
U.S. Agency for International Development
Washington, DC 20523-1000
http://stories.usaid.gov

This year's two-day exhibition ran after the cheese competition at Kigali's biggest shopping mall, Kigali City Tower, realizing 4,300 US dollars in sales for all of the exhibitors, doubling sales from the previous year.

This event showcases the success of four key strategic initiatives accomplished by RDCP II in Rwanda: improved cheese quality, increased variety of cheeses, increased technical knowledge and skills of cheese makers, and standardized quality benchmarks for the industry. The event not only benefits experts in the cheese industry, but also the public as cheese products are now more marketable in quality and variety.

The Rwanda National Dairy Platform (RNDP) - the newly revitalized dairy sector advocacy body – has been positioned to own this initiative as RDCP II winds up its mandate. RDCP II will engage RNDP to devise a sustainable strategy aimed ensuring continuity of this initiative.

Mr. Alex Ruzibukira, Director General in the Ministry of Industry and Trade, with the 2015 winners of Cheese Championship. He challenged local cheese makers to target export markets

Mukamira Dairy Business Plan Refinement

Second Deliverable

Consultants:

Paul Schoen – Agricultural-Economist
Kobus Mulder – Dairy Industry Specialist
Supported by MINAGRI/MINCOM Appointed Staff

Date: 20 June 2015

Overall Introduction

Background to Mukamira Dairy Business Plan Refinement

The Ministry of Agriculture (MINAGRI) of the Government of Rwanda requested Land O'Lakes to assist them in refining their Business Plan for the completion and operationalization of Mukamira Dairy, located in Nyabihu District. The intention was that the plant be operationalized by mid-2015. Given the slippage in construction, there is now an opportunity to review the plan and provide a road map for its operationalization in the short and long run.

MINAGRI requested technical support from a team that comprised a financial analyst and a dairy production specialist to carry out a detailed review of the current Business Plan (or version 1) for Mukamira Dairy as prepared by the Business Development Fund (BDF).

A review of existing documents as they relate to the financial viability and future profitability, as well as technical specifications of the plant was undertaken. A site visit was undertaken to Mukamira Dairy itself and a number of Milk Collection Centers (MCC) were visited and interviews held with MCC representatives. A number of small dairy processors were also visited.

This document represents a refined Business Plan and what might be termed version 1.1.

Comment on the Structure of the Document

The structure of this document presents the following:

- A description of the Key Drivers of the business and general understanding of the issues that face the dairy in terms of securing supply, production, management and sales;
- The Road Map proceeds to present recommended plans for the:
    - Physical infrastructure and equipment additions that are needed;
    - A supply solution and initial product mix;
    - Human Resource Plan;
    - Financial Plan highlighting capital requirements to ensure that the dairy becomes "fit for purpose" and can secure the required certification from the Rwanda Standards Board (RSB);
    - A 12-month plan is presented as well as a longer 2 to 5 year plan of activities. A Gantt chart and narrative are presented to illustrate this; and
    - Considerations for a Government exit from the business.

The Plan contains a number of Annexes, which detail the physical specifications and financial calculations made.

Mukamira Dairy Business Plan Refinement

Undertaken for MINAGRI and MINICOM
Government of Rwanda

Version v1.1
Original Business Plan v1 (original was unnumbered and undated)

Date: 20 June 2015

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List of Abbreviations

AI	Artificial Insemination
B	Billion (Rwf)
BDF	Business Development Fund
BRD	Rwanda Development Bank
M	Million (Rwf)
MCC	Milk Collection Center
MINAGRI	Ministry of Agriculture
MINICOM	Ministry of Commerce (Trade and Industry)
RSB	Rwanda Standards Board
Rwf	Rwanda Franc

Note:

1) Cover photo by Kobus Mulder, June, 2015
2) All prices and costs quoted are in Rwanda Francs unless otherwise stated.
3) All costing is available as an accompanying excel file to this word document version.

1. Executive Summary

Business Plans are not static but living documents and are designed to support management decisions on a rolling basis. This document represents a "Road Map" for Mukamira Dairy and should be read in conjunction with the Business Plan prepared by Business Development Fund (BDF) earlier in 2015. This document is therefore considered Version 1.1 and reflects changes, review of the current situation and importantly, presents a strategy for getting the dairy operational by presenting to stakeholders practical steps needed to realize this. A modest "crawling-before-walking-before-running" approach is recommended and is a philosophy on which this Road Map is based.

The Plan is presented in various sections covering issues concerning the physical structure itself, equipment needs, product mix, a human resource plan and a financial plan.

The availability of fresh milk from the Milk Collection Centres is critical. A discussion of how this is possible is provided with the conclusion that what is called "uncommitted" milk, can be purchased by Mukamira Dairy after "committed" is bought by formal existing buyers.

A number of sources for costing were consulted and used in the construction of the financial plan which is summarised along with the assumptions taken about the business and operating environment. It is estimated that a loan may be required to cover working capital needs in the region of between Rwf 575 million to Rwf 675 million (worst case scenario – see section 7.6.2) to bridge the period from establishment to when revenues start to come in. This represents a departure from Business Plan v1, which suggested that Rwf 1.6 billion was required. The prime difference is that this plan does not include UHT production, has a smaller staff contingent and a number of pieces of identified equipment have been either felt not to be necessary or have been downscaled in terms of size.

Analysis undertaken suggests that the Internal Rate of Return is around 30% and payback period of around a little under 2 years. A sensitivity analysis was undertaken showing that the business plan is relative robust with resistance to higher prices for physical requirements and also milk price increases.

Two Gantt Charts are presented to show key activities for year one by month and then broadly for years 2 to 5.

Two annexes are included in the Plan. The first details operational and staff requirements not covered in the main body of the plan. The second presents the financial calculations and assumptions made.

2. Introduction

Business Plans are not static but living documents and are designed to support management decisions on a rolling basis. This document represents a Road Map for Mukamira Dairy and should be read in conjunction with the Business Plan prepared by Business Development Fund (BDF) earlier in 2015. This document is therefore considered Version 1.1 and reflects changes, review of the current situation and importantly, presents a strategy for getting the dairy operational by presenting to stakeholders practical steps needed to realize this. A modest "crawling-before-walking-before-running" approach is recommended and is a philosophy on which this Road Map is based.

The Road Map is specifically prepared for Mukamira Dairy designed to have a processing capacity of 40,000 liters per shift. The plant will have a potential of two shifts per day as an objective achievable in the long run. The building is not yet "fit for purpose" and requires additional work. Equipment on site for the dairy processing is currently either free standing or still in shipment crates.

Fresh milk will be sourced from identified Milk Collection Centers (MCCs) in the surrounding districts of Nyabihu, Ngororero, Rutsiro, Rubavu, Musanze, and Burera.

This document is divided into the following sections:

- Section 3, 4, 5 and 6: Key Drivers of the business, origins and ownership of Mukamira Dairy and competition;
- Section 7: Challenges of the dairy in terms of securing supply, production, management and sales;
- Section 8: Business Plan recommendations for:
    - Physical infrastructure and equipment Plan;
    - Initial product mix;
    - Human Resource Plan;
    - Financial Plan;
    - A 12-month plan is presented as well as a longer 2 to 5 year plan of activities presented in Gantt Chart form and supported by a narrative; and
    - Considerations for Government exit.

3. Business Drivers

In order to establish the Dairy a number of primary drivers of the business are considered crucial. These are:

- Technical considerations of the plant itself; and
- Concerns to secure milk.

Two secondary drivers include:

- **Financial issues:** Although clearly an important element for any business start-up the capital investment that has been made already, represents a sunk cost and cannot be recouped without some further investment and the acceptance of a slower and less ambitious income-generating plan. The initial investment is accepted as a given. With a little more investment to complete, or correct in some cases, the physical building and prepare it for "fit for purpose status" the Mukamira Dairy can become operational.

- **Competition:** With only one large processor, based in Kigali, and a few smaller ones in the north, the competition between Rwanda dairy processors is not yet as fierce as in a well-developed industry. During Year 1 and 2, Mukamira Dairy will be targeting mainly consumers and clients in areas between Musanze to Rubavu and the export market through the border post at Rubavu/Goma. Existing processors have not yet penetrated this geographical market successfully with short shelf life dairy products. In addition, proposed products are currently offered only to a limited scale to clients or consumers.

- Mukamira Dairy's main competition will come from traders who make fermented milk from unpasteurized and/or cooked milk in the traditional way. Market studies[1] have confirmed that this type product is plagued by a short shelf life and doubtful quality. Mukamira Dairy will manufacture fermented milk from pasteurized and homogenized milk, packed under hygienic conditions in sterile containers. This will ensure a quality product with a considerable longer shelf life and predictable, good, quality.

- Flavored low fat drinking yogurt, packed in consumer-preferred sizes, is currently not available in Rwanda and it is therefore foreseen that, given that Mukamira Dairy pays attention to good sales and distribution principles, that very little competition will been encountered in the first few years.

- Currently only two small processors produce butter (but that is in very limited volume and probably no more than 100 kg/month), which places Mukamira Dairy, with its larger volumes of cream and larger churning capacity, in a favorable market situation.

4. Location and Description of the Business Intent

Location: Mukamira Dairy is located in Nyabihu District of the Northern Province about half way between Musanze and Rubavu. Its location is on the edge of the Gishwati milk production zone. It has water and electricity already in supply.

[1] See studies prepared by Inspired 2014 for example.

The population of Rubavu District and the surrounding areas is about 400,000. For Musanze and Nyabihu Districts the population is ca. 368,000 and 294,000 respectively[2]. See Figure 1 below for a geo-map of the area.

Figure 1: Mukamira Dairy Location and Catchment Area

Source: Google Earth, June 2015

Description of business intent: Mukamira Dairy is designed to process fresh milk. The dairy will produce a number of different dairy products including fermented milk, pasteurized milk, yogurt, butter and eventually cheeses on an industrial scale as well as UHT.

5. Origins and Ownership of Mukamira

The origins of Mukamira Dairy stem from an approach by the MCCs in the Gishwati zone who expressed the wish to process milk that they received from their members. This occurred in 2007-2008.

The solution evolved to become the Mukamira Dairy. It was established as a company, owned jointly by Government and private farmers (88% and 12 % respectively) in 2010. To date the dairy has had Rwf 4 billion spent on it covering principally infrastructure and equipment purchases. This Rwf 4 billion was raised through Government contribution and farmers who exchanged a cow for a share of the business under the “one cow per family” program of MINAGRI.

The shareholding as is understood to be the case currently is shown in Table 1.

[2] http://www.citypopulation.de/php/rwanda-admin.php?adm2id=33

Table 1: Mukamira Dairy Shareholding

Percentage value of ownership	Value (Rwf)	Comment
Share value (all equal)	500,000	Price of a cow
Value of investment to date:	4 B (= 8,000 shares)	
1% value of the business	40 M	
12% owned by farmers (960 shares)	480 M (960)	Taken in the name of an MCC of which the farmer is a member in the Gishwati and other zone MCCs.
88% Government (7,040 shares)	3.52 B	

Source: Discussions with MINAGRI and First Business Plan (undated but 2015)
Note: M = Million; B = Billion

6. Challenges of the Business

6.1. Raw Milk Supply/Procurement

A lot of analysis concerning milk availability and supply has been undertaken[3]. Whilst the term "availability" is important and gives a sense of volume of milk produced and available for consumption, this is not the same as milk that is actually available for purchase either through informal or formal channels. What is important is to understand the amount of milk that can actually and physically be captured through purchase.

Two types of milk are collected at MCCs. These are committed and uncommitted for which the following definition is given:

- Committed milk = milk sold to existing small dairy processors (most are cheese makers). Such milk sales is obligated to the buyer and based on long standing relationships between the MCC and the buyer (processor); and
- Uncommitted milk = milk sold on an *ad hoc* basis to local markets/milk buyers or sold by the MCC itself locally.

In other words, milk that is "uncommitted" to existing buyers is milk that is available without impacting on formal business demand. For Mukamira this forms the initial target source of supply to its plant. The intention of the dairy is therefore to secure all currently uncommitted milk from MCCs leaving "committed" milk to existing long-standing buyers from the MCC.

Both the price and uptake of uncommitted milk is erratic and determined by available volume and which will need to be monitored once the plan comes into action.

[3] See Deep Dive Phase 1, 2 and 3 Reports, February 2014 (undertaken by Inspired International LLC and financed by Land O'Lakes). See also the National Dairy Strategy for Rwanda, 2012/3.

As shown below in Table 2, some 14 MCCs (within the catchment of Mukamira Dairy) have stated that after committed milk to long-standing buyers has been sold (mainly cheese makers in this area) the uncommitted milk balance can represent as much as 50% of total intake to the MCC. This uncommitted milk is normally sold to passing buyers or by the MCC directly on the local market.

It is estimated that daily possible volumes of uncommitted milk from 14 MCCs is ca. 16,090 liters (sufficient to start processing).

Table 2: Mukamira Milk Catchment Area: Committed / Uncommitted Milk

No.	MCC Name	COMMITTED MILK	UNCOMMITED MILK
1	Kinigi (AGIRAGITEREKA)	0	2000
2	Muhoza (IWACU ZIRAKAMWA)	0	1300
3	Bigogwe (UPROCENYA)	800	2200
4	Mizingo (ZIRAKAMWA-TWICUNDIRE)	200	600
5	Mudende (KAMU-ZIRAKAMWA)	0	1100
6	Bugeshi (KOAIBU-URUMULI)	0	1500
7	Gisenyi town (CODERU)	0	700
8	Kivu Dairy (CODERU)	0	2000
9	Arusha (CEMO)	2500	2000
10	Nkomane (CODAMIN)	700	Unknown
11	Nyiragikokora (CEZONYI)	2000	1500
12	Nyirabihururu	1200	Unknown
13	Kinihira (IMANZI RWEMA)	N/A	N/A
14	Mubuga	300	1190
	Total milk	**7,700**	**16,090**

Source: Data collected and confirmed by MINAGRI Dairy Project Management Team, June 11 2015

6.2. Market

Recent surveys found that 7% of milk produced in Rwanda is processed and formally marketed. 63% on the other hand, is informally marketed or spoiled in this uncertain sector of the value chain. The household

consumes the balance of 30%[4]. This analysis shows that a large volume of milk is available to be processed and formally marketed. A recent discussion with a number of MCC's[5] indicated that the volumes of informally marketed milk are growing steadily which makes the establishment of a processor more viable. The establishment of Mukamira Dairy in the North West milk shed catchment area therefore makes good sense to take up this category of milk.

Fermented milk, (also known as *Ikivuguto),* is a traditional dairy product enjoyed throughout Rwanda and neighboring countries. This product is mostly made by milk traders and sold informally. However, quality and shelf life is questionable. A recent survey found that 25,000 liters of this product is exported daily into Goma, DRC, where it is resold at about double the price it was acquired for.

One large Kigali based processor and a number of smaller processors market yogurt in various pack sizes. However, none of these are the low fat drinking variety. Drinking yogurt, a favorite with children and people "on the move", can be enjoyed directly from the container without the need of a spoon. This makes it an ideal product to be consumed outside the home or at the place of employment.

Until February 2015, no butter was made in Rwanda. Since this date, two small processors are producing and marketing small quantities in Kigali way below expected potential of Kigali and Rwanda's growing demand. Imported butter from Uganda, Kenya and Belgium currently fills this gap retailing at premium prices.

Mukamira Dairy has chosen to target the domestic and export market by making fermented milk, flavored low fat drinking yogurt and butter in its plant. These products will be offered to consumers in pack sizes as preferred by retailers and consumers and at two product depots initially in the towns of Rubavu and Musanze.

6.3. SWOT analysis of the Dairy

A summary analysis of the Mukamira Dairy in terms of its strengths, weaknesses, opportunities and threats or risks is presented below in Table 3. Whilst there might be additional items to add to the table those listed are considered the most important.

There are some strong opportunities in terms of potential supply and market outlets. These have to be secured from day one. The risks identified have to be mitigated by the early appointment of a proven senior management team of the plant to oversee smooth processing of fresh milk into products that are fit for consumption and which can be sold in local markets.

[4] See footnote 3 for the source of the survey.

[5] Bigogwe (UPROCENYA) MCC and Arusha MCC. June 2015.

Table 3: SWOT table

Strengths	Weaknesses	Opportunities	Threats or Risks
• The location of the plant is optimal with respect to initial market outlets. • The site has room for expansion if needed. • Government backing. • Full support from the MCCs illustrating the demand for its services. • Sufficient milk to start and good potential for future growth.	• Limited processing management knowledge. • Lack of formal agreements to secure milk supply from MCCs. • Fluctuation of milk supply between dry and wet seasons.	• There are no other formal buyers in the Gishwati region. • Very little, if any competition in the market providing market growth opportunity. • Milk is available and the possibility of increasing milk supply from the area. • To provide a new avenue for milk supply freely.	• Identification (and retention) of experienced senior managers to run the dairy may prove difficult. • Sustainable quality of product and sustainable sales.

7. Mukamira Business Plan Recommendations

This section contains several different plans that are integral to each other and ensure that the varying components of the business can proceed. These plans are presented in order of importance.

7.1. Physical Plan

The Physical Plan includes a plan for the infrastructure and equipment. These are listed below and detailed in Annex 1. Both infrastructure and equipment costs are included in the financial plan.

7.1.1. Infrastructure Plan

A summary list of areas which need to be addressed are:

- Ceiling;
- Flooring;
- Laboratory;

- Cheese making area;
- Milk reception area;
- Whey tank installation; and
- Windows.

For a detailed plan please see Annex 1.

7.1.2. Equipment Plan

Much equipment has already been purchased for Mukamira. Nevertheless it is recommended a yogurt-filling device that can pack smaller pack sizes be sourced to complete the yoghurt production line contained in this plan. See Annex 1.

7.2. Milk Procurement Plan

The Dairy should only target uncommitted milk for collection from the MCCs as defined in Section 6.2. The MCC can continue to sell committed milk to existing buyers. MCCs have in principle agreed to this already during the process of scoping this Plan.

To secure uncommitted milk Mukamira Dairy must do the following:

- Prepare and sign supply contracts between Mukamira Dairy and each individual MCCs for all uncommitted milk available; and
- These contracts will need to include pricing, estimated volumes, milk quality standards and duration of validity of the contract.

In effect, this will leave the MCC with no uncommitted quality milk available to other buyers (mainly the informal or direct sales themselves). If farmers deliver more milk to the MCC, Mukamira will also purchase this additional milk. Given that the MCC can sell all milk collected but also given that most MCCs operate at below their full capacity, this in itself should incentivize milk farmers to deliver more than current practice suggests.

It is suggested that Mukamira Dairy confirm the purchase of uncommitted milk from an initial catchment area in which 4 or 5 of the nearest MCCs are located and with the highest amount of uncommitted milk. These should be targeted first to secure supply contracts. This in itself will secure ca. 10,000 liters daily of milk and would be sufficient to commence and continue operations (please see section 7.2 and Table 2). This would cover what can referenced as “zone 1”.

As the dairy establishes itself over the initial period, procurement of milk will also include a wider area termed “zone 2” to secure greater volumes of milk. This is shown in Table 4 and Table 5.

Table 4: Zone 1 Priority MCCs within Mukamira

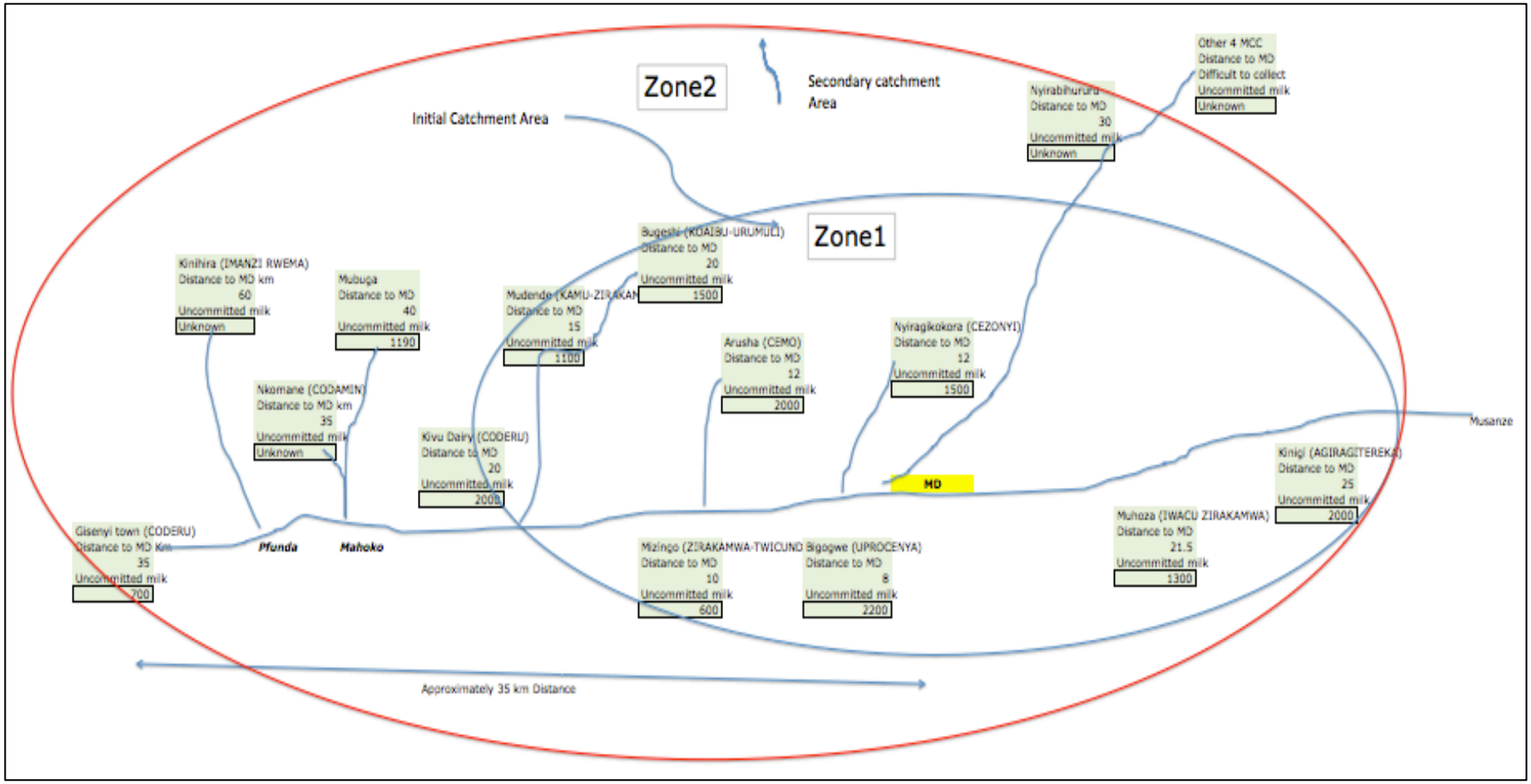
MCC Name	Distance from Mukamira Dairy (km)	Uncommitted Milk (litres)	Zone (target priority)
Bigogwe (UPROCENYA)	8	2200	Zone 1
Mizingo (ZIRAKAMWA-TWICUNDIRE)	10	600	Zone 1
Arusha (CEMO)	12	2000	Zone 1
Nyiragikokora (CEZONYI)	12	1500	Zone 1
Mudende (KAMU-ZIRAKAMWA)	15	1100	Zone 1
Bugeshi (KOAIBU-URUMULI)	20	1500	Zone 1
Kivu Dairy (CODERU)	20	2000	Zone 1
Muhoza (IWACU ZIRAKAMWA)	21.5	1300	Zone 1
Kinigi (AGIRAGITEREKA)	25	2000	Zone 1
Total uncommitted milk		**14,200**	

Table 5: Zone 2 Priority MCCs within Mukamira

MCC Name	Distance from Mukamira Dairy (km)	Uncommitted Milk (litres)	Zone (target priority)
Nyirabihururu	30	Unknown	Zone 2
Gisenyi town (CODERU)	35	700	Zone 2
Nkomane (CODAMIN)	35	Unknown	Zone 2
Mubuga	40	1190	Zone 2
Kinihira (IMANZI RWEMA)	60	N/A	Zone 2
Total uncommitted milk		**1,890**	

The approach to procuring milk is geographically shown with Figure 2 illustrating zone 1, in which 9 MCCs are located i.e. the smaller oval. Zone 2 MCCs within the larger oval, accounts for the remaining 5 MCCs considered important suppliers at a later date.

Figure 2: Initial Milk Supply Catchment from MCC



Source: Developed by the Business Planning Team June 2015. Notes: a) Not to scale. b) MD = Mukamira Dairy

7.3. Product Plan

A product prioritization plan is presented in Table 6. This plan aims to ensure that processing commences the day the plant becomes operational and that products can be sold quickly, in line with current market demands seen in the Rubavu and Goma border area.

Table 6: Initial Product Prioritization

Priority	Product	Targeting	Product Container Sizes
1	Fermented Milk (Ikivuguto) – full cream	• Primarily for export to DRC • Secondly to local market	• 2 liter jerrycan • 5 liter jerrycan • 20 liter jerrycan
2	Drinking Yogurt (low fat)	• Primarily local market • Secondly export	• 175ml cup • 250ml cup
3	Pasteurized Milk (full cream)	• Primarily local market • Secondly export	• 1 liter bottles • 2 liter jerrycan
4	Butter	• Primarily local market • Secondly export	• 250g cup • 500g cup
5	Cheese	• Primarily local market • Secondly export	• Feta – 250g packed in cup • Mozzarella – 1kg blocks • Gouda to be vacuum packed into 220g portions

Source: Developed for this Plan, June 2015

7.4. Sales and Marketing Plan

The sales and marketing plan must be implemented by a Sales and Marketing Manager with previous experience in implementing and following through with such a plan.

Key tasks anticipated for both Sales and Marketing, but with Managing Director consultation and support, are the following:

1. **Brand name determination:** As with all businesses a brand name will need to be identified and agreed. This does not have to be sophisticated but does need careful thought. This will include the

development of a logo and packaging presentations for the different products the plant will produce.

2. **Packaging designs:** This covers considerations for packaging different products, design, and shapes of containers.

3. **Price strategy, product prices, and trading terms:** A pricing plan will need to be developed to enter the market. The plan will include a price list for the products based on product and pack sizes. Alongside this will be the need to establish trading terms with buyers such as payment terms and credit extensions.

4. **Client sourcing:** The Sales and Marketing Manager will lead the Sales Team in identifying clients for Mukamira products. This will also include a program for visiting clients and monitoring client satisfaction. Client differentiation is based on whether they are *retail, wholesale and institutional* for which separate methods may be needed to service their requirements.

5. **Milk Depot (Inyange-style) in Rubavu (Gisenyi) near border post:** It is recommended that Mukamira establish a Milk Depot in Rubavu (Gisenyi). A likely location will be close to the Goma border given the importance of the Goma market for its dairy products. Further depots in Rubavu may be considered later.

6. **Additional Milk depots in Musanze:** Depending on the success of the first Milk Depot near the border, further depots may be in Musanze and possibly Kigali later.

7. **Distribution strategy and operations**: A Distribution Strategy will need to be developed. This will largely be based on the contracts agreed with retail, wholesale or institutional buyers and the terms of delivery. A route plan for delivery will have to be mapped out and delivery points agreed. This is vital as late delivery or delivery to a wrong site can be costly for both Mukamira's reputation and client confidence because their own businesses are dependent on reliable supply.

8. **Market development and advertising:** The Sales and Marketing team will also be responsible for both market development and advertising. This means monitoring sales volume of products, determining popular selling products from unpopular products and market preferences. Discussing with clients their selling experiences, product preferences and ease of handling and storage of products will be important. It will be necessary to undertake regular consumer surveys and feedback activities to statistically and qualitatively monitor consumer preferences.

   Advertising campaigns based on current buying habits and preferences will be an integral part of the work under the marketing division. This may take the form of newspaper adverts and radio in

Kinyarwanda, French, and English. It is recommended that a promotion be undertaken in year 1.

7.5. Human Resource Plan

The management structure of Mukamira will have four divisions overseen by a Managing Director. At this stage, it is envisaged that around 32 members of staff will be required to manage and operate the plant during the first and second years of operation and until all tasks are well understood and functioning smoothly. Job descriptions will need to be prepared building on those found in Annex 1.

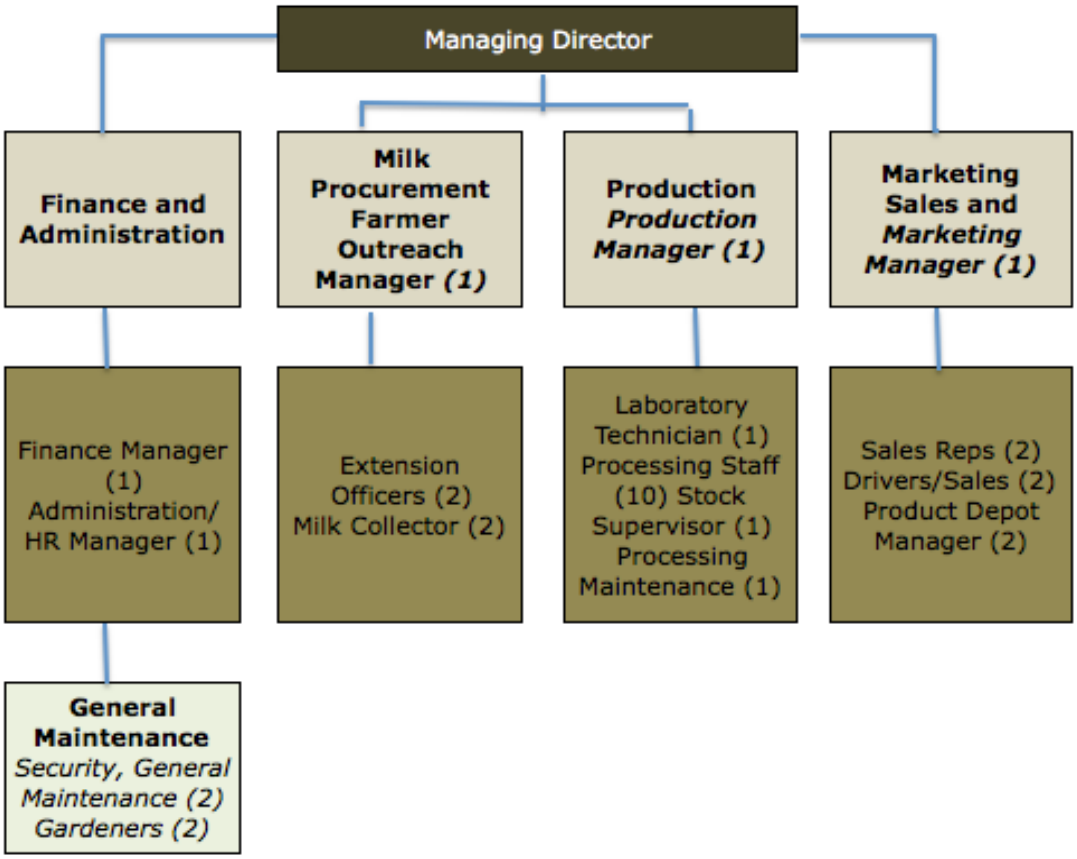
The structural division and number of personnel are as shown in Table 7.

Table 7: Personnel Structure

Staff Title	Number of people
Managing Director	**1**
Finance and administration	
Finance Manager	1
Administration Officer/Human Resources	1
General Maintenance Grounds and Security Personnel	4
Milk Procurement Division	
Farmer Outreach Manager	1
Extension Officers (working with famers)	2
Milk Collector (driver)	2
Production Division	
Production Manager	1
Laboratory Technician	1
Processing Staff (dairy processing areas)	10
Stock Supervisor	1
Processing Maintenance	1
Sales/Marketing and Distribution Division	
Sales and Marketing Manager	1
Sales Representatives	2
Driver/Salesmen	2
Product Depot Manager (based in Gisenyi near as close to the Goma crossing as possible)	1
Total Staff Number	**32**

An organization chart representing the relationship between these divisions is show in Figure 3.

Figure 3: Organization Chart for Mukamira Dairy



Note: Number is brackets relate to number of persons anticipated.

Management will be divided into four divisions these being Finance and Administration under which General Maintenance will be located. Then there will be divisions for Milk Procurement, Production and Marketing each having a vital role in bringing milk to the plant, processing and then selling (marketing).

The Procurement Division includes not only a focus on collection of milk from MCCs but importantly dairy technical skills. Two Extension Officers (dairy technicians) will work with farmers directly (i.e. those who are the shareholders of Mukamira and supply milk to the Dairy) to provide advice on animal management, farm sanitation, herd health and breeding as well feeding regimes for the dairy herd and calf management. Mukamira may also provide artificial insemination (AI) services for the herds to maintain cows in lactation at some point.

The Production Division includes all processing, but also contains the laboratory services needed to monitor sanitation levels and quality of production. This section includes stock management for both ingredient and dry packaging materials.

Under marketing (see also section 7.5 above for details on the activities) both distribution and marketing activities are found. This section includes the Product Depot in Gisenyi.

7.6. Financial Plan

7.6.1. Original Financing Plan

The original Business Plan was based on the recognition that significant investment had taken place for Mukamira Dairy. Business Plan v1 had calculated the need for around Rwf 1.6 billion of financing to be used as working capital. During the course of preparing for v1.1 of the Business Plan this was reviewed.

7.6.2. Current Financing Plan

The understanding is that there is no balance left from the original funds raised for Mukamira Dairy necessitating the need for further financing to cover completion of works and any additional necessary equipment. Further financing will be used to complete the physical building and ensure that it is “fit for purpose”. Further financing will also be used for operational costs.

The Table 9 summarizes the financing plan covering the first 12 months and subsequent years 2 to 5. The complete financial analysis is presented in Annex 2 - Financial Data and Assumptions for Mukamira Dairy.

The financial presentation shows cash flow, cost elements, and investment requirement. It also suggests the amount of capital needed to bring the factory to “fit for purpose” status. Calculations suggest that the business can generate an internal rate of return of ca. 38% and break-even in just over 1 year.

The following key features of the finances are the following:

- The plan reflects both building completion and equipment requirements as believed necessary to get the dairy to a “fit for purpose” status. The equipment list in Business Plan v1 was consulted for the current equipment and operating plans. This has resulted in a substantially reduced financing and working capital need. An example of this is the delayed purchase of a forklift truck to year 2 and the downsizing of a 10-15 ton truck to a 5 ton truck. The entire UHT line has also been removed from the current plan, which has resulted in a substantial cost reduction in comparison to v1. However, it is highly recommended that when the installation of the equipment takes place, the UHT equipment be installed as well by the supplier. This will allow the dairy to be “UHT ready” when the decision is taken to commence this product line.
- Staff levels have been considerably reduced which has also resulted in budget savings and reflects the difference between the Business Plan v1 and this version v1.1.
- A modest consultancy and technical assistance allowance has also been factored into the budget for support to management on annual basis.

- Prices have been identified through a combination of:
  - Direct observation in the market;
  - A review of pricing plans of competitor businesses;
  - An examination of cost items in Business Plan v1 and comparison of items and estimated costs for operations for this plan; and
  - Discussions with MINAGRI/MINICOM and consultation of shared documents.
  - Milk purchases will be at Rwf 175/liter from MCCs for all milk in wet season and Rwf 200/liter in the dry season.
  - Product sales prices for products are: Rwf 600/liter (fermented); pasteurized milk Rwf 619/liter; butter Rwf 7,000/kg; drinking yogurt Rwf 925/liter.
- Milk will be bought by Mukamira Dairy from identified MCCs with uncommitted milk from month 6 with volumes differentiated seasonally. It is also assumed that milk volumes will increase year on year from year 2 onwards by 10%.
- It is assumed that the plant will initially only process milk into 4 products - these being fermented milk (the bulk of processing), pasteurized milk, butter and yogurts (including flavored);
- No inflation has been taken into account given the low inflation experienced in Rwanda and which is anticipated to continue.
- Staff will be recruited gradually from around month 2 or 3 until full staff complement are reached by month 6. This coincides with the milk purchase plan.
- A sensitivity analysis has been undertaken to the model shown in Table 8.

Table 8: Base Case and Sensitivity Analysis

		Sensitivity Analysis		
	Base Case	If milk purchase price increases	If cost of building increases by:	If cost of building and price of milk go up by:
		30%	30%	
IRR	30%	28%	28%	26%
NPV	771,716,620	627,592,848	715,376,361	571,252,590
Suggested Pre-financing including contingency (5%)	-574,708,610	-606,559,835	-643,331,045	-675,182,270
Break-even (year)	1.832	2.274	1.859	2.310

- A number of operating costs have been identified including payment to RSB for certification and licensing, which is awarded per product. HAACP certification can be very burdensome and assumed best left until year 2 when the plant is fully operational and all procedures are well known.

- The plan accommodates an intensive marketing drive in year 1 after which further advertising and promotion will continue.
- A loan to cover working capital is assumed to be necessary to complete physical requirements (infrastructure and equipment). Exactly how this money is to be secured and terms of under which it is available, will need to be discussed by the shareholders of Mukamira Dairy. It is estimated that requirements will be in the range of ca. Rwf 575 million to Rwf 675 million (rounded) to meet financial needs whilst the plant is being established, staff are recruited and the first revenue is generated. A contingency of 5% has been added to the anticipated financing need.

Table 9 and Table 10 show the summary plan for costs, revenues and loan payments for 12 months and then for years 2 to 5.

Table 9: Total Budget, Revenue and Profits for Month 1-12

Summary	Year											
	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Total Costs	209,849,000	15,200,000	22,200,000	16,950,000	16,950,000	226,192,533	226,192,533	224,442,533	224,442,533	224,442,533	224,442,533	224,442,533
Total Revenue	-	-	-	-	-	-	419,343,165	419,343,165	419,343,165	419,343,165	419,343,165	419,343,165
Total Profit (EBITAD)	- 209,849,000	- 15,200,000	- 22,200,000	- 16,950,000	- 16,950,000	- 226,192,533	193,150,632	194,900,632	194,900,632	194,900,632	194,900,632	194,900,632
Loan (capital + interest) payments	-	-	-	-	-	-	-	- 21,139,231	- 21,139,231	- 21,139,231	- 21,139,231	- 21,139,231
Cash Flow	- 209,849,000	- 15,200,000	- 22,200,000	- 16,950,000	- 16,950,000	- 226,192,533	193,150,632	173,761,401	173,761,401	173,761,401	173,761,401	173,761,401
Gross Margin							46%	46%	46%	46%	46%	46%

Table 10: Budget, Revenue and Profits for Year 2-5

Summary				
	2	3	4	5
Total Costs	2,497,631,325	2,591,330,018	2,767,616,715	2,868,106,346
Total Revenue	4,472,614,980	4,472,614,980	4,472,614,980	4,472,614,980
Total Profit (EBITAD)	1,974,983,655	1,881,284,962	1,704,998,265	1,604,508,634
Loan (capital + interest) payments	- 253,670,767	- 63,417,692	-	-
Cash Flow	1,721,312,888	1,627,614,195	1,704,998,265	1,604,508,634

- A suggested loan arrangement, similar to those identified in the Business Plan v1 where interest was taken at 16% on a 2 year monthly payment of a fixed term loan basis has been applied. This plan includes a 6-month grace period before loan (principle and interest) payments start. This would allow the business to start generating revenues before having to make re-payments to the lender.
- Dividends may be payable to shareholders (both farmers and Government) after 18 to 24 months and should be considered once profit levels are understood – this has not been factored into this model however and is left to the Senior Management and Finance to determine the timing and amount based on affordability.

Table 11 and Table 12 show the estimated total costs, revenue, and profit for 12 months and then for years 2 to 5 as well as accompanying gross margin percentage once revenues start to flow in after 6 or 7 months.

Table 11 suggests that that only after year 1 does revenue begin to grow significantly due to increased volumes and sales begin to take off. As the plant becomes more established economies of scale kick in. However, it should also be noted that as the dairy becomes ever more busy additional staff would need to be recruited especially on milk procurement and product distribution.

Table 11: Total Costs, Revenue, Profits 12 months then Year 2-5

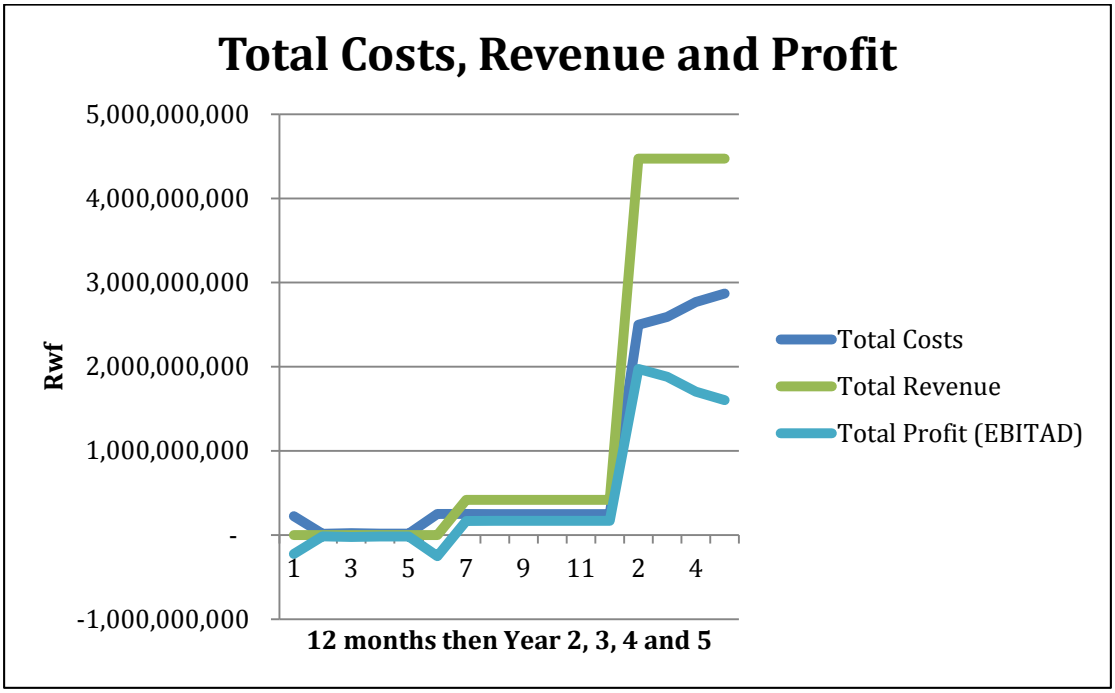
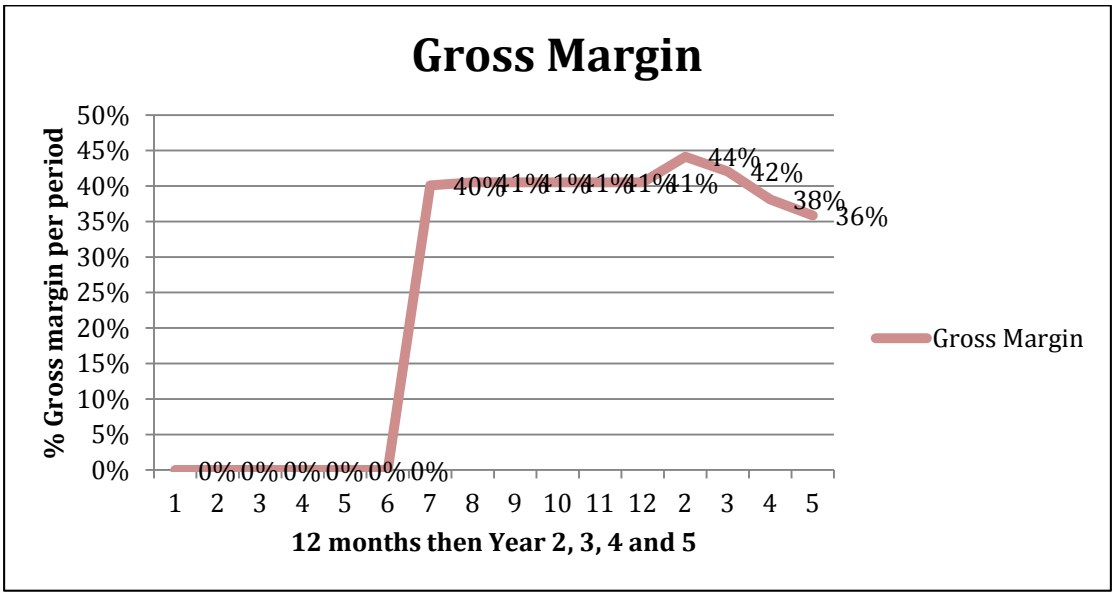


Table 12 shows that the gross margin (gross margin = Fixed costs minus variable costs divided by revenue) on a monthly basis shows positive signs once production commences and continue to year 5.

Table 12: Gross Margin for 12 months then Year 2-5



7.7. Implementation Plan and Strategy

The following presents a plan for year 1 divided into months, and a general plan for years 2 to 5.

7.7.1. Plan for Year 1

The work plan for year 1 revolves around establishment of the business. Activities are principally concerned in the first 6 months with operationalization, staff recruitment and securing milk supply. Production can then proceed followed by selling and distribution. The following are the 4 broad phases envisaged and shown in the Gantt chart in Figure 4.

- Phase 1 – Getting the factory operative;
- Phase 2 Simultaneous actions:
  - Phase 2a – Securing milk initially from MCCs with larger volumes of uncommitted milk; and
  - Phase 2b – Appointing personnel.
- Phase 3 – Production; and
- Phase 4 – Selling and Distribution.

7.7.2. Plan for Years 2 to 5

The work plan for years 2 to 5 revolves around consolidation of the business with a particular emphasis on studying where production costs can be improved in order to generate greater profit or save costs. The same applies to securing milk supplies and also distribution. As with any business, marketing plays a significant role in improving business performance. In the case of Mukamira Dairy it will be during this longer plan when export considerations will be developed. No phasing is envisaged as consolidation and business establishment are undertaken simultaneously. See Figure 5.

Figure 4: Gantt Chart – First 12-Month Plan

Gantt Chart — **Year 1 Plan (12 month Plan)**

	12 Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Phase 1 – Getting the factory operative	**Phase 1**											
Infrastructure												
Complete construction of ceiling												
Floor drainage in processing area												
Floor-to-wall coving in proceesing, packaging and lab areas												
Wall separating milk receiving and milk processing												
Laboratory: Division into Bacteriological and Chemical Labs												
Lighting fixtures												
Whey tank installation exterior to the building												
Windows to be 1 meter above floor in milk receiving area and of 6 mm thick												
Equipment												
Purchase yogurt filling device												
Installation by equipment supplier and trials												
Phase 2 Simultaneous Actions	**Phase 2**											
Phase 2a – Securing milk initially from MCCs with larger volumes of uncommitted milk	Phase 2 a											
Drawing up and contract discussions and signature with MCCs												
Phase 2b – Hire personnel	Phase 2 b											
Recruitment of Managing Director												
Recruitment of other staff												
Phase 3 - Production			**Phase 3**									
Ordering ingriedients (cultures, chemicals, washing etc)												
Agreement date wiht MCCs to make uncommitted milk ready for collection												
Support Services to farmers												
Production commences												
Phase 4 – Selling and Distribution			**Phase 4**									
Design of packaging												
Packaging purchases and delivery												
Client sourcing, price determination and distribution planning												
Establish milk depot in Rubavu (near the border)												
Distribution												

Figure 5: Gantt Chart – Year 2 to 5 Plan

	2-5 Year			
Key Considered activities	2	3	4	5
Production analysis for increasing profitability				
Process increase volumes				
Consider packaging UHT milk				
Distribution analysis for saving costs				
Refining business practices				
Marketing analysis and export analysis				

7.8. Exit Strategy

There are a number of options open to Government to exit from its continuation with Mukamira Dairy. These need to be explored in greater depth than this document can undertake.

Table 13: Exit Options Table

Option	Description	Pros	Cons
Option 1	Appoint management, stay involved until profitable and then sell government share (possibly 5-7 years).	• Ownership is retained. • Profit comes to Government Option 2 can still be pursued.	Government are responsible for all elements of the plant including losses.
Option 2	Engage Management Agent from day 1, and search for potential buyer/investor.	Agent will be responsible for managing the plant within budget.	May not give value for money – have to select agent through tender process.
Option 3	Simply sell the plant as is.	Raises cash quickly.	• May not get back the amount invested. • May not find a buyer quickly.

Annex 1 : Detailed plant recommendations for Mukamira Dairy including staff requirements and skill sets needed

This Annex is presented in 3 sections:

- **Section A:** Alphabetic list of Preferred Options for the processing plant, Operations and Products.
- **Section B:** Suggested Options for the Management of Mukamira Dairy
- **Section C:** Year 1 divisional structures and operations for the Farmer Outreach, Production and Sales & Marketing Divisions

Section A: Alphabetic list of Preferred Options for the processing plant, Operations and Products

1. **Access ways**

   1.1 All access ways between manufacturing and packing areas and non-manufacturing areas should be fitted with self-closing doors.

2. **Ceiling**

   2.1 The manufacturing area should be fitted with a ceiling, installed below the ventilation louvers.

   2.2 The laboratory should be fitted with an independent ceiling. The minimum height should be 3.6m.

   2.3 The ceiling material should be washable.

3. **Cheese making room**

   3.1 The floor of the cheese making room should slope with 3.5% towards a centrally fitted effluent trap.

   3.2 The cheese press should be placed in the cheese making room.

   3.3 The brine tank should be in a separate room near the cheese making and maturation rooms.

   3.4 The 4,000 liter whey tank should be positioned outside the building, next to the cheese making room. Whey will be piped through the wall into the tank. Whey is an ideal growth medium for bacteriophage viruses and the whey needs to be removed from the cheese making room

immediately after the making process. This also makes it easier and more hygienic when farmers collect the whey.

4. Cleaning in Place (CIP)

4.1 Two different CIP practices have to be implemented for hot and cold equipment.

5. Doors

5.1 All doors should be of rigid construction, impervious to moisture and pests.

5.2 The staff entrance door leading to the dressing rooms do not comply with the requirements in 5.1.

5.3 Cold room doors should be openable from the inside.

5.4 Once all equipment has been placed, the double doors to the outside toilets should be permanently locked. Staff should use only the passage entrance leading to the cloak washrooms.

6. Drain channels

6.1 The current gritted channel for production effluent removal should be replaced with an under floor pipe system in all manufacturing and packing areas.

6.2 Production effluent should flow into strategically placed effluent traps.

6.3 Each traps should be fitted with a strainer and cover to prevent solid materials entering the system.

6.4 The floor slope towards the effluent traps should be 3.5%.

7. Electrical installations

7.1 Attention should be paid that the following electrical equipment is correctly installed to prevent damage to equipment:

- High and low voltage switchgear;
- Power transformers;
- Motor control centers.

8. Floors

Judging from the damage already done to the floor in the manufacturing area, when equipment was placed, it is believed that

the current floor does not comply with the standards needed for dairy processing plants. It is strongly suggested that the current floor, and its covering, be re-evaluated to comply with the following:

8.1 Floors in manufacturing and packing areas should have a concrete base and be covered with a slip-free waterborne polyurethane resin coating. The resin coating should be chip resistant, not flake or peel and be able to withstand abrasive treatment.

8.2 Floor surfacing should be relative smooth and free from crevices and damaged areas.

8.3 Floors should have no indentations and slope by 3.5% towards the effluent traps.

8.4 All wall-to-floor or floor-to-pillar joints in manufacturing and packing areas should be coved with a 15cm extension and sealed. This is also applicable to the laboratory floor.

9. Hand Washing facilities

9.1 Hand washing facilities should be installed in manufacturing and packing areas.

9.2 Foot operated faucets are recommended.

9.3 Hot and cold water, soap in dispensers and sanitary hand drying supplies or devices

10. Homogenisation

10.1 Milk intended for cheese making should not be homogenised as it lowers the yield of cheese.

10.2 Milk intended for fresh milk, fermented milk and yogurt should be homogenised as follows:

- Homogenization temperatures in the range 55-80 ° C and homogenization pressure between 100 – 250 bar.

11. Industrial wash basins

11.1 Industrial-type stainless steel double basins should be installed in production and packing areas for small equipment washing.

12. Laboratory

12.1 The existing laboratory should be divided, by erecting a wall, into chemical and microbiological spaces.

12.2 The existing door should be the entrance into the chemical laboratory, an area of approximately 5.7m x 4.3m, and should include the existing window. The entrance into the bacteriological laboratory should be from the newly created chemical laboratory and leads into an area of approximately 5.7m x 1.4m. The door dividing the two laboratories should be a tight fitting self-closing wooden door.

12.3 The newly created chemical laboratory should be fitted with a basin and hot and cold water.

13. Lights

13.1 Lights should be fitted flush against the ceiling and should have protective covers.

13.2 Use only power saving fluorescent bulbs.

13.3 The following strength of light should be use in the respective areas:

- Production areas and production storage areas: minimum – 600 Lumens per sq.
- UHT packing area – 1 000 Lumens per sq. m.
- All other areas – 300 Lumens per sq. m.

14. Milk reception area

14.1 The milk reception area should be separated from the manufacturing area to prevent contamination from incoming milk and people traffic. This can be done by erecting a wall, from south to north, across the manufacturing area. The separating wall starts, in line from the eastern wall of the cheese making room, to the opposite wall separating the manufacturing area from the passage.

14.2 The milk receiving area should house the following equipment:

- Milk scale
- Milk reception tank
- Centrifugal pump

- Plate exchanger
- Raw milk tank

15. Milk standardization

15.1 The fat content of all the incoming milk should be standardization to obtain cream for butter making

15.2 The level of standardization should be in line with each product's legal requirement. Refer to Rwanda Standards Board's official regulations.

16. Process flow plan

16.1 The existing process flow plan was created in January 2011 and is not entirely applicable anymore.

16.2 The most appropriate flow plan should be determined in conjunction with the equipment supplier during final installation.

17. Product Priority – Year 1

It is suggested that the following Product Priority should be considered:

17.1 Fermented Milk (Ikivuguto) – full cream

- 2 liter jugs
- 5 liter jugs
- 20 liter plastic cans

17.2 Flavored Drinking Yogurt – low fat

- 120ml pots
- 175ml pots

The existing yogurt filler can only pack 250 and 500ml cups, which is considered too large for Mukamira Dairy's targeted consumers. It is suggested that an additional filling platform be purchased to pack the suggested pack sizes above.

17.3 Pasteurized Milk

- 500ml bottles
- 2 liter jugs
- Bulk sales through milk depots

17.4 Butter

- 250g tubs – salted

- 500g tubs – salted

18. Product Priority – Year 2

18.1 *Cheese*

- Mozzarella – 1kg blocks
- Feta – 250g in tubs with brine
- Gouda – vacuum packed in 220g portions

18.2 *UHT milk*

- It is suggested that the UHT equipment be installed but that packing be considered only during Year 2 for the following reasons:
  - It is doubtful whether large volumes of UHT milk could be sold in 250ml pack size only. The largest volumes of UHT milk are sold in 1 liter and 500ml packs with 250ml sold in very small volumes for specific purposes.
  - The raw milk processed into UHT milk must be of a very high quality and it is a safer option to spend Year 1 selecting and improving milk for this purpose. Milk intended for UHT should have a very low Somatic Cell Count – under 250 000 c/ml; low spore forming bacteria; the correct salt balance and pH 6.6 – 6.8. Raw milk not complying to these criteria result in final product with poor sterility, burning in the sterilizer; sediment formation in the carton and sweet curdling.
  - Considerable savings in running costs will be the result of not packing UHT milk during an initial period, allowing an earlier breakeven point.

19. Water

19.1 *Supply:* Raw water should be treated to adhere to food grade specifications.

19.2 *Processing use:* Hot and cold water, for use in the processing and packing areas, should be in sufficient quantities and pressure.

Section B: Suggested Options for the Management of Mukamira Dairy

1. **General Manager**

   The person should be an experienced general manager with a proven record in Planning, Organizing, Leading, and Controlling. In addition, the person should have a thorough understanding of the fundamentals of Finance, Production, Marketing, and Human Resources.

2. **Financial Manager**

   The basic responsibility of the financial manager is the collection and preparation of accounts however; special attention needs to be paid to developing financial management mechanisms that minimise financial risk

3. **Farmer Outreach Manager**

   This manager is the first link in the value chain of Mukamira Dairy as the division is responsible to deliver milk, complying with the minimum quality standard to the production division. He is also responsible for the efficient and cost effective procurement and collection of milk from the MCC's. The strategies to fulfill this task will be based on a strong relationship with the MCC's and their members. This relationship is to include a support program as spelled out in the divisional explanation below. This person should have an agriculture background with a strong understanding of financial matters and negotiating skills.

4. **Production Manager**

   This person is the second link in the Mukamira Dairy value chain by ensuring that products are produced efficiently, at optimum cost, in correct quantities and complying with minimum quality standards. This person is involved in the planning, coordination and control of the manufacturing processes of the various products. Previous experience in dairy processing is essential.

5. **Sales & Marketing Manager**

   This manager is the third link in the Mukamira Dairy value chain through getting the quality products under correct condition and at

its best quality to clients and consumers. This person will play a key role in the success of Mukamira Dairy, as s/he must achieve the sales targets of perishable products, which generate the revenue. S/he must understand the importance of budgeting, sales targets, and achieving these. Marketing tasks such as pricing, competition, marketing research and customer/client preferences are also duties, which resort in this division.

- Persons 2 – 5 are on the same seniority level and report to the General Manager
- Persons 3 – 5 are the captains of the Mukamira Dairy value chain.

Section C: Year 1 divisional structures and operations for the Farmer Outreach, Production, and Sales & Marketing Divisions

1. Farmer Outreach Division

- Farmer Outreach Manager – 1 person
- Extension officers – 2 persons
- Drivers – 2 persons

Divisional actions and operations

i. Milk supply contracts should be signed with each MCC, to obtain all current and future uncommitted milk. The contract should include amongst others, a negotiated MCC-gate price, expected volumes, milk quality standards and the period of validity.

ii. An important function of this division is to ensure the delivery of milk complying with the minimum quality standards necessary producing quality products.

iii. A key function of this division will be to convince MCC's to persuade their members to deliver ALL their milk to the MCC on a consistent basis. Farmers should also be convinced not to sell part, or all, of their milk to ad hoc milk buyers for on-selling on the local or Goma market.

iv. MCC's should be paid by the 7th of following month through electronic transfer to enhance their cash flow and to prevent the practice of selling milk on an ad hoc basis to obtain cash.

v. The logistics of milk collection from the MCC's should be negotiated and must be suite both parties.

vi. It is foreseen that some of the milk will be collected with a 5 000 L tanker whereas the rest will be collected in cans on flatbed trucks. The quality of roads and distance from Mukamira Dairy will be deciding factors in this arrangement

vii. The drivers of the tanker and can truck should be trained to perform the basic quality tests e.g. temperature, alcohol test and specific gravity, before accepting the milk

viii. Farmers should be encouraged to deliver evening and morning milk to the MCC's. Evening milk could be placed in wooden water

troughs to cool down during the night and delivered, with the morning milk, to the MCC.

ix. Efforts should be made to facilitate a reliable artificial insemination service for the farmers. AI is necessary to improve the genetic milk potential of the dairy cows

x. It is suggested that the following services be provided to farmers in order to cement a close working relationship as well as improving milk volumes and quality:

- Advisory services on animal nutrition to understand the nutritional requirements of calves, young stock, lactating cows and dry cows.
- A memorandum of cooperation should be negotiated with the University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM) Musanze to offer the following information topics to dairy farmers through information days and training sessions:
    a. Information on curative and preventive treatment of cattle as this is essential to improve production and to prevent losses through death, infertility and diseases.
    b. Information on animal housing, milk hygiene, husbandry practices and other aspects of dairy farming

2. Production Division

- Production Manager – 1 person
- Laboratory Technician – 1 person
- Processing Maintenance Technician – 1 person
- Stock Controller – 1 person
- Processing staff – 10 persons

Divisional actions and operations

i. The Production Manager should have previous milk processing experience and should be employed by the time the equipment is installed to undergo intensive training by the equipment supplier.

The equipment is of a sophisticated nature and very few milk processors in Rwanda have operated such equipment.

ii. This person is responsible for production planning and product quality.

iii. The Production Manager will work closely with the Milk Procurement Manager regarding milk volumes and quality, the Financial Manager on product costing and ingredient prices and purchasing and with the Sales & Manager on sales forecasting and product mix.

iv. The Production Manager will be responsible for the training and supervision of all processing and production personnel.

3. Sales & Marketing Division

- Sales & Marketing Manager – 1 person
- Sales representatives – 2 persons
- Milk depot assistant – 2 persons
- Delivery drivers – 2 persons

Divisional actions and operations

i. The Sales & Marketing Manager should have previous experience in the fast moving consumer goods sector.

ii. The manager will be responsible for, amongst other, the follow:

- Brand name determination
- Packaging designs
- Price strategy, product prices and trading terms
- Client sourcing in the retail, wholesale and institutional sectors
- Distribution strategy and operations
- Market development and advertising
- Managing the product depots in in Rubavu and Musanze

4. Managerial interaction.

1. Farmer Outreach and Production Managers should work closely together on the following issues:
   - Milk quality
   - Milk volume forecasting
   - Milk delivery times and schedules
2. Production and Sales & Marketing Managers should work closely together on the followings issues:

- Market demand forecasts
- Production volumes per product line and pack size
- Special promotion periods and volumes needed
- Product and pack preferences

3. The Financial Manager should work closely with all divisional managers on the following financial issues:
   - Milk price;
   - Production costs;
   - Ingredient costs;
   - Promotion costs.

Annex 2 : Financial Data and Assumptions for Mukamira Dairy

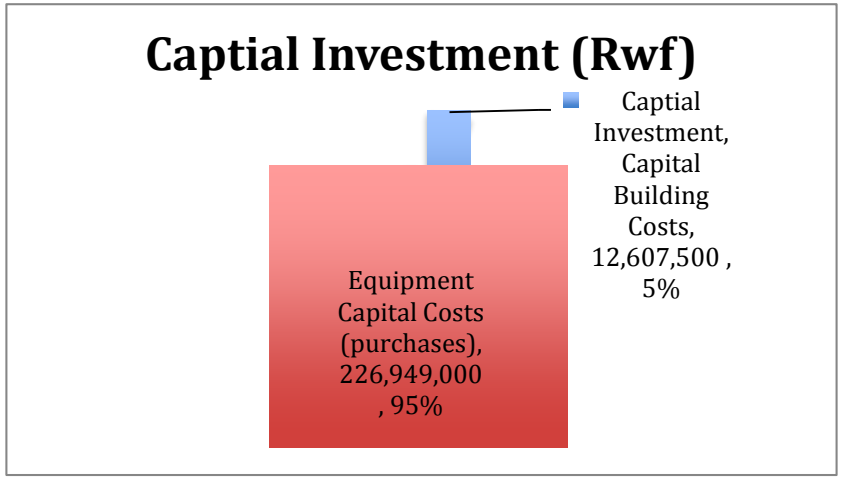
Summary of Financial Plan

Summary	Year 1															
	Month												Year			
	1	2	3	4	5	6	7	8	9	10	11	12	2	3	4	5
Total Costs	224,849,000	15,200,000	22,200,000	16,950,000	16,950,000	251,192,533	251,192,533	249,442,533	249,442,533	249,442,533	249,442,533	249,442,533	2,498,436,325	2,592,135,018	2,768,421,715	2,868,911,346
Total Revenue	-	-	-	-	-	-	419,343,165	419,343,165	419,343,165	419,343,165	419,343,165	419,343,165	4,472,614,980	4,472,614,980	4,472,614,980	4,472,614,980
Total Profit (EBITAD)	- 224,849,000	- 15,200,000	- 22,200,000	- 16,950,000	- 16,950,000	- 251,192,533	168,150,632	169,900,632	169,900,632	169,900,632	169,900,632	169,900,632	1,974,178,655	1,880,479,962	1,704,193,265	1,603,703,634
Loan (capital + interest) payments	-	-	-	-	-	-	-	- 22,805,897	- 22,805,897	- 22,805,897	- 22,805,897	- 22,805,897	- 273,670,767	- 68,417,692	-	-
Cash Flow	- 224,849,000	- 15,200,000	- 22,200,000	- 16,950,000	- 16,950,000	- 251,192,533	168,150,632	147,094,734	147,094,734	147,094,734	147,094,734	147,094,734	1,700,507,888	1,606,809,195	1,704,193,265	1,603,703,634
Gross Margin							40%	41%	41%	41%	41%	41%	44%	42%	38%	36%

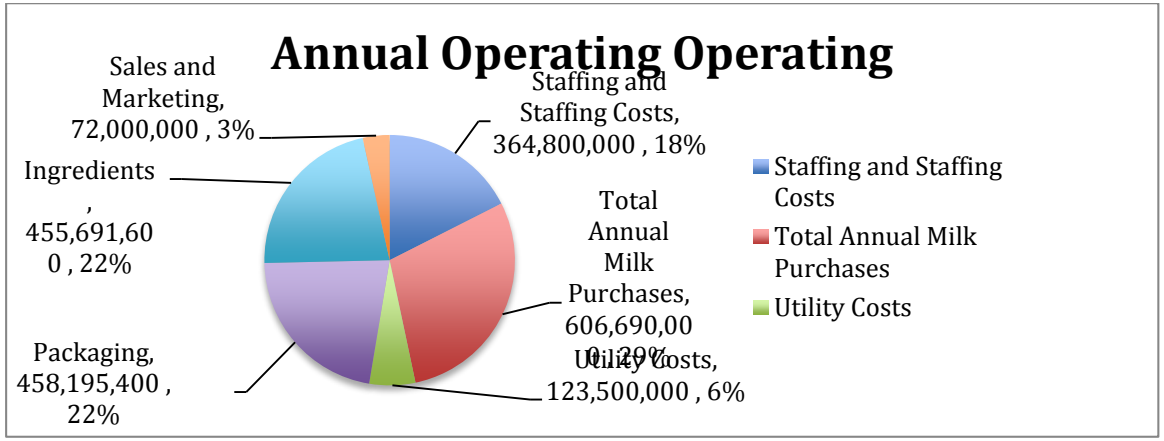
Working Capital requirement per month	224,849,000	15,200,000	22,200,000	16,950,000	16,950,000	251,192,533.33
Total working capital required for 6 mths	547,341,533					

Summary of costs in table and chart form

	Capital Investment
Capital Building Costs	12,607,500
Equipment Capital Costs (purchases)	226,949,000
Total capital costs	**239,556,500**



	Annual Operating
Staffing and Staffing Costs	364,800,000
Total Annual Milk Purchases	606,690,000
Utility Costs	123,500,000
Packaging	458,195,400
Ingredients	455,691,600
Sales and Marketing	72,000,000
Total operating expenses	**2,080,877,000**



Detailed cost tables

Table 1: **Capital Building Costs**

		Rwf		
Main Factory	Number	Cost	Total Cost	
Complete construction of ceiling	1	6,047,500	6,047,500	
Floor drainage in processing area	1	510,000	510,000	
Floor-to-wall coving in processing, packaging and lab areas	1	320,000	320,000	
Wall separating milk receiving and milk processing	1	2,130,000	2,130,000	
Laboratory: Division into Bacteriological and Chemical Labs	1	3,030,000	3,030,000	
Lighting fixtures	1	500,000	500,000	
Windows to be 1 meter above floor in milk receiving area and of 6 mm thick	1	70,000	70,000	
		Total	**12,607,500**	
	W	L	Sq. Meters	
Ceiling calculations				
Processing area	35	10	350	
Laboratory area	6	6	36	
Packaging area	10	17	157	
		Total	**543**	
	Cost per sq. m	**Total Sq. Meters**	**Total**	

Material Costs (laminate ceiling fixtures)	5,000	543	2,713,750	
Timber ceiling materials	5,000	543	2,713,750	
Material costs for lighting	Lumpsum	500,000	500,000	
Labour costs (days) - ceiling	6	10,000	60,000	
Labour costs (days) electrical	4	15,000	60,000	
		Total	**6,047,500**	
Material costs for lighting	Lumpsum	500,000	500,000	
		Total	**500,000**	
Flooring	Unit	Length	Unit cost	**Total**
Coving (cement and other)		200		
Cement	bags	30	10,000	300,000
Labour	days	2	10,000	20,000
			Total	**320,000**
Drainage				**Total**
Cement	bags	10	10,000	100,000
Under ground pipes	meters	100	4,000	400,000
Labour	days	1	10,000	10,000
			Total	**510,000**
Wall separating milk receiving and milk processing				
	W	L	Sq. Meters	
	3.5	10	35	
	cost/sq. mar			
Wall materials	60000	35		2,100,000

Labour	3	10,000		30,000
			Total	**2,130,000**
	W	L	Sq. Meters	
Laboratory Completion	5	5	25	
	cost/sq. mtr			
Wall in lab	60000	25		1,500,000
Other materials	Lumpsum	1,500,000	1	1,500,000
Labour	3	10,000		30,000
			Total	**3,030,000**
Windows to be 1 meter above floor in milk receiving area and of 6 mm thick	10	1	10	
	cost/sq mtr			
Replacement of glass for other material	5000	10		50,000
Labour	2	10,000		20,000
			Total	**70,000**

Table 2:	**Equipment Capital Costs (purchases)**		
		Rwf	
	Number	Unit Cost	Total Cost
Equipment			
Purchase yogurt filling device	1	2,100,000	2,100,000
		Total	**2,100,000**
Other Equipment / Vehicles			
Milk tanker and insulated tank	1	50,000,000	50,000,000
Milk collection/distribution	3	17,500,000	52,500,000
Car	2	17,500,000	35,000,000
Lorry (Fuso or Jac 4 tones)	1	12,500,000	12,500,000
Furniture and office equipment	1	21,000,000	21,000,000
Water filtering and sterilisation system (purification)	1	3,000,000	3,000,000
Change over switch	1	1,500,000	1,500,000
Warehouse shelves	1	14,349,000	14,349,000
Milk cans (stainless steel/aluminium)	400	70,000	28,000,000
		Total	**217,849,000**
		Overall total	**219,949,000**
Fork lift (from year 2)	1	17,500,000	17,500,000
		Total	**17,500,000**
Product Depot			
Depot establishment and cooler	1	7,000,000	7,000,000
		Total	**7,000,000**

Table 3:	Staffing and Staffing Costs				
		Rwf			
	Number	Unit Cost/Month	Total Cost/Month	Number of Months	Total Year (Rwf)
Management and Administration					
Managing Director	1	2,500,000	2,500,000	12	30,000,000
Finance Manager	1	1,500,000	1,500,000	12	18,000,000
Administration and HR Officer	1	800,000	800,000	12	9,600,000
General Maintenance	4	200,000	800,000	12	9,600,000
Milk Procurement (Purchase)					
Farmer Outreach Manager	1	1,500,000	1,500,000	12	18,000,000
Extension Officers	2	1,250,000	2,500,000	12	30,000,000
Milk Quality Technician	2	1,000,000	2,000,000	12	24,000,000
Production Management					
Production Manager	1	1,500,000	1,500,000	12	18,000,000
Laboratory Technician	1	1,500,000	1,500,000	12	18,000,000
Processing Staff	10	1,000,000	10,000,000	12	120,000,000
Stock Advisor	1	1,000,000	1,000,000	12	12,000,000
Processing Maintenance	1	1,000,000	1,000,000	12	12,000,000
Sales/Marketing and Distribution					
Sales and Distribution Manager	1	1,500,000	1,500,000	12	18,000,000
Sales Representative	2	1,000,000	2,000,000	12	24,000,000
Product Depot Staff	2	150,000	300,000	12	3,600,000
		Total Monthly Costs	**30,400,000**		
		Total Annual Costs	**364,800,000**		

Table 4:	Milk Supply				
	Uncommitted Milk Volume (litres/MCC/day)	Purchase from nearest MCCs	Uncommitted milk total that MD buys Zone 1	Uncommitted milk total that MD buys Zone 2	Volume Bought by MD (litres) Zone 1
MCC					
Kinigi (AGIRAGITEREKA)	2,000	Zone 2	-	2,000	-
Muhoza (IWACU ZIRAKAMWA)	1,300	Zone 1	1,300	-	1,300
Bigogwe (UPROCENYA)	2,200	Zone 1	2,200	-	2,200
Mizingo (ZIRAKAMWA-TWICUNDIRE)	600	Zone 1	600	-	600
Mudende (KAMU-ZIRAKAMWA)	1,100	Zone 1	1,100	-	1,100
Bugeshi (KOAIBU-URUMULI)	1,500	Zone 2	-	1,500	-
Gisenyi town (CODERU)	700	Zone 2	-	700	-
Kivu Dairy (CODERU)	2,000	Zone 1	2,000	-	2,000
Arusha (CEMO)	2,000	Zone 1	2,000	-	2,000
Nkomane (CODAMIN)	-	Zone 2	-	-	-
Nyiragikokora (CEZONYI)	1,500	Zone 1	1,500	-	1,500
Nyirabihururu	-	Zone 2	-	-	-
Kinihira (IMANZI RWEMA)	-	Zone 2	-	-	-
Mubuga	1,190	Zone 2	-	1,190	-
Totals	16,090		10,700	5,390	10,700

Table 5:	Production Costs										
	Unit	Rwf Cost per litre	Total milk per day	Availability due to seasonality	Total uncommitted which MD will buy	Days per month	Total volume per month	Total volume per year	Total Cost per month	Mth	Total cost per year
Purchase cost of milk from MCCs (wet season)	litres	175	10,700	100%	10,700	30	321,000	1,926,000	56,175,000	6	337,050,000
Purchase cost of milk from MCCs (dry season)	litres	200	10,700	70%	7,490	30	224,700	1,348,200	44,940,000	6	269,640,000
							545,700	3,274,200	**Total Annual Milk Purchases**		**606,690,000**
	Yr										
Milk volumes increase	2		3	4	5						
		10%	10%	10%	10%						
Wet season	321,000	353,100	388,410	427,251	469,976						
Dry season	224,700	247,170	271,887	299,076	328,983						
		Price increase									

		5%	5%	5%	5%						
Wet season	200	210	221	232	243						
Price increases	175	183.75	192.94	202.58	212.71						
Product	**Unit**	**Proportion of total intake used for product**	**Volume produced per day by Unit**	**Days per month**	**Volume produced per month by Unit**	**Months**	**Volume produced per year by Unit**	**Volume increases each year per product**			
								2	3	4	5
Fermented Milk (wet season)	Litres	65%	6,955	30	208,650	6	1,251,900	229,515	252,467	277,713	305,484
Fermented Milk (dry season)	Litres	65%	4,869	30	146,055	6	876,330	160,661	176,727	194,399	213,839
Pasteurized milk (wet season)	Litres	5%	535	30	16,050	6	96,300	12,359	13,594	14,954	16,449
Pasteurized milk (dry season)	Litres	5%	375	30	11,235	6	67,410	12,359	13,594	14,954	16,449
Butter (wet season)	Kg	1%	107	30	3,210	6	19,260	3,531	3,884	4,27	4,700

										3	
Butter (dry season)	Kg	1%	75	30	2,247	6	13,482	2,472	2,719	2,991	3,290
Drinking Yogurt (wet season)	Litres	30%	3,210	30	96,300	6	577,800	105,930	116,523	128,175	140,993
Drinking Yogurt (dry)	Litres	30%	2,247	30	67,410	6	404,460	74,151	81,566	89,723	98,695
Utility and other recurrent costs	**Unit**	**Total units consumed**	**Price per unit/mth**	**Number of Months**	**Total cost**						
Water	Litres	1	125,000	12	1,500,000						
Electricity	KwH	1	300,000	12	3,600,000						
Fuel	Liters	1,000	1,000,000	12	12,000,000						
Spare parts	Lumpsum	1	2,000,0	12	24,000,						

			00		000						
Communication	Month	1	200,000	12	2,400,000						
OHS (Occupation & Health Service) Equipment	Month	1	2,000,000	12	24,000,000						
Other charges (Insurance and services)	Month	1	2,000,000	12	24,000,000						
Depot rent and operating	Month	1	1,000,000	12	12,000,000						
Stationary	Month	1	20,000	12	240,000						
Collection Costs	Month	1	60,000	12	720,000						
CIP Chemicals, Lab reagents											
Cleaning chemicals	Month	1	250,000	12	3,000,000						
Lab reagents	Month	1	200,000	12	2,400,000						
Laboratory materials	Month	1		12							

			1,000,000		12,000,000						
Annual RSB accreditation application	Lumpsum	1	2,500	12	30,000	http://www.rsb.gov.rw/~rbs/fileadmin/user_upload/files/pdf/RSB_Products_and_Services_Charges.pdf					
Licence Certification (RSB) (milk, yogurt + 4 flavours)	per product	7	67,083	12	805,000	http://www.rsb.gov.rw/~rbs/fileadmin/user_upload/files/pdf/RSB_Products_and_Services_Charges.pdf					
Consultancy and TA	Annual	1	25,000,000	1	805,000						
		Total costs	**35,224,583**		**123,500,000**						
Packaging per Product	**Packaging type**	**Unit**	**Size**	**Cost per packaging type/unit**	**Total Volume**	**Total Cost for Packaging/day**	**Days per month**	**Cost per month**	**Months per year**	**Total Cost per year**	
Fermented Milk	Jerry cans	Litre	1.00	150	6,955	1,043,250	30	31297500	12	375,570,000	
Pasteurized milk	Jerry cans	Litre	1.00	150	535	80,250	30		12		

								2,407,500		28,890,000	
Butter	Tubs	Kg	0.25	45	107	4,815	30	144,450	12	1,733,400	
Drinking Yogurt	Cups	Litre	0.18	45	3,210	144,450	30	4,333,500	12	52,002,000	
					Total costs	**1,272,765**		**38,182,950**		**458,195,400**	
Ingredients	**Units**	**Number of Units per lit**	**Number of Litres**	**Requirements**	**Cost per Unit**	**Total Cost per day**	**Days per month**	**Cost per month**	**Months per year**	**Total Cost per year**	
Culture	Grams	0.02	10700	214	315	67,410	30	2,022,300	12	24,267,600	
Flavorants	litres	0.08	10700	856	1,400	1,198,400	30		12		

								35,952,000		431,424,000	
					Total costs	**1,265,810**		**37,974,300**		**455,691,600**	
Sales and marketing											
	Months	Unit cost/mth	Annual Costs								
Advertising	12	3,000,000	36,000,000								
Promotions	12	3,000,000	36,000,000								
	Total costs	**6,000,000**	**72,000,000**								
Summary											
	Total cost per month	**Total cost per year**									
Utility Costs	35,224,583	123,500,000									

Packaging	38,182,950	458,195,400									
Ingredients	37,974,300	455,691,600									
Sales and Marketing	6,000,000	72,000,000									
Total cost	**117,381,833**	**1,109,387,000**									
Second Year Costs											
Year 1 only - Launch marketing	Lumpsum	7,000,000									
	Total costs	**7,000,000**									
	Unit	Monthly	Months	Annual							
HAACP Certification and retention	1	875,000	12	10,500,000	http://						

					www.infocusmg.com.au/faqs.asp?cid=7&qid=21						
	Total	**875,000**		**10,500,000**							

Table 6:	Loan
Paying Back Altogether in the End	
Loan Amount (Rwf)	547,341,533
Loan Term (mths)	24.00
Annual Interest (mths)	16%
Months per year	12
Monthly interest	1.33%
Monthly payback	22,805,897.22
Total Interest	112,087,335
Total	659,428,868

Monthly Schedule	Beginning Balance	Interest	Principle	Ending Balance
1	547,341,533	7,297,887	15,508,010	531,833,523
2	531,833,523	7,091,114	15,714,784	516,118,740
3	516,118,740	6,881,583	15,924,314	500,194,426
4	500,194,426	6,669,259	16,136,638	484,057,787
5	484,057,787	6,454,104	16,351,793	467,705,994
6	467,705,994	6,236,080	16,569,817	451,136,177
7	451,136,177	6,015,149	16,790,748	434,345,429
8	434,345,429	5,791,272	17,014,625	417,330,804
9	417,330,804	5,564,411	17,241,487	400,089,317
10	400,089,317	5,334,524	17,471,373	382,617,944
11	382,617,944	5,101,573	17,704,325	364,913,620
12	364,913,620	4,865,515	17,940,382	346,973,237
13				

14	346,973,237	4,626,310	18,179,587	328,793,650
15	328,793,650	4,383,915	18,421,982	310,371,668
16	310,371,668	4,138,289	18,667,608	291,704,060
17	291,704,060	3,889,387	18,916,510	272,787,550
18	272,787,550	3,637,167	19,168,730	253,618,820
19	253,618,820	3,381,584	19,424,313	234,194,507
20	234,194,507	3,122,593	19,683,304	214,511,203
21	214,511,203	2,860,149	19,945,748	194,565,455
22	194,565,455	2,594,206	20,211,691	174,353,764
23	174,353,764	2,324,717	20,481,180	153,872,584
24	153,872,584	2,051,634	20,754,263	133,118,321
	133,118,321	1,774,911	21,030,986	112,087,335

Table 7	**Pricing (Rwf)**				
			Unit Price	Price List (unit)	Price per liter
	Container	Qty (lit)	to Distributer	RRP	
UHT Milk		1	661	695	695
UHT milk low fat		1	700	800	800
Low fat		0.5	355	374	748
Pasturised		5	2721	2857	571
Pasturised	jerrycan	3	1723	1810	603
Pasturised	jerrycan	2	1179	1238	619
Pasturised (depot)	dispenser	1	476	400	400
Yogurt (flavoured)	tub	0.4	353	370	925
Ikivuguto (fermented)	jerrycan	2	1350	1500	750
Ikivuguto (fermented)					
Ikivuguto (fermented)	jerrycan	20	10000	11000	550
Source: Inyange Dairy Price List 15-6-2015					
Butter		kg	7000	estimated	

Table: 8 Budget (base)

Table 8:	Budget																		
			Year	1												Year 2	3	4	5
			Mth	1	2	3	4	5	6	7	8	9	10	11	12				
Investment Needed																			
Captial Building Costs				217,849,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment				7,000,000	0	0	0	0	0	0	0	0	0	0	0	17,500,000	0	0	0
Product Depot				0	0	7,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cost				**224,849,000**	**0**	**7,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17,500,000**	**0**	**0**	**0**
Operating Costs (recurrent)																			
	Monthly volume	Price	Months																
Staffing and Staffing Costs		30,400,000	12	0	15,200,000	15,200,000	15,200,000	15,200,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000
Purchase cost of milk from MCCs (wet season)	321,000	175	6	0	0	0	0	0	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	337,050,000	337,050,000	337,050,000	337,050,000
Purchase cost of milk from MCCs (dry season)	224,700	200	6	0	0	0	0	0	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	269,640,000	269,640,000	269,640,000	269,640,000
Membership to professional association (Rwf/liter sold)	545,700	1	12	0	0	0	0	0	545,700	545,700	545,700	545,700	545,700	545,700	545,700	6,548,400	6,548,400	6,548,400	6,548,400
Year 1 only - Launch marketing	7,000,000		4	0	0	0	1,750,000	1,750,000	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0
HAACP Certification and retention	875,000		12													10,500,000	10,500,000	10,500,000	10,500,000
Year 2-5	Monthly volume	Price																	
Wet season	353,100	210	6	0	0	0	0	0	0	0	0	0	0	0	0	444,906,000	0	0	0
Dry season	247,170	184	6	0	0	0	0	0	0	0	0	0	0	0	0	272,504,925	0	0	0
Wet season	388,410	221	6	0	0	0	0	0	0	0	0	0	0	0	0	0	513,866,430	0	0
Dry season	271,887	193	6	0	0	0	0	0	0	0	0	0	0	0	0	0	314,743,188	0	0
Wet season	427,251	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	623,191,513	0
Dry season	299,076	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381,704,802	0
Wet season	469,976	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	685,510,664
Dry season	328,983	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419,875,282
Production Costs				0	0	0	0	0	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	1,109,387,000	1,109,387,000	1,109,387,000	1,109,387,000
Second year																			
Total Recurrent Costs				0	15,200,000	15,200,000	16,950,000	16,950,000	251,192,533	251,192,533	249,442,533	249,442,533	249,442,533	249,442,533	249,442,533	2,480,936,325	2,592,135,018	2,768,421,715	2,868,911,346
Total Costs				**224,849,000**	**15,200,000**	**22,200,000**	**16,950,000**	**16,950,000**	**251,192,533**	**251,192,533**	**249,442,533**	**249,442,533**	**249,442,533**	**249,442,533**	**249,442,533**	**2,498,436,325**	**2,592,135,018**	**2,768,421,715**	**2,868,911,346**
Revenue (sales)																			
Wet Season	Monthly volume	Price	Months																
Fermented Milk	208,650	600	12	0	0	0	0	0	0	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	1,502,280,000	1,502,280,000	1,502,280,000	1,502,280,000
Pasteurized milk	16,050	619	12	0	0	0	0	0	0	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	119,219,400	119,219,400	119,219,400	119,219,400
Butter	3,210	7,000	12	0	0	0	0	0	0	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	269,640,000	269,640,000	269,640,000	269,640,000
Drinking Yogurt	96,300	925	12	0	0	0	0	0	0	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	1,068,930,000	1,068,930,000	1,068,930,000	1,068,930,000
Dry Season	Monthly volume	Price																	
Fermented Milk	146,055	600	12	0	0	0	0	0	0	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	1,051,596,000	1,051,596,000	1,051,596,000	1,051,596,000
Pasteurized milk	11,235	619	12	0	0	0	0	0	0	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	83,453,580	83,453,580	83,453,580	83,453,580
Butter	2,247	7,000	12	0	0	0	0	0	0	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	188,748,000	188,748,000	188,748,000	188,748,000
Drinking Yogurt	67,410	925	12	0	0	0	0	0	0	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	188,748,000	188,748,000	188,748,000	188,748,000
Total Revenue				**0**	**0**	**0**	**0**	**0**	**0**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**
Total Profit (EBITAD)				-224,849,000	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-251,192,533	168,150,632	169,900,632	169,900,632	169,900,632	169,900,632	169,900,632	1,974,178,655	1,880,479,962	1,704,193,265	1,603,703,634
Loan (capital + interest) payments	12			0	0	0	0	0	0	0	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-273,670,767	-68,417,692	0	0
			total	-224,849,000	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-251,192,533	168,150,632	147,094,734	147,094,734	147,094,734	147,094,734	147,094,734	1,700,507,888	1,606,809,195	1,704,193,265	1,603,703,634
Gross Margin				#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	40%	35%	35%	35%	35%	35%	38%	36%	38%	36%
Discount Rate	16%			Total cost for Month 1-6: pre-financing			-547,341,533												
IRR	30%			Contingency	5%		-27,367,077												
NPV	771,716,620			Total suggested			-574,708,610												

Break-even point = fixed costs ÷ gross profit margin	**1.83**

Table: 8 Budget – 30% Increase in Prices of Milk 0ver Base

Table 8:	Budget																		
			Year	1												Year			
			Mth	1	2	3	4	5	6	7	8	9	10	11	12	2	3	4	5
Investment Needed																			
Captial Building Costs				217,849,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment				7,000,000	0	0	0	0	0	0	0	0	0	0	0	17,500,000	0	0	0
Product Depot				0	0	7,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cost				**224,849,000**	**0**	**7,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17,500,000**	**0**	**0**	**0**
Operating Costs (recurrent)																			
	Monthly volume	Price	Months																
Staffing and Staffing Costs		30,400,000	12	0	15,200,000	15,200,000	15,200,000	15,200,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000
Purchase cost of milk from MCCs (wet season)	321,000	228	6	0	0	0	0	0	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	438,165,000	438,165,000	438,165,000	438,165,000
Purchase cost of milk from MCCs (dry season)	224,700	260	6	0	0	0	0	0	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	350,532,000	350,532,000	350,532,000	350,532,000
Membership to professional association (Rwf/liter sold)	545,700	1	12	0	0	0	0	0	545,700	545,700	545,700	545,700	545,700	545,700	545,700	6,548,400	6,548,400	6,548,400	6,548,400
Year 1 only - Launch marketing	7,000,000		4	0	0	0	1,750,000	1,750,000	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0
HAACP Certification and retention	875,000		12													10,500,000	10,500,000	10,500,000	10,500,000
Year 2-5	Monthly volume	Price																	
Wet season	353,100	210	6	0	0	0	0	0	0	0	0	0	0	0	0	444,906,000	0	0	0
Dry season	247,170	184	6	0	0	0	0	0	0	0	0	0	0	0	0	272,504,925	0	0	0
Wet season	388,410	221	6	0	0	0	0	0	0	0	0	0	0	0	0	0	513,866,430	0	0
Dry season	271,887	193	6	0	0	0	0	0	0	0	0	0	0	0	0	0	314,743,188	0	0
Wet season	427,251	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	623,191,513	0
Dry season	299,076	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381,704,802	0
Wet season	469,976	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	685,510,664
Dry season	328,983	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419,875,282
Production Costs				0	0	0	0	0	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	1,109,387,000	1,109,387,000	1,109,387,000	1,109,387,000
Second year																			
Total Recurrent Costs				0	15,200,000	15,200,000	16,950,000	16,950,000	281,527,033	281,527,033	279,777,033	279,777,033	279,777,033	279,777,033	279,777,033	2,662,943,325	2,774,142,018	2,950,428,715	3,050,918,346
Total costs				**224,849,000**	**15,200,000**	**22,200,000**	**16,950,000**	**16,950,000**	**281,527,033**	**281,527,033**	**279,777,033**	**279,777,033**	**279,777,033**	**279,777,033**	**279,777,033**	**2,680,443,325**	**2,774,142,018**	**2,950,428,715**	**3,050,918,346**
Revenue (sales)																			
Wet Season	Monthly volume	Price	Months																
Fermented Milk	208,650	600	12	0	0	0	0	0	0	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	1,502,280,000	1,502,280,000	1,502,280,000	1,502,280,000
Pasteurized milk	16,050	619	12	0	0	0	0	0	0	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	119,219,400	119,219,400	119,219,400	119,219,400
Butter	3,210	7,000	12	0	0	0	0	0	0	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	269,640,000	269,640,000	269,640,000	269,640,000
Drinking Yogurt	96,300	925	12	0	0	0	0	0	0	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	1,068,930,000	1,068,930,000	1,068,930,000	1,068,930,000
Dry Season	Monthly volume	Price																	
Fermented Milk	146,055	600	12	0	0	0	0	0	0	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	1,051,596,000	1,051,596,000	1,051,596,000	1,051,596,000
Pasteurized milk	11,235	619	12	0	0	0	0	0	0	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	83,453,580	83,453,580	83,453,580	83,453,580
Butter	2,247	7,000	12	0	0	0	0	0	0	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	188,748,000	188,748,000	188,748,000	188,748,000
Drinking Yogurt	67,410	925	12	0	0	0	0	0	0	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	188,748,000	188,748,000	188,748,000	188,748,000
Total Revenue				**0**	**0**	**0**	**0**	**0**	**0**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**
Total Profit (EBITAD)				-224,849,000	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-281,527,033	137,816,132	139,566,132	139,566,132	139,566,132	139,566,132	139,566,132	1,792,171,655	1,698,472,962	1,522,186,265	1,421,696,634
Loan (capital + interest) payments	12			0	0	0	0	0	0	0	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-273,670,767	-68,417,692	0	0
			total	-224,849,000	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-281,527,033	137,816,132	116,760,234	116,760,234	116,760,234	116,760,234	116,760,234	1,518,500,888	1,424,802,195	1,522,186,265	1,421,696,634
Discount Rate	16%			Total cost for Month 1-6: pre-financing			-577,676,033												
IRR	**28%**			Contingency	5%		-28,883,802												
NPV	627,592,848			Total suggested			-606,559,835												
Break-even point = fixed costs ÷ gross profit margin	**2.27**																		

Table: 8 Budget – 30% Increase in Construction Costs Over Base

Table 8:	Budget																		
			Year	1												Year			
			Mth	1	2	3	4	5	6	7	8	9	10	11	12	2	3	4	5
Investment Needed																			
Captial Building Costs				283,203,700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment				7,000,000	0	0	0	0	0	0	0	0	0	0	0	17,500,000	0	0	0
Product Depot				0	0	7,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cost				**290,203,700**	**0**	**7,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17,500,000**	**0**	**0**	**0**
Operating Costs (recurrent)																			
	Monthly volume	Price	Months																
Staffing and Staffing Costs		30,400,000	12	0	15,200,000	15,200,000	15,200,000	15,200,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000
Purchase cost of milk from MCCs (wet season)	321,000	175	6	0	0	0	0	0	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	56,175,000	337,050,000	337,050,000	337,050,000	337,050,000
Purchase cost of milk from MCCs (dry season)	224,700	200	6	0	0	0	0	0	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	44,940,000	269,640,000	269,640,000	269,640,000	269,640,000
Membership to professional association (Rwf/liter sold)	545,700	1	12	0	0	0	0	0	545,700	545,700	545,700	545,700	545,700	545,700	545,700	6,548,400	6,548,400	6,548,400	6,548,400
Year 1 only - Launch marketing	7,000,000		4	0	0	0	1,750,000	1,750,000	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0
HAACP Certification and retention	875,000		12													10,500,000	10,500,000	10,500,000	10,500,000
Year 2-5	Monthly volume	Price																	
Wet season	353,100	210	6	0	0	0	0	0	0	0	0	0	0	0	0	444,906,000	0	0	0
Dry season	247,170	184	6	0	0	0	0	0	0	0	0	0	0	0	0	272,504,925	0	0	0
Wet season	388,410	221	6	0	0	0	0	0	0	0	0	0	0	0	0	0	513,866,430	0	0
Dry season	271,887	193	6	0	0	0	0	0	0	0	0	0	0	0	0	0	314,743,188	0	0
Wet season	427,251	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	623,191,513	0
Dry season	299,076	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381,704,802	0
Wet season	469,976	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	685,310,664
Dry season	328,983	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419,875,282
Production Costs				0	0	0	0	0	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	1,109,387,000	1,109,387,000	1,109,387,000	1,109,387,000
Second year																			
Total Recurrent Costs				0	15,200,000	15,200,000	16,950,000	16,950,000	251,192,533	251,192,533	249,442,533	249,442,533	249,442,533	249,442,533	249,442,533	2,480,936,325	2,592,135,018	2,768,421,715	2,868,911,346
Total costs				**290,203,700**	**15,200,000**	**22,200,000**	**16,950,000**	**16,950,000**	**251,192,533**	**251,192,533**	**249,442,533**	**249,442,533**	**249,442,533**	**249,442,533**	**249,442,533**	**2,498,436,325**	**2,592,135,018**	**2,768,421,715**	**2,868,911,346**
Revenue (sales)																			
Wet Season	Monthly volume	Price	Months																
Fermented Milk	208,650	600	12	0	0	0	0	0	0	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	1,502,280,000	1,502,280,000	1,502,280,000	1,502,280,000
Pasteurized milk	16,050	619	12	0	0	0	0	0	0	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	119,219,400	119,219,400	119,219,400	119,219,400
Butter	3,210	7,000	12	0	0	0	0	0	0	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	269,640,000	269,640,000	269,640,000	269,640,000
Drinking Yogurt	96,300	925	12	0	0	0	0	0	0	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	1,068,930,000	1,068,930,000	1,068,930,000	1,068,930,000
Dry Season	Monthly volume	Price																	
Fermented Milk	146,055	600	12	0	0	0	0	0	0	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	1,051,596,000	1,051,596,000	1,051,596,000	1,051,596,000
Pasteurized milk	11,235	619	12	0	0	0	0	0	0	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	83,453,580	83,453,580	83,453,580	83,453,580
Butter	2,247	7,000	12	0	0	0	0	0	0	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	188,748,000	188,748,000	188,748,000	188,748,000
Drinking Yogurt	67,410	925	12	0	0	0	0	0	0	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	188,748,000	188,748,000	188,748,000	188,748,000
Total Revenue				**0**	**0**	**0**	**0**	**0**	**0**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**
Total Profit (EBITAD)				-290,203,700	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-251,192,533	168,150,632	169,900,632	169,900,632	169,900,632	169,900,632	169,900,632	1,974,178,655	1,880,479,962	1,704,193,265	1,603,703,634
Loan (capital + interest) payments	12			0	0	0	0	0	0	0	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-273,670,767	-68,417,692	0	0
			total	-290,203,700	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-251,192,533	168,150,632	147,094,734	147,094,734	147,094,734	147,094,734	147,094,734	1,700,507,888	1,606,809,195	1,704,193,265	1,603,703,634
Discount Rate	16%			Total cost for Month 1-6: pre-financing			-612,696,233												
IRR	28%			Contingency	5%		-30,634,812												
NPV	715,376,361			Total suggested			-643,331,045												
Break-even point = fixed costs ÷ gross profit margin	**1.86**																		

Table: 8 Budget – 30% Increase in Construction Costs Over Base and 30% Increase in Prices of Milk 0ver Base Combined

Table 8:	Budget															Year			
			Year	1												2	3	4	5
			Mth	1	2	3	4	5	6	7	8	9	10	11	12				
Investment Needed																			
Captial Building Costs				283,203,700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment				7,000,000	0	0	0	0	0	0	0	0	0	0	0	17,500,000	0	0	0
Product Depot				0	0	7,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cost				**290,203,700**	**0**	**7,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17,500,000**	**0**	**0**	**0**
Operating Costs (recurrent)																			
	Monthly volume	Price	Months																
Staffing and Staffing Costs		30,400,000	12	0	15,200,000	15,200,000	15,200,000	15,200,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000	30,400,000
Purchase cost of milk from MCCs (wet season)	321,000	228	6	0	0	0	0	0	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	73,027,500	438,165,000	438,165,000	438,165,000	438,165,000
Purchase cost of milk from MCCs (dry season)	224,700	260	6	0	0	0	0	0	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	58,422,000	350,532,000	350,532,000	350,532,000	350,532,000
Membership to professional association (Rwf/liter sold)	545,700	1	12	0	0	0	0	0	545,700	545,700	545,700	545,700	545,700	545,700	545,700	6,548,400	6,548,400	6,548,400	6,548,400
Year 1 only - Launch marketing	7,000,000		4	0	0	0	1,750,000	1,750,000	1,750,000	1,750,000	0	0	0	0	0	0	0	0	0
HAACP Certification and retention	875,000		12													10,500,000	10,500,000	10,500,000	10,500,000
Year 2-5	Monthly volume	Price																	
Wet season	353,100	210	6	0	0	0	0	0	0	0	0	0	0	0	0	444,906,000	0	0	0
Dry season	247,170	184	6	0	0	0	0	0	0	0	0	0	0	0	0	272,504,925	0	0	0
Wet season	388,410	221	6	0	0	0	0	0	0	0	0	0	0	0	0	0	513,866,430	0	0
Dry season	271,887	193	6	0	0	0	0	0	0	0	0	0	0	0	0	0	314,743,188	0	0
Wet season	427,251	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	623,191,513	0
Dry season	299,076	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381,704,802	0
Wet season	469,976	243	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	685,510,664
Dry season	328,983	213	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419,875,282
Production Costs				0	0	0	0	0	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	117,381,833	1,109,387,000	1,109,387,000	1,109,387,000	1,109,387,000
Second year																			
Total Recurrent Costs				0	15,200,000	15,200,000	16,950,000	16,950,000	281,527,033	281,527,033	279,777,033	279,777,033	279,777,033	279,777,033	279,777,033	2,662,943,325	2,774,142,018	2,950,428,715	3,050,918,346
Total costs				**290,203,700**	**15,200,000**	**22,200,000**	**16,950,000**	**16,950,000**	**281,527,033**	**281,527,033**	**279,777,033**	**279,777,033**	**279,777,033**	**279,777,033**	**279,777,033**	**2,680,443,325**	**2,774,142,018**	**2,950,428,715**	**3,050,918,346**
Revenue (sales)																			
Wet Season	Monthly volume	Price	Months																
Fermented Milk	208,650	600	12	0	0	0	0	0	0	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	125,190,000	1,502,280,000	1,502,280,000	1,502,280,000	1,502,280,000
Pasteurized milk	16,050	619	12	0	0	0	0	0	0	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	9,934,950	119,219,400	119,219,400	119,219,400	119,219,400
Butter	3,210	7,000	12	0	0	0	0	0	0	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	22,470,000	269,640,000	269,640,000	269,640,000	269,640,000
Drinking Yogurt	96,300	925	12	0	0	0	0	0	0	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	89,077,500	1,068,930,000	1,068,930,000	1,068,930,000	1,068,930,000
Dry Season	Monthly volume	Price																	
Fermented Milk	146,055	600	12	0	0	0	0	0	0	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	87,633,000	1,051,596,000	1,051,596,000	1,051,596,000	1,051,596,000
Pasteurized milk	11,235	619	12	0	0	0	0	0	0	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	6,954,465	83,453,580	83,453,580	83,453,580	83,453,580
Butter	2,247	7,000	12	0	0	0	0	0	0	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	15,729,000	188,748,000	188,748,000	188,748,000	188,748,000
Drinking Yogurt	67,410	925	12	0	0	0	0	0	0	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	62,354,250	188,748,000	188,748,000	188,748,000	188,748,000
Total Revenue				**0**	**0**	**0**	**0**	**0**	**0**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**419,343,165**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**	**4,472,614,980**
Total Profit (EBITAD)				-290,203,700	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-281,527,033	137,816,132	139,566,132	139,566,132	139,566,132	139,566,132	139,566,132	1,792,171,655	1,698,472,962	1,522,186,265	1,421,696,634
Loan (capital + interest) payments	12			0	0	0	0	0	0	0	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-22,805,897	-273,670,767	-68,417,692	0	0
			total	-290,203,700	-15,200,000	-22,200,000	-16,950,000	-16,950,000	-281,527,033	137,816,132	116,760,234	116,760,234	116,760,234	116,760,234	116,760,234	1,518,500,888	1,424,802,195	1,522,186,265	1,421,696,634
Discount Rate	16%			Total cost for Month 1-6: pre-financing			-643,030,733												
IRR	26%			Contingency	5%		-32,151,537												
NPV	$71,252,590			Total suggested			-675,182,270												
Break-even point = fixed costs ÷ gross profit margin	**2.31**																		

The Rwandan Dairy Competitive Program II

Report as required per Par. 1c of the Consulting Agreement between Land O'Lakes and Consultant dated May 12, 2015.

Project Code: RD2101

Assignment Period: May 16 – June 3, 2015

Purpose of the Assignment:

The assignment will consist of some key activities all of which revolve around the continued promotion of cheese as a product of choice for Rwanda's dairy consumers. The primary activity will be to assist with coordination and implementation of Rwanda's 2nd Annual Cheese Expo and Competition to be held in Kigali on May 28th & 29th. This was a successful and high profile event in 2014. RDCP II will be supporting RNDP to co- host the event with MINICOM in May 2015 to continue to promote visibility of cheese in the end market.

Following the consultant's visit in February 2015 a second dairy processor imported butter making equipment. The consultant will make a short visit to the plant to check on progress and make recommendations as required as production commences in May 2015.

A half-day follow up mozzarella training session for selected cheese makers. Ongoing refresher trainings has been very helpful for cheese processors as they increase their skills in making mozzarella to meet with increasing urban demand for this product.

Support RNDP with a technical presentation to regulatory bodies on requirements to change use of plastics regulation as it pertains to cheese making. This will most likely be to RSB, REMA and or MINICOM in collaboration with cheese processor cluster of RNDP.

Hold a one-day merchandising training for retailers and cheesemakers on presentation and sale of cheese in end markets i.e. supermarkets and retailers.

Half-day planning session with Muhe farm on layout of proposed new dairy plant with construction scheduled to commence mid-2015.

Half-day site visit to Mukamira dairy – a new dairy plant to be operationalised by MINAGRI during 2015. This will be in preparation of a more detailed visit to coincide with financial analyst review of same scheduled during June 2015.

Key Deliverables

1. Rwanda's 2nd cheese expo and competition held and associated preparations completed
2. Merchandising training held for retailers in Kigali
3. Refresher mozzarella training activity held.
4. Site visit to Blessed Dairy to review butter making progress
5. Site visit for familiarization to Mukamira dairy
6. Discussions with Muhe Farm on plans for new factory to be constructed in 2015.
7. Follow up meeting with RNDP and cheese processor cluster to RSB and MINICOM.
8. A written report on above activities

Deliverable 1a - Rwanda's 2nd cheese competition held and associated preparations completed.

The Rwanda Cheese Championship's main objective is to serve as instrument to improve Rwanda cheese quality. Further secondary objectives are:

1. To showcase the quality improvements which has taken place since the start of RDCP II

2. To showcase the larger variety of cheeses currently made in Rwanda

3. To showcase the technical knowledge and skills of the Rwanda cheese makers

4. To create and set quality benchmarks for Rwanda cheeses

The popularity of the 2nd Championships was shown in the fact that the number of cheese makers taking part in this year's competition has increased from 9 to 12. The number of cheeses entered has increased from 23 to 47 – an increase of 104%. For this reason, the number of classes had to be increased from 6 to 12. Two samples of unsalted butter, the first ever made in Rwanda, were also entered. This butter was made as a direct result of the intervention of the RDCP II during training sessions in February 2015.

Many well-known cheeses such as Maasdammer and Paneer are now made and were entered as well as unique Rwanda cheeses with names such as Marcelin and Rukoko.

It was very noticeable during the competition that cheese makers are continuing to make good progress in their efforts to improve the quality, especially in the cases of Gouda, Mozzarella and Feta. Packing of cheeses has also improved satisfactorily. However, the competition also brought to the fore three quality problems, which still exists. These are:

1. Cheeses are marketed too young which results in poor flavour delivery.
2. Poor fermentation management during the making process. This is because of pH meters not used. Some do have meters but these are not in working conditions due to poor maintenance of these sensitive instruments.
3. Too high salt content because of too long brining periods.

These quality issues were pointed out and discussed with the applicable cheese makers during their visit to Kigali for the Cheese Expo.

The following five cheese judges, trained during previous RDCP II programs, were appointed to judge the entries on May 21, 2015:

1. Ms. Denyse Mukamana – RALIS, MINAGRI
2. Ms. Andi Musselwhite – Land O'Lakes

3. Dr. Ossiniel Nshimiyumukiza - MINICOM
4. Mr. Muhatsi Cossam – Promaco
5. Mr. Savio Hakirumurame - RALIS, MINAGRI

Methodology of the Championship.

Sample cheeses and entry forms were delivered to the Land O'Lakes offices on May 18 & 19 to be judged on May 21. Each entry was numbered and catalogued in a Judge's Register in order to make blind judging possible. No discussions about the cheeses were allowed during the judging in order to obtain independent opinions. The scorecard was used and the highest average score of the five judges in a class determined the class winner. The same mathematical method was used to determine second and third places. The scores of the Chief Judge (consultant) were used to monitor those of the judges.

Above: *Cheeses ready to be judged*

Above: Improved cheese packaging

Above: Sample of first butter made in Rwanda

The complete results of the Championships are as follows:

Class name	1st	2nd	3rd
Gouda	Muhe Farm	Gishwati Mountain Farms	Royal Dairies
Cheddar	Muhe Farm	Gishwati Farms	WMPC

Feta	Gishwati Farms - Plain Feta	Gishwati Farms - Feta in Oil	WMPC
Mozzarella	Gishwati Farms	Ingabo Dairy	Blessed Dairy
Fresh Cheese	WMPC - Marcelin	WMPC - Panini	WMPC - Double cream cottage cheese
Semi-hard cheese	Les Caves de l' Abondance - Rukoko	Royal Dairies - St Paulin	Gishwati Farms - St Paulin
Hard cheese	Muhe Farm - Gruyere	Gishwati Farms - Gruyere	Gishwati Mountain Farms – Gruyere
Processed Cheese	Local Cheese Promotion	Only one entry; no 1st prize;	
Unsalted butter	Fromagerie la Reine	Blessed Dairy	
Halloumi	WMPC	Fromagerie Urugero	Gishwati Farms
Goat's milk cheese	Les Caves de l' Abondance - Fromage De Karongi	Les Caves de l' Abondance – Karongi Fresh	Les Caves de l' Abondance - Cavabon chilli
Ricotta	Gishwati Farms	WMPC	Fromagerie Urugero

WMPC = Western Milk Processing Cooperative

Special prizes:

Best Cheese on Show	Mozzarella – Gishwati Farms
Cheese maker of the Year	Mr. Emmanuel Kageruka – Gishwati Farms
Runner up: Cheese maker of the Year	Mr. Danny Twagiramungu – Muhe Farm

The Championship Prize giving event took place on the evening of May 28, to coincide with the first day of the Cheese Expo and was well attended by partners in the RDCP II and other role players. Remarks were made by Mr. Frank O'Brien,

Chief of Party, RDCP II; Ms. Florence Umurungi, Chairperson, Rwanda National Dairy Platform; Ms. Fina Kayisanabo, Agribusiness Specialist, USAID and Mr. Alex Ruzibukira, Director General Industry and SME's.

Above: l.*t.r. Emmanuel Kageruke, Gishwati Farms, Cheese maker of the Year; Mr. Alex Ruzibukira and Danny Twagiramungu, Muhe Farm, Runner-up Cheese maker of the Year.*

Invitation to the Prize giving Ceremony and an example of a certificate are attached as Annexures D & E

Brochures, with the profiles of the 12 cheese makers exhibiting at the Expo, were handed to the invited guests. An example of this is attached as Annexure B.

Deliverable 1b - Rwanda's 2nd cheese expo held and associated preparations completed.

The 2nd Rwanda Cheese Expo was staged at the entrance to the Kigali City Tower; a busy complex housing offices and a shopping mall. Because of the excellent site, many more visitors visited the Expo compared to 2014 and the 12 exhibiting cheese makers were kept busy at all times handling tastings, explaining and selling their cheeses. An added attraction was a professional chef displaying the versatility of

using cheese as an ingredient in food. The stall attracted many visitors who tasted the various tasty food items.

The recipe pamphlet handed out to visitors is attached as Annexure C

Above: *Visitors tasting foods with cheese as an ingredient*

Above: *Gishwati Farms with their attractive range of cheeses*

Above: *Visitors tasting cheeses*

The publicity for the Cheese Expo covered both print and electronic media and below a list of publicity items:

1. 1 000 Flyers handed out on busy streets one day before the start
2. 6 Front-page newspaper advertisements during the preceding seven days. An example is attached as Annexure A.
3. A radio interview two days before opening day on a popular society radio station.
4. 32 Radio jingles in English and Kinyarwanda during the preceding week
5. 6 Street banners at busy roundabouts. See Annexure F.

Deliverable 2 - Merchandising training held for retailers in Kigali

The training of supermarket personnel handling dairy products and marketing staff of cheese makers took place on the morning of May 22 at the RDCP II offices. The group included 15 persons from supermarkets and 4 marketing staff from cheese makers. The training consisted of the following:

1. The history of cheese making
2. Manufacturing processes of cheese
3. The different cheese categories, which included tastings of samples from each category.
4. The uses of cheese by consumers and the catering trade

5. Receiving, storing and merchandising of dairy products with special reference to cheese. The focus was on preventing losses through proper handling, attractive displays to enhance customers satisfaction and increased sales.

The training also included:

1. Showing examples of current cheese displays in Rwanda supermarkets compared to the correct manner to merchandise cheese.
2. Answering questions, which supermarket personnel regularly receive from customers.

An impromptu visit on 05/27/2015 to Woodlands supermarket, whose staff attended the training, showed a much-improved display of dairy products and staff merchandising cheeses in the correct way.

Above: *Supermarket staff training*

Deliverable 3 - Refresher mozzarella training activity held

The mozzarella refresher training took place on Monday May 25, at Fromagerie la Reine, Rubavu. Cheese makers already making mozzarella as well as those who want start making it attended the training. Below a list of attendees:

#	NAME OF PARTICIPANT	INSTITUTION
1	NDAYAMBAJE Emmanuel	URUGERO
2	NIYOYITA P Claver	URUHONGORE
3	ISHIMWE Thierry	URUHONGORE
4	MUNEZERO Emmanuel	WMPC
5	MUGISHA Claude	LA REINE
6	NZABONIMPA Bashar	GISHWATI FARM
7	KAGERUKA Emmanuel	GISHWATI FARM
8	WAWERU Daniel	INGABO DAIRY
9	NYIRAMUGISHA Engelique	LA REINE
10	TWAGIRAMUNGU Danny	MUHE FARM
11	IYAKAREM Francois	URUHONGORE

In order to show the detail of every manufacturing step, only 60 litres of milk was processed in an artisan way, using an improvised bain marie. Consultant supplied the correct fast fermenting thermophylic culture and calcium chloride for proper coagulation. Daniel WAWERU from Ingabo Dairy, who attended previous mozzarella training, was asked to act as team leader and translator, a task he performed very well. A number of the newcomers were allocated different process tasks in order to expose them to the different processes.

The importance of correct and continuous acid development to obtain a stretchable curd was stressed and demonstrated towards the end of the process.

Above: *Cutting the curd for stretching*

Above: *A good stretch was achieved*

Currently 8 cheese makers manufacture and sell mozzarella; in January 2013, nobody made it. The popularity of this cash-cow cheese is demonstrated by Gishwati Farms who sells 1 720kg per month to a chain of 3 pizza shops.

Deliverable 4 - Site visit to Blessed Dairy to review butter making progress

Blessed Dairy was visited on Wednesday May 27 and two churns of salted and unsalted butter were made together with the production staff. The Indian manufactured Cowbell 40 litre churn is not of very good design with a deep oblong chamber and small agitation paddles. For this reason, it takes 25 – 30% longer to complete the churning process. However, good commercial butter can be made with this churn.

First, 20 litres of fresh cream (pH6.65) was churned for unsalted butter and although the butterfat content was not known, butter with a good firm texture and clean flavour was made. Mr. Milton Ngirente, owner, and Moses Kioko, production manager, were advised how to dilute a sample of cream in order to use their Lactoscan meter which can only read a maximum of 8% butterfat.

Above: *40 L Cowbell butter churn*

Blessed Dairy is in the middle of major alterations to its premises to process larger volumes of milk into yogurt and mozzarella. The owner has recently been to Hungary to view a yogurt-filling machine. A recently installed mozzarella stretcher, the same as installed at Muhe Farms, unfortunately has the same faulty design as that of Muhe Farms. The hot water valve at the bottom of the vessel is of poor design and the hot water is streaming out as fast as it is put in.

Above: *Leaking mozzarella stretcher*

Above: *Poor design of hot water valve causing water to flow out of vessel chamber*

A new marble chip floor has been laid in the processing room but unfortunately, the contractor did not make provision for any slope towards the single floor outlet. The photos below show the very unsatisfactory pools of effluent standing in the processing room. This fault could only be rectified if the complete floor is redone – a prime example of an unfit contractor.

Above: *Stagnant effluent in the processing room*

Deliverable 5 – Site visit for familiarization to Mukamira dairy

Mukamira Dairy was visited on May 26 but unfortunately, no official from MINAGRI was available to accompany consultant through the processing plant.

The buildings are practically complete with workers completing minor tasks such a fitting ceilings and doors. It is a spacious building with an ample processing area.

Consultant will work closely during June 8 – 17, 2015 with a financial analyst to carry out a detailed review of the current business plan for Mukamira Dairy as prepared by BDF.

Deliverable 6 - Discussions with Muhe Farm on plans for new factory to be constructed in 2015.

Two meetings were held with Mr. Danny Twagiramungu, owner of Muhe Farm and the proposed floor plan is attached as Annexure. This proposed floor plan was discussed in detail and was accepted by Mr. Twagiramungu.

Brochures and a quotation for a Henkelman Jumbo 30 vacuum system were supplied, as requested by Mr. Twagiramungu.

Mr. Twagiramungu would need further technical and building advice when the equipment is ordered and the building started.

Deliverable 7 - Follow up meeting with RNDP and cheese processor cluster to RSB and MINICOM

A written proposal from the Chairperson of RNDP to Dr. Rose Mukankomeje, Director General, Rwanda Environmental Management Authority, dated 02/19/2015 and attached to consultant's February 2015 report, was referred by Dr. Mukankomeje to the Director General, Rwanda Standards Board (RBS) for a decision. This communication explained the inability of the approved oxo-biodegradable materials to be used for vacuum packing of cheese and proposed multi-layered barrier materials for the application.
A meeting with Dr. Mark Cyubahiro Bagabe, Director General, Rwanda Standards Board and 2 colleagues took place on May 19. RNDP was represented by Ms. Florence Umurungi, Chairperson and Dr. John Musemakweli, Executive Director whereas RDCP II was represented by Mr. Frank O'Brien, Chief of Party, Mr. Dennis Karamuzi, Deputy Chief of Party, Mr. Shukuru Mizimungu and consultant.

Dr. Bagabe offered his understanding of the packaging problem faced by the cheese makers but pointed out that the approval, or not, of this proposal does not rest with the RBS. After a thorough discussion of the packaging challenges facing the dairy industry, it was agreed that RNDP should approach MINICOM for a final decision. Meanwhile, it has been noticed that Rwanda cheese makers have started using the multi layered barrier bags to improve the appearance and shelf life of their cheeses. It remains to be seen how the authorities will react to this practice but it is hoped that it will be in an understanding way.

Observations & Recommendations

1. After analising the quality and/or defects of the cheeses entered for the Championships, it became clear that the majority of cheese makers have benefited from the assistance afforded to them under the RDCP II. These now produce good commercial quality cheeses. However, a few of the

cheeses stand out due to their defects and it is suggested that the following cheese makers be given further training and technical assistance.

1.1 The six factories of the Western Milk Processing Cooperative

1.2 Gishwati Mountain Farms

1.3 Fromagerie Urugero

1.4 Local Cheese Promotions Limited

2. Effective and attractive packaging of cheese remains an issue but good progress has been made and it is suggested that cheese makers continually be reminded to improve it.
3. The 2015 Cheese Awards and Expo has been a success and there is no doubt that the cheese makers have benefited from these events. Not only has the quality of their cheeses improved but also the public is more aware of cheeses as a food and food ingredient. It is suggested that these events be repeated in 2016 after which it is hoped that the RNDP will continue to support it.
4. It is disappointing to notice how a few cheese makers have to struggle with ineffective equipment and it is suggested that they be warned against poor advice and the purchasing of equipment, which they have no working knowledge.
5. The Rwanda National Dairy Platform has an important role to play in the structuring and organizing of the local dairy industry. It is suggested that it be given all the support and advice possible. It is advisable that MINICOM, MINAGRI and RNDP work together to grow and empower the dairy industry into a country and regional industry.

Compiled by: Kobus MULDER

4 June 2015

Annexure A

cheese expo 2015

SHOWCASING RWANDA'S CHEESES

28-29, MAY @ KCT ENTRANCE
9am - 9pm

Free!!

Please come and discover Rwanda's growing range of delicious cheeses

USAID

Rwanda Dairy Competitiveness Program II

The New Times

No. 3684 Kigali, Monday, May 18, 2015

RWANDA'S LEADING DAILY

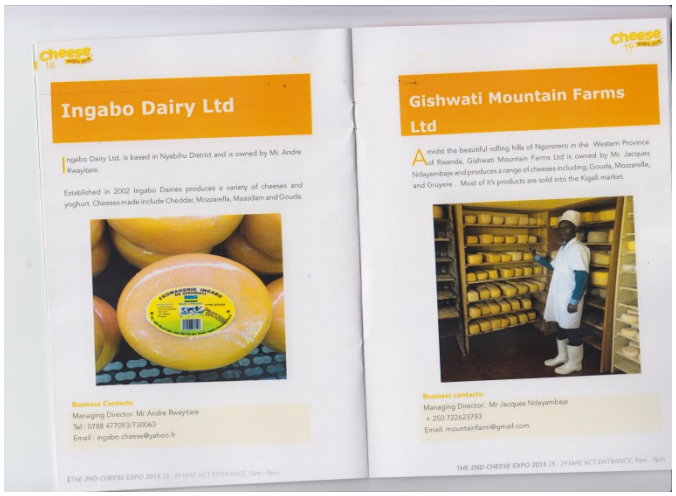
PRICE: RWF 700, USHS 1,500, KSHS 100, FBU 1,400

Healthy Times

DEALING WITH BURNS AND SCALDS

AG report: RSSB defends investments

Annexure B



Cheese 18

Ingabo Dairy Ltd

Ingabo Dairy Ltd. is based in Nyabihu District and is owned by Mr. Andre Rwayitare.

Established in 2002 Ingabo Dairies produces a variety of cheeses and yoghurt. Cheeses made include Cheddar, Mozzarella, Maasdam and Gouda.

Business Contacts
Managing Director: Mr Andre Rwayitare
Tel : 0788 477093/730063
Email : ingabo.cheese@yahoo.fr

THE 2ND CHEESE EXPO 2015 28 - 29 MAY, KCT ENTRANCE, 9am - 9pm

Cheese 19

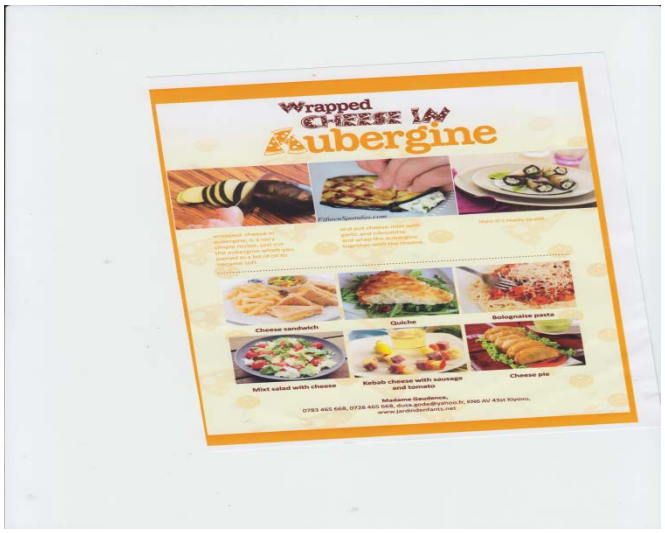
Gishwati Mountain Farms Ltd

Amidst the beautiful rolling hills of Ngororero in the Western Province of Rwanda, Gishwati Mountain Farms Ltd is owned by Mr. Jacques Ndayambaje and produces a range of cheeses including, Gouda, Mozzarella, and Gruyere . Most of it's products are sold into the Kigali market.

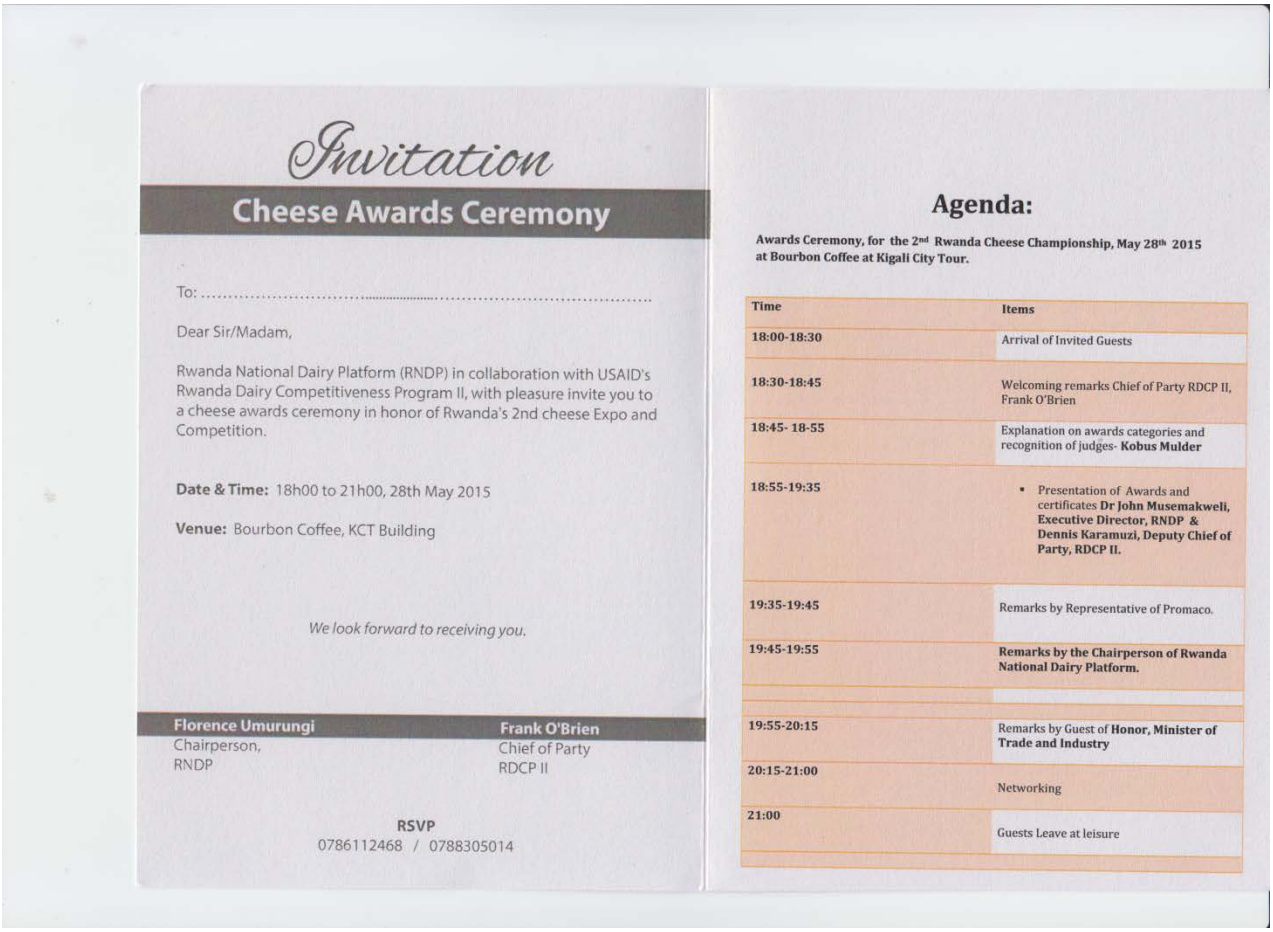
Business contacts:
Managing Director: Mr Jacques Ndayambaje
+ 250 722623783
Email: mountainfarm@gmail.com

THE 2ND CHEESE EXPO 2015 28 - 29 MAY, KCT ENTRANCE, 9am - 9pm

Annexure C



Annexure D



Invitation

Cheese Awards Ceremony

To: .....

Dear Sir/Madam,

Rwanda National Dairy Platform (RNDP) in collaboration with USAID's Rwanda Dairy Competitiveness Program II, with pleasure invite you to a cheese awards ceremony in honor of Rwanda's 2nd cheese Expo and Competition.

Date & Time: 18h00 to 21h00, 28th May 2015

Venue: Bourbon Coffee, KCT Building

We look forward to receiving you.

Florence Umurungi
Chairperson,
RNDP

Frank O'Brien
Chief of Party
RDCP II

RSVP
0786112468 / 0788305014

Agenda:

Awards Ceremony, for the 2nd Rwanda Cheese Championship, May 28th 2015 at Bourbon Coffee at Kigali City Tour.

Time	Items
18:00-18:30	Arrival of Invited Guests
18:30-18:45	Welcoming remarks Chief of Party RDCP II, Frank O'Brien
18:45- 18-55	Explanation on awards categories and recognition of judges- **Kobus Mulder**
18:55-19:35	• Presentation of Awards and certificates **Dr John Musemakweli, Executive Director, RNDP & Dennis Karamuzi, Deputy Chief of Party, RDCP II.**
19:35-19:45	Remarks by Representative of Promaco.
19:45-19:55	**Remarks by the Chairperson of Rwanda National Dairy Platform.**
19:55-20:15	Remarks by Guest of **Honor, Minister of Trade and Industry**
20:15-21:00	Networking
21:00	Guests Leave at leisure

Annexure E

CERTIFICATE OF AWARD

RWANDA 2nd CHEESE CHAMPIONSHIP 2015

SPECIAL AWARDS

CHAMPION CHEESE MAKER 2015

AWARDED TO

Emmanuel Kageruka - Gishwati Farms

Trophy and Certificate

Frank O' Brien
Chief of Party

Kobus Mulder
Cheese Judge

USAID FROM THE AMERICAN PEOPLE
LAND O'LAKES, INC. INTERNATIONAL DEVELOPMENT
ABS
RNDP

Rwanda Dairy Competitiveness Program II

Annexure F

cheese
expo 2015
SHOWCASING RWANDA'S CHEESES
28-29, MAY @ KCT ENTRANCE
9am -9pm
Free!!
Please come and discover Rwanda's growing range of delicious cheeses
USAID
LAND O'LAKES, INC.
RDB
RNDP
Rwanda Dairy Competitiveness Program II

Annexure G

NB The orientation of this page should be changed to landscape to view the complete floorplan.