

# NEADAP SNV-TIDE QUALITY BASED MILK PAYMENT SYSTEM



**UGANDA MISSION REPORT**  
31 January - 3 February 2023

NEADAP SNV-TIDE QUALITY BASED MILK PAYMENT SYSTEM PROGRAM  
UGANDA MISSION REPORT

**Authors**

Dr. Catherine Kilelu, Philip Oketch

# Contents

1.	Foreword	4
1.1	SCOPE OF NEADAP – SNV TIDE LEARNING VISIT	4
1.2	ACKNOWLEDGEMENTS	4
2.	Background	5
3.	Summary of Lessons Learnt	5
4.	Introduction to Uganda Dairy	5
4.1	NTUNGAMU DAIRY FARMERS COOPERATIVE UNION (NDAFUCO)	6
4.2	PEARL MODEL FARM	7
4.3	PEARL DAIRY	8
4.4	SANATO	9
4.5	DAIRY DEVELOPMENT AUTHORITY (DDA)	10
4.6	DISTRICT HEAD OF PRODUCTION AND MARKETING	11
4.7	RUBYERWA DAIRY INVESTMENT LTD (RDI)	11
4.8	NATIONAL AGRICULTURAL RESEARCH ORGANIZATION (NARO)	12
4.9	POLLY MUSIIME FARM	13
4.10	MISSION CONCLUSION	13
5.	The Netherlands East Africa Dairy Partnership (NEADAP) Study Tour to Mbarara	15

# 1. Foreword

## 1.1 SCOPE OF NEADAP – SNV TIDE LEARNING VISIT

The QBMPS learning visit included participants' visits to dairy companies and dairy farms, learning practical dairy training centres, research institutes & dairy development authorities creating business linkages among the following dairy actors: -

Company / Dairy Actor	Activity/objective
Ntungamu Dairy Farmers Cooperative Union (NDAFCO)	The organization of the Union and its role in QBMPS
Pearl model farm	Fodder, animal nutrition
Pearl Dairy	QBMPS and Extension
SANATOS	QBMPS – Parameters
Dairy Development Authority	Regulations
Practical Dairy Training Centre (Rubyerwa Dairy Investment Ltd)	On-farm training
National Agricultural Research Organization (NARO)	Research and fodder technologies

## 1.2 ACKNOWLEDGEMENTS

We sincerely thank the stakeholders who spent their valuable time and effort making the NEADAP-QBMPS 2023 learning visit to Uganda successful, from idea development to implementation. This was SNV-TIDE and NEADAP planned and funded the learning visit, whose continued support for the performance of QBMPS is highly acknowledged.

We thank NEADAP through Marco Streng, the regional coordinator, and SNV- TIDE through Martin Dejong for sponsoring the mission and logistical planning.

We thank Dr.Catherine, Stephen, Dr. Paul, and Charles for their support in planning, working for long hours passionately, and ensuring that the mission was worth every minute spent in South West of Uganda.

We thank host companies, government institutions, consultants, and hosts of the places visited; NDAFCO, Pearl Dairy, SANATOS, National Agricultural Research Organization (NARO), and DDA.



*Photo 1: Kenyan, Rwandese, Uganda team & Martin*

We thank our host farms, Pearl model farm, Rubyerwa dairy investment limited (RDI), and forage demonstration plots for their hospitality, training, and sharing of valuable farm data.

We thank Abyssinia director, madam Catherine for her effort to reach Uganda during the field learning visit and benchmark at Pearl dairy and SANATOS cheese-making company.

## 2. Background

The Inclusive Dairy Enterprise (TIDE) project by the Netherlands Development Organisation (SNV), in partnership with the Ugandan Dairy Development Authority (DDA), has piloted and is scaling a Quality Based Milk Payment System (QBMPS) in the Mbarara district of Uganda since 2016. QBMPS is a part of TIDE's wider goal of supporting dairy development in Uganda. There has been growing interest in the sector, from piloting with three processors to scaling up the system to over ten processors.

In 2018, the Netherlands East Africa Dairy Development (NEADAP) project was established to exchange knowledge and experience to tackle current challenges and leverage further development in East African Dairy. QBMPS was identified as one of the innovative areas for exchange, building on the experience in Uganda. Kenya being one of the focus countries of NEADAP and a key dairy producer country in the region offers an opportunity to leverage the experience of Uganda. As a starting point to implement QBMPS, a learning visit was organized in Uganda with Abysinia, a selected processor in Kenya that needs to integrate QBMPS into its business.

## 3. Summary of Lessons Learnt

### **I) Availability of grazing field**

Farmers visited indicated to have an advantage of large acreage of land under pasture. The two farms visited practiced an open-field grazing system, which is being practiced in the entire region. The system makes the cost of production per litre of milk lower than the cost per litre of production in Kenya.

### **II) Relatively low cost of milk production per litre**

The cost of production per litre of milk is relatively lower than in Kenya due to the vast tracks of grassland that are easily accessible. Most farmers practice semi-intensive systems, where they graze in the fields during the day and give silage or concentrate during milking time.

### **III) Public-private partnership**

There is good synergy within the private-public partnership, for instance, the Dairy Development Authority, Uganda's national research organization, SNV-TIDE, cooperative societies, and farmers.

### **IV) Quality-based milk payment system is processor-led (QBMPS)**

QBMPS is processor led. Different processors visited had their parameters that they looked into; for instance, SANATOS were keen on butter fat above 3.5% and paying farmers a flat rate based on that, unlike Pearl dairies, which had many parameters that they were looking into.

## 4. Introduction to Uganda Dairy

The Uganda dairy sector is experiencing a transformative process. From a self-contained market (with hardly any export and limited imports), Uganda has suddenly emerged as a leading dairy exporter in Africa. Farmers are responding to increased milk prices at the farm level by shifting from a 'low input – low output' farming system to a semi-intensive grazing regime.

Since October 2015, SNV has implemented The Inclusive Dairy Enterprise (TIDE) project in Southwestern Uganda with funding from the Embassy of the Kingdom of the Netherlands (EKN). The project's overall goal is to deepen and up-scale dairy sector transformation by supporting farmers and service providers with the requisite knowledge and skills to reap from their investments. Phase 1 of the project, which ended in December 2019, supported farmers in transitioning to semi-intensive production by creating a commercial input market in knowledge (training, extension), products, technical services, and finance (credit). In November 2019, the project received additional funding from EKN to implement phase II, which will run until 2023.

#### Business opportunities

- ❖ Milk and milk products export (UHT milk, milk powder, cheese, etc.)
- ❖ Farm management, consultancy, and training at the model farm and PDTC
- ❖ Livestock trading in East Africa /Africa (Ankole cows)

### 4.1 NTUNGAMU DAIRY FARMERS COOPERATIVE UNION (NDAFUCO)

On day one of the visits, after the introductions at Lakeview hotel, we visited Ndafuco. During the visit, we met the board of directors and the manager. The team comprised SNV–TIDE staff and Kenyan and Rwanda delegations. The board and the manager took us through structures, the genesis of the Union, and the role of development partners as far as QBMPS is concerned

#### ***i. About Ndafuco***

Ndafuco came into existence in 2003 to market farmer's milk when Uganda cooperation was collapsing, and they feared the effects of exploitation by brokers. Other partners came in with a helping hand; the partners were Land O' lakes and SNV-TIDE. Ndafuco started with three cooperatives in 2003 and currently has 25 cooperatives collecting 60,000 litres daily with 1700 active farmers. Each farmer produces an average of 5 litres per cow per day. They sell their milk to Pearl Dairy's Ltd at an average of USH 950, deduct UGSH 150 for operations, and pay farmers UGSH 800, which translates to KSH23.4 per litre.

#### ***ii. Role of SNV-TIDE***

- SNV-TIDE helped by giving out an extension service to farmers on total dairy management, which changed the attitude of farmers and saw dairy farming as a business
- They also advised on production and fodder

### *Services offered by the Union*

- They collect bulk and sell milk on behalf of their farmers.
- They offer loans to their members at an interest cost of 2%, reducing the balance. They were getting their money from banks but realized they were paying banks a higher interest rate. To curb that, they devised a method of farmers contributing 2 litres each as their capital base. So far, they have raised UGSH500, 000,000 which they plan to loan its members at an interest of 1%.
- They issue drugs and concentrate on a check-off system for farmers.

### **iii. Youth and Gender**

The Union has embraced youths and gender by employing youth members of the Union. Some of them are also incorporated into the board.

### **iv. Challenges of QBMPS:**

- Award of individual farmers

Since milk is bulked at the collection centres for all the farmers and from that source, samples are drawn for analysis based on the set parameters before delivering to the Pearl dairy processor. Awarding individual farmers is difficult since analysis is done for collective farmers.

- Indigenous Ankole breeds versus Friesian cows

There are two sets of farmers, keeping the indigenous Ankole and the Friesian cows. Ankole cows give milk with higher butter fat content, while exotic has less butter fat content. Therefore, they find it to be unfair to pay farmers with indigenous cows, better prices than those with exotic breeds, yet they are the majority of farmers who produces a lot of milk due to their better breeds

- Competition.

Immediately they start segregating payments, and some of the farmers may leave the Union and start supplying to their competitors, which will be a loss to the Union.

## **4.2 PEARL MODEL FARM**

This private farm sits on over 100 acres of land but is supported by the Union. The support includes the provision of an extension officer attached to the farm from Pearl dairy through the Union. The processor fully pays the extension officer. The farm produces around 600 litres of milk daily and has a calving interval of 12-15 months.

The farm has crossbreeds of second and third-generation dairy cows plus Ankole beef cows.

**Lesson learnt;**

- The extension in the farm is practising a natural pasture management system, where they uproot unwanted crops or pastures, spot spray, and apply urea to the natural pasture in the field. The natural pastures are indigenous brachiaria and Kikuyu grass.
- The Pearl dairy is trying to cluster 100 commercial farmers attached to one extension officer with a target of each farmer to produce 1000 litres of milk per day
- The farm feeds its lactating cows on maize silage which acts as the dairy meal. They don't do dairy meal because it's expensive based on the price per litre that they are being paid

**4.3 PEARL DAIRY**

Pearl dairy is one of the largest milk processors in Southwestern Uganda. The processing plant construction began in 2011, and its operation started in 2013. They collect milk within a radius of between 15 to 75 km. The total milk intake is between 300,000 to 400,000 per day. They process UHT, milk powder, yogurt, and ghee, of which 50% of its intake goes to UHT.

During the six months pilot, they started with four cooperatives with set parameters as shown below;

- I. Alcohol test 80%
- II. Density < 0.28
- III. Water 0.01
- IV. Plastic nil
- V. Resazurin test <4
- VI. Fat > 3.8
- VII. SNF >8.5

*Photo 2: Photo: Shows Kenyan team with M.D pearl dairy third from right the extension manager fourth from left and Abyssinia director second from right.*



Milk samples were collected at the collection centres in sample bottles of 100mls, and a tablet was added to the milk sample. Its work is to inhibit the growth of microbial load but allow the analysis of other parameters. Pearl dairy has segregated its farmers into commercial dairy farmers and smallholder farmers. The smallholder farmers are 13, but the Dairy wants to push the number to 700. To qualify as a commercial dairy farmer, they should have over 20 cows and over 48 acres of land for dairy farming. The processor has assigned the commercial dairy farmers with an extension officer to advise them, and in the next two years, they should produce between 1000 to 2000 litres per day.



On quality, the processor has a laboratory where samples are tested with codes on them. The results are shared between the quality team and extension officers for follow-up and farmer advisory in case of an emerging issue to be addressed.

### ***Effects of QBPS***

- Increment in average milk production per farmer from 4.5 litres per day in 2018 to 5.8 litres per day in 2022
- Reduction in tick-borne diseases
- Reduction milk rejects due to adulteration
- Increase in land under fodder from 300 acres in 2018 to 1095 acres in 2022
- Increment in milk butter fat and SNF content percentage

## **4.4 SANATOS**

Sanatos is a cheese manufacturing company that produces eight varieties of cheese, and it has its market in Kenya, Uganda, Tanzania, and Rwanda.

### ***Model on QBMPS***

- The process is processor oriented
- The processor has identified parameters to be checked, which are SNF, FAT, water, and alcohol
- If the farmers' milk passes the test, they are paid a premium price which is UGSH 200 above the standard price
- They procure milk from cooperatives, farmers, or vendors, and they receive 4000 litres in a day. The cooperatives supply them with 2000 litres daily, while the rest comes from vendors and farmers. The only problem with vendors is that they don't test their milk during collection, which is tested and analyzed upon reaching the factory.
- Why QBMPS for SANATOS?  
It's cheaper for cheese processing because if the processor uses 12 litres for making 1 kg of cheese, they will use 8 litres and save on 4 litres.

### ***Waste utilization***

They sell 20 litres of jerricans of whey at UGSH 500 for those who are keeping pigs

### ***Role of SNV***

They have offered extension services

### ***Role of Dairy Development Authority (DDA)***

They have helped in abolishing plastic jerricans

Every six months, they carry out a factory audit and carry out two samples for analysis

## **Challenges**

- Most people don't know cheese
- Fluctuation of milk prices affects their production
- High cost of importation of ingredients for cheese making
- Standardization standards set by the government are not realistic
- A lot of regulations by six different bodies of the government require them to have six licenses

## **4.5 DAIRY DEVELOPMENT AUTHORITY (DDA)**

We visited DDA in the Southwestern region of Uganda. DDA is a government body under the Ministry of Agriculture.

### ***Role of DDA in QBMPS***

- Development of the dairy industry
- Regulation of quality and safety
- They inspect firms, collection centres, coolers, and chillers
- They offer licenses
- They carry out sample testing for raw milk
- They have a mobile laboratory
- They provide pasture seeds and chaff cutters through the district to farmers
- They train and issue certificates to processors
- They inspect milk tankers and give quality stickers of DDA
- DDA and SNV-TIDE piloted QBMPS and extended it to other regions. They used solar-powered milk analysers. They analysed milk composition and freshness (alcohol). Those that surpassed the standards were paid bonuses.

### ***Role of DDA in the school feeding program***

In Uganda, this is a program that the parents fund on a termly basis. Each learner takes between 90 ml – 200 ml per day. The milk is added to porridge for the targeted age group of between 3 to 14 years. The program is practised in over 15000 schools with a population of over 800,000 learners, but the target is over 1 million learners in southwestern Uganda, which has 30 districts.

- Enrolment in the schools increased as the program attracted them
- Absenteeism reduced on either health or normal absenteeism reduced
- Concentration at school increased
- DDA ensures the quality and safety of milk collected at collection centres and milk supplied to the schools

- Train teachers and kitchen staff on quality and techniques of testing on milk adulteration and freshness and also equip them with the necessary equipment
- DDA keeps quality records and carries out spot checks

Three parties play it: the parents, the district task team, and the school management committee. The parents make sure that they pay for the feeding program while the district task team mobilizes the school management committee develops the school kitchen and stores and make sure that there is clean water.

#### 4.6 DISTRICT HEAD OF PRODUCTION AND MARKETING

1. It coordinates production activities in line with its mission and vision. They also have an MOU with SNV-TIDE.

##### **Role of SNV**

- Capacity building of veterinary staff.'
  - Capacity building on pasture and nutrition
  - Capacity building on identified farmers
  - SNV is part of the district production committee that meets quarterly
2. They organize competitions in agricultural shows
  3. They support establishing pastures on acres in the community
  4. They support implementing a school feeding program
  5. They support demonstration farm pieces of training.
  6. They have a district laboratory for animals and soil testing

#### 4.7 RUBYERWA DAIRY INVESTMENT LTD (RDI)

RDI is a family business managed by a coordinator, a general manager, and seven boards of directors composed of children and their mothers. The farm uses a pay and learns model, where farmers pay for the services; they have trained/influenced over 800 farmers from Uganda, Kenya, Nigeria, and Ethiopia. The onboard training costs UGSH500, 000 while day scholars pay UGSH250, 000 for a five days training period.



*Photo 3: Shows group photo at the farm*

#### **The core activities**

- ❖ Breeding. The farm breeds Friesian, Ayrshire, and jersey with the highest producers give 41, 39, and 25 litres per day, respectively
- ❖ Training. The farm trains on artificial insemination, heat detection, tick control and preservation, calf management, dairy management, farm design, fodder preservation, and record development

- ❖ Industrial training/internship. The farm offers opportunities for industrial attachment opportunities.
- ❖ The farm has an A. I resource where they can sell semen to other farmers
- ❖ RDI sells in-calf heifers at UGSH 8,000,000 and 2-weeks bulls of net weight 170 kg at UGSH 1.8million

### ***What came up***

The Rwandese delegation took contact and was to take their farmers for a week's training.

### **General observation**

- ❖ The farm engages experts. This helps them understand their limiting factor and work towards them to attain their objectives.
- ❖ Dairy farming is driven by passion hands-on and opens with sharing information.
- ❖ The transition of best practices, such as farm goals and strategies, from the old to the young generation. This ensures the continuity of best practices, supported by experienced consultants from SNV-TIDE and growing technologies within the livestock value chain.

## **4.8 NATIONAL AGRICULTURAL RESEARCH ORGANIZATION (NARO)**

We met the director Dr. Chilunda at Mbarara zone station during our visit, who took us through what NARO does. We were told that NARO is divided into two categories. The first is the national, which is solely responsible for strategic and basic agricultural research, and then the zones in charge of adaptation and performance evaluation, strategic and basic research. Uganda has one national arm with nine zones.

NARO looks into aquaculture, forestry, livestock, and bees. In Dairy, they look into feeding and nutrition, disease and preservation, breeding, value addition, and farm structures/record keeping.

### ***Nutrition***

To be precise, NARO has helped promote dairy nutrition, which is pasture. The pastures which constitute 70% of the nutritional requirement of a dairy cow are the 13 Napier varieties, namely; NARO 1,2, 3 Napier, Kakamega, Pakchong, and Gayna. Other varieties of pastures include brachiaria, panicum, sorghum, millet variety from China, potato forages, and 32 maize varieties.

SNVITIDE has been working with NARO by identifying stakeholders'/farmers' needs. After identifying the needs, SNV has been funding NARO to research the solutions to the farmers'/stakeholders' needs. Some of the research that NARO has carried out include;

- ❖ Resistance of ticks to acaricides
- ❖ Pasture/carrying capacity
- ❖ Silage and haymaking
- ❖ Trees species that are good if planted in the grazing field
- ❖ Muguga cottage vaccine
- ❖ Herbal acaricide
- ❖ Anti tick vaccine

### **Dissemination of information**

The director disseminates research findings/information in the following manner;

- The director convenes a meeting with the extension officer after every six months
- NARO also carries out an open day for farmers once per year, where farmers get trained in bunches
- Once in a while, they carry out radio/TV talk shows
- NARO produces reading materials for farmers
- They also promote farmers' and pupils/students' visitation to their farms
- NARO conducts multi-stakeholders meetings

## **4.9 POLLY MUSIIME FARM**



*Photo 4: Photos: Shows farm gate and Dr. Catherine appreciating calliandra trees on the farm*

The farm, at a glance, is a forage demonstration farm owned by a priest who happened to be a retired aviation priest. His story dates back to when he visited Kenya in Kiambu County and discovered that a small portion of land could rear several cows with optimum milk production.

### **The role of SNV-TIDE in molding the farm**

- He got some exposure visits to other better farms
- He got some training in pasture establishment, management, and preservation
- He was supplied with a variety of different species of grasses that he has established a demonstration plot

The farm is currently constructing classrooms and hostels to accommodate onboard farmers. This is a farm owner initiative. The farm is currently training farmers and, at the same time, offering an opportunity for internship for TVET students

## **4.10 MISSION CONCLUSION**

The learning mission concluded with an evaluation session highlighting success, observations, and lessons learned during the week. Steven Aikiriza and Martin de Jong guided mission discussions. During the evaluation session, the discussion was on workable extension models, QBMPS as being conducted or driven by each and different processor or cooperative that was visited.

Group leaders from Kenya and Rwanda introduced their colleagues and shared their experiences during the learning mission.



*Photo 5:  
Shows closing session with Steven guiding  
the discussions*

## 5. The Netherlands East Africa Dairy Partnership (NEADAP) Study Tour to Mbarara

Date	time	Event	place	Host
Monday, 30th Jan 2023		Travel day Kigali - Mbarara	Kigali- Mbarara Lake View Mbarara	SNV Ug
Tuesday 31 January 2023	8h30	Welcome session Intro NEADAP, TIDE Intro delegation from Rwanda/ Uganda	Lake View Mbarara	TIDE team
	11h00-13h30HRS	Arrival at NDAFCU & Intro NDAFCU  Lunch	Ntungamo	NDAFCU  Emile?
	14h00HRS	Tour of NDAFCU for extension debrief by the union-management team. Visit the farm for the forage element	Ntungamo	NDAFCU
	4h30	Travel to hotel	Lake View Mbarara	
		Field visit In Mbarara	Mbarara	
	0830AM	Arrival and welcome debrief and interaction with the Project manager	Mbarara	PM MdJ
Wednesday, 01 February 2023	10 AM	Travel to Pearl Dairies to meet the private sector extension services provided by the processor, second level of QBMPs	Mbarara	Pearl Dairies (Dr. Kanna, Mr. Arun)
	1330-1430 HRS	Lunch Break		
	1500HRS	Visit SANOTOS- a case QBMPs for a small-scale cheese processor.	Mbarara	SANATOS & Berend
	1700HRS	Return to the Hotel	Mbarara	NEADAP
		Field visit in Mbarara	Mbarara	
	8000 Hrs	Visit DDA for institutional functional support to extension and advisory services and QBMPs	Mbarara	DDA regional Manager & Berend
	1000 Hrs	Visit NARO for Institutional Research and Development that supports extension services	Mbarara	Director MBAZARDI
	1200 Hrs	Visit Mbarara District Local Government production and Marketing Officer	Mbarara	DPMO Mbarara

Thursday, 02 February 2023	1300- 1430HRS	Lunch on the farm at RDI		Director RDI
	1430- 1600HRS	Visit PDTF for technologies and skilling of technicians for farm advisory and extension	Mbarara	Director RDI
	1700- 1800hrs	Visit Rwentanga farm Institute for the blended learning experience	Mbarara	Principal Rwentanga Institute
Friday 03 February 2023	9 AM	Forage demonstration farm visit Rev Poly Musiime	Mbarara	Director KAGRIC Farm
	1400 Hrs	Engagement with a team of Coop extension offers. 1 lady CEO Eugene and Evelyn	Mbarara	TEA/Agriterra
	1800HRS	Cocktail with projects	Mbarara	PM MdJ
Saturday 4 <sup>th</sup> Feb 2023		Travel back Mbarara-Kigali Meeting in Kigali	Kigali	





**Netherlands East Africa  
Dairy Partnership**

# Netherlands East Africa Dairy Partnership

---

*The Netherlands East African Dairy Partnership (NEADAP) offers a platform for exchange of knowledge and experience to tackle current challenges and leverage further development in East African dairy. NEADAP core partners are Agriterra, SNV, Solidaridad and Wageningen University & Research (WUR), each with their own knowledge, expertise, networks, local partners and projects in East Africa.*

 <https://twitter.com/NEADAP>

[www.nfpconnects.com/communities/neadap-dairy](http://www.nfpconnects.com/communities/neadap-dairy)