report of the pilot project
Manon Stravens, October 2021

Netherlands East Africa Dairy Partnership

Quality-Based Milk Payment System in south Western Uganda

“It’s not the money, but the connection that counts”

Colophon

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Abbreviations

COMESA	Common Market for Eastern and Southern Africa
DDA	Dairy Development Authority
MCC	Milk Collection Centre
SNF	Solids-not-fat
SOP	Standard Operating Procedure
TIDE	The Inclusive Dairy Enterprise
QBMPS	Quality-Based Milk Payment System
USh	Ugandan Shilling

Foreword

Dairy Development Authority

The Government of Uganda through the Dairy Development Authority (DDA) is committed to improving the health and wealth of all Ugandans by prioritizing Dairy commodity as a strategic investment area for agricultural transformation as laid out in the National Vision 2040 and National Development Plans. The Agro-Industrialization Programme of the 3rd National Development Plan aims at increasing market access and competitiveness of agricultural products in domestic and international markets. In the Dairy Industry, quality milk production, processing and marketing are key for penetrating high standard markets and ensuring safety of consumers.

DDA and SNV entered a collaborative arrangement to support sustainable dairy sector transformation through interventions in productivity, milk quality, value chain and nutrition. DDA conducts inspections and enforcement for improved quality standards in the dairy industry meanwhile SNV is a key development partner. Since 2015, SNV has implemented The Inclusive Dairy Enterprise (TIDE) project in southwest Uganda that has tremendously transformed the dairy industry in Uganda. The project supported farmers to transition to semi-intensive production creating a commercial input market in knowledge, products and technical services as well financing dairy businesses.

The Quality-Based Milk Payment System (QBMPS) was introduced as a pilot in south Western Uganda to improve milk quality, reward farmers and increase milk safety for consumption. This system was introduced in 2018 with active participation from selected farmers, milk collection centres, dairy processors and DDA as a regulator. This report provides critical insights of the processes, outcomes, outputs and lessons learned of this pilot project, which is significant for planning for scale up, future replication and roll out to the entire country and the dairy partners in the Netherlands East African Dairy Partnership (NEADAP).

I call upon all the processors, dairy farmers, milk collection centres, other policy makers and Development Partners in the dairy industry to support the implementation of the QBMPS in partnership for improved wealth and health of all Ugandans.

SAMSON AKANKIZA MPIIRA
AG. EXECUTIVE DIRECTOR.

1. Introduction

Uganda has a long tradition of cattle keeping. Especially in the southwestern region, large herds of long-horned Ankole cows are seen everywhere, grazing the grasslands. Cattle give wealth and status. When pastoralist cattle owners gradually became sedentary farmers, dairy products became more important. With the increasing production of milk, milk trading and processing, the request for better quality of raw milk has grown.

The Quality-Based Milk Payment System (QBMPS) pilot was introduced in southwestern Uganda to improve the quality of milk, to reward farmers for this better quality and to increase food safety. The pilot, which took place in 2018–2019, was a joint effort of SNV's The Inclusive Dairy Enterprise project Phase II (TIDE II) pilot, the Ugandan government's Dairy Development Authority (DDA), three dairy processors, 10 (partly private) milk collectors and more than 1,400 farmers. By providing training, coaching and education in combination with simple raw milk testing equipment and a financial incentive, the milk quality improved, as did the relationships and trust between different dairy actors.

The simple set-up of the pilot in Uganda as well as the thorough and step-by-step preparation, training and coaching of all actors basically explains its success. Some lessons were learned from a QBMPS pilot in Kenya, which was implemented by Happy Cow Ltd with co-funding from the Kenya Market-led Dairy Programme of SNV. One of the learnings of this pilot was that imposing all the quality parameters and standards at once was challenging in the Kenyan context. Building on this experience, a different approach was used in Uganda. It has been documented in this paper with the aim of inspiring others who are interested and enabling them to learn from it.

This document lays down the basic set-up of the QBMPS pilot – the process, the main results and lessons learned – which is planned to be scaled up by the end of 2022.

Farmers, processors, DDA officials and SNV TIDE officers who participated in or contributed to the programme were visited and interviewed during an eight-day field trip in October 2021. This publication is the result of that trip. It shares their perspectives and testimonies (highlighted in green/orange throughout the report). The report also gives some basic background information and statistics on the dairy sector in Uganda. The publication is by no means an evaluation or monitoring report.

Traditional Ankole cattle

Exotic dairy breed

2. Key gains according to the interviewees

"The pilot contributed a lot to a better relationship between the cooperative and the processor. The regular meetings ironed out the mistrust between us." (Farmer)

"We have a better understanding of what we all face in our business." (Farmer)

"It's not the money but that connection that is one of my key takes from the pilot." (Farmer / secretary of a cooperative board)

"It was a good thing, very successful. Some farmers invested the bonus in the expansion of their exotic breed to increase milk volumes. Others started paddocking or improving the hygiene of their practices. The milk volumes increased. The farmers were very happy; this was a new incentive." (Cooperative manager)

"The quality of our milk has improved. The pilot helped us to get a stable market. The bonus helped us a lot as well. Though we don't receive a bonus right now, providing the best quality services and quality milk is [improving our] name already." (Cooperative)

"We used to have 22% of our cheese wasted … [Thanks to the pilot] the waste has now reduced to almost 2%." (Processor)

"I have seen a change during the pilot. We got better products. The farmer started to be conscious about the importance of clean milk, how to treat it and how to use antibiotics. We even received a quality mark as a company. So, we have been able to pay a better price." (Processor)

"The pilot brought the farmers closer as well. It was not just a buyer–seller relationship; we had a conversation." (Processor)

"We used to see the DDA as a regulator and enforcer; now we see them more as a partner." (Processor)

"We have more visibility to stakeholders because we interact more with them. The relations improved, and more people are asking for information from us. We changed our attitude from a policing role to a more advisory role." (DDA dairy inspector)

"Cooperatives developed a self-regulating system; for example, they don't allow plastic jerrycans anymore." (DDA dairy inspector)

"We developed a database system and do better recording, on milk quality, quantity, productivity and production in both wet and dry season. This data recording system enables us to know the problems and design trainings." (DDA dairy inspector)

Testimonies are highlighted in green throughout the report. Find three full testimonies in annex I.

3. Uganda: land of milk and honey

When driving into the southern part of Western region in Uganda, in particular Mbarara district, it is immediately clear that this is a dairy area. Large and small herds of cows, comprising both exotic and indigenous breeds, are grazing on green and wide pastures, or just along the road. Loads of milk are transported from suppliers to processors and consumers, especially in the mornings. Traders loaded with milk cans on their pick-up trucks and boda-bodas (motorbikes) collect milk from farmers, drive it to dairy cooperatives or sell it to the factories of a growing number of dairy processors. Others, with just one milk can on their bicycle porter, drive around to sell fresh milk to small shops.

This region accounts for more than 70% of the nation's installed processing capacity and houses 60% of its dairy cooperatives. Welcome to the land of milk and honey. With two rainy seasons and extensive grasslands, south Western Uganda has the potential to develop a vibrant, productive and efficient dairy sector.

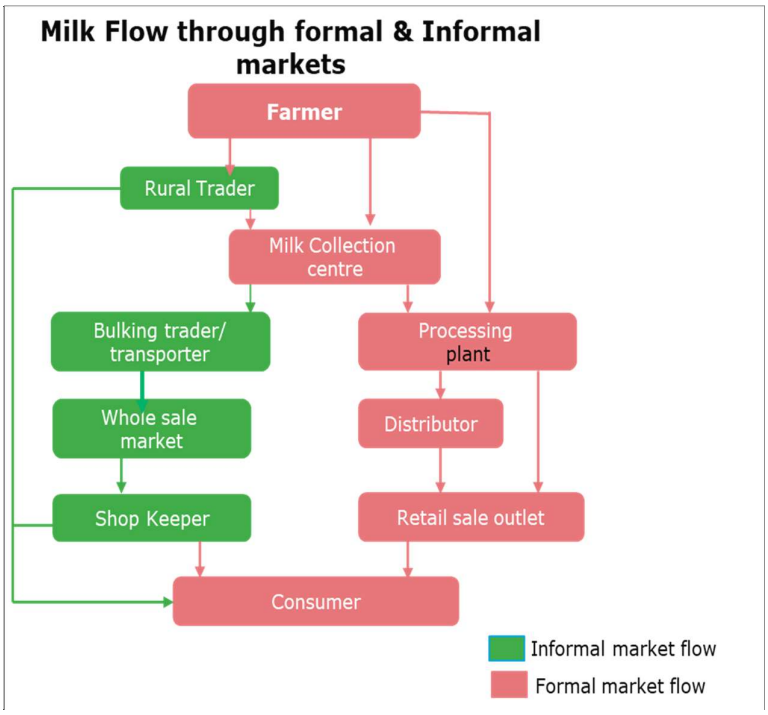
Urbanization and a growing middle class have boosted demand and, consequently, production, productivity and processing capacity. The increased demand for dairy products has given rise to market-oriented farmers who have invested in cattle, feeding and water management systems. The business of processing this milk into various products is growing as well. As a result, the shelves in the cooling departments of supermarkets display a wide variety of locally made dairy products of different brands, such as pasteurized milk, long life milk, yoghurt, ice cream, milk powder and cheese. A large and generally uncontrolled raw milk trade market, mainly rural traders channelling raw milk to consumers and small-scale processors, has always flourished.

Box 1: A growing dairy sector

The national dairy sector is growing at an annual rate of 8-10%, mostly attributable to an expansion of cattle stock. Milk production grew from 2.08 billion litres in 2015 to 2.7 billion litres in 2019 and consumption per capita increased from 25 litres in 1986 to 64 litres in 2019. Marketed milk stood at 80.2% of the total production in 2018, with a value increased to US$ 850 million. Dairy processing used to be controlled by a government monopoly by the Uganda Dairy Corporation, that was privatized in 2004. Its monopoly was replaced by another monopoly, that of Sameer (SALL), which still controlled 90% of the milk processing until at least 2010.

Things changed with the entrance of two new processors, Pearl Dairy Farms and AMOS Dairies. From being a net importer of dairy products from Kenya and Europe, Uganda suddenly became a net exporter of dairy products. Exports of dairy products grew exponentially, from a zero base as recently as 2007 to exports worth US$ 50 million in 2015 and US$ 139,5 million in 2019. Its dairy produce, varying from casein, whey protein, UHT, milk powder and other products goes to its neighbouring countries, as well as to southern African countries, United Arab Emirates, Oman, the United States, Syria, Japan, Nepal and Bangladesh. As a result, Uganda's imports have decreased.

Source: MAAIF 2020



"The informal raw milk market has always been the biggest market. From 2013, 2014 things started to change with the entrance of two new serious processors in this region. Pearl Dairy Farms and AMOS Dairies boosted the processed milk market. The demand for better quality milk increased. Both companies mainly produce for the export market."
(Former regional manager DDA and expert at SNV TIDE II)

Figure 1: Milk flow through the formal and informal marketing channels. *Source: SNV Uganda - 2021*

4. The dairy supply chain, its actors and their interests

4.1 Farmers

While there is a great variety across the regions, most Ugandan milk producers are smallholders (1–5 cows) using traditional livestock management systems and extensive grazing regimes. Their herds mainly consist of the indigenous long-horned Ankole cows and/or crossbreeds with the Holstein-Friesian cows. A few other exotic breeds (Jersey) can be found as well. The segments of medium-scale farms (15–30 cows) and large-scale farms (30–100 cows) are growing. The average farmer in Mbarara district, southwestern Uganda, has 42 cattle.

Cows are milked once or twice a day, early morning and afternoon. Calves are allowed to suckle for at least three months. For most farmers, natural pastures and improved forage crops are the only source of cattle feed. Only a few farmers buy and feed their cows with concentrates and additional forage.

Farmers take their milk to a milk collection centre (MCC) or sell to vendors who take the milk to MCCs. Farmers rarely sell the milk directly to a processor. Farmers are primarily interested in a good milk price and must be able to comply with buyer demands.

4.2 Traders

Where there are cows, there are also milk traders or vendors. Uganda has many small-scale and larger traders who collect, transport and sell raw milk to consumers, small shops, schools, hotels, restaurants or processors in the region or in Kampala. Moving around on their often heavily loaded motorbikes, bicycles or small trucks, they are very mobile. As they account for the large informal dairy trade representing an important raw milk channel, they are a serious competitor for the formal dairies. Though traders are often able to pay higher prices, they are also seen as not very reliable regarding payments, volumes taken and quality.

> "They often pay a higher price to the farmers and we as a cooperative can bargain with them, but they always pay only a part of the money to their suppliers, saying they are waiting for customers to pay." (General manager of a cooperative)

> "We see raw milk vendors, without testing equipment and not being regulated. They contaminate the milk and are a danger to the industry if you talk about quality." (Manager of a small-scale processing company)

However, many cooperatives and processors deal with the traders because they have good connections with the farmers and offer services and loans to farmers. Some run their own MCCs.

> "We can't easily compete with the traders. They have good relationships with the farmers and can help them if they need money. Our hands are tied to rules and regulations; the trader is not." (Processor)

Traders are primarily interested in the volumes of milk needed to be traded to make profit. The traders supplying the formal dairy companies are also interested in quality. A favourable regulatory environment to operate is in their interest as well.

4.3 Dairy cooperatives

Extension services, veterinary drugs, loans, advance payments, inputs against reduced costs and bulking of milk are some of the services that primary dairy cooperatives can provide to their member farmers, for an annual membership fee. This allows farmers to bulk their milk and bargain with traders and processors. The quality of facilities and services and the amount of milk collected greatly differ from one cooperative to another. The cooperatives require good quality milk and must comply with the buyer's quality demands.

Cooperatives operate MCCs. An MCC in Mbarara collects on average 4,700 litres a day in the rainy season and less than 2,000 litres a day in the dry season. On average 55 farmers deliver milk to a cooperative, though the difference in membership numbers between the cooperatives is significant (Dairy Survey SW/Mbarara District 2017/2018). However, some cooperatives can collect much more milk and run multiple MCCs. Processors, companies and private individuals can also own MCCs. Transport of the milk to the MCC is organized by either the farmers, a trader or the cooperative itself.

The southwestern region has 289 MCCs (60% of the national total of 483 MCCs), with a total collection capacity of 1.36 million litres, which corresponds to 70% of national capacity of MCCs. (DDA, no date).

4.4 Processors

Uganda has about 135 licensed processors, with a total of more than 2.8 million litres of processing capacity per day in 2019, of which 71% is located in southwestern Uganda. There are small-scale, medium and larger processors (the capacity of the largest processor is 800,000 litres a day) with different products and quality requirements.

Box 2: Dairy acts, standards and guidelines

- The Dairy Industry Act (revised in 2000) regulates the Ugandan dairy industry.
- COMESA Standards (2006): The East-African community developed milk quality standards.
- DDA national guidelines on QBMPS (2019):
  An instruction on how the system works for all parties. For ratification in parliament.
- Uganda National Bureau of Standards: Developed a quality seal for dairy products.

A cheese maker requires high protein, a yoghurt maker requires high solids-not-fat (SNF) levels, and a butter or ghee plant needs high butterfat percentages. But in general, the better the quality, the more compliant with legal specifications, the fewer costs processors have to bear to make low quality milk processable.
The relations between farmers, cooperatives and processors differ a lot from one processor to another. In general, there are no formal agreements between the cooperatives and the processors. Cooperatives are free to sell milk to whoever offers the best price. In turn, processors are free to collect any amount they require. Price levels are set by the processor and change with the milk volume available and by season (dry versus rainy season).

One medium-scale processing company says it has almost no direct contact with its farmers (and cooperatives) and does not see it as its role to invest in these relationships:

> "We came for the milk, to process it and do business. We grabbed the opportunity because there is milk in Uganda. But we don't see it as our job to help the farmers. This is what the traders do; they have the relations with the farmers. What we can do is take the milk and pay on time, as agreed." (Processor)

In contrast, large processor Pearl Dairy Farms invests a lot in relationships with its suppliers. This is fairly new, as in the recent past no processor had direct contact with farmers. The processor set up a Dairy Development team of 50 extension officers to provide these services to individual farmers. Around 60% of the officers are employed in the cooperatives. These services are highly valued by the farmers. Pearl also clearly communicates with its suppliers through written communication.

4.5 Dairy Development Authority

The DDA is a semi-autonomous agency under the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). The DDA has the mandate to develop, regulate, coordinate and harmonize the liberalized dairy sector to achieve and maintain self-sufficiency in milk production and dairy products. The DDA trains and educates farmers and enforces the regulations of the *Dairy Industry Act 1998*, revised in 2000. It has one head office, five regional offices, a national laboratory and 68 inspectors of the required 168, which, combined with under-funding, is 'crippling' services (MAAIF 2020). In 2020, they carried out 3,246 inspections and trained 4,854 dairy stakeholders. The DDA conducts on-the-spot milk testing on farms, at roadsides, in raw milk selling outlets and in processing facilities.

The government aims to increase milk production, have safe and good quality milk and food safety and be self-sufficient in dairy production. It also aims to generate good export earnings. Control mechanisms can be strengthened when adequate and reliable testing equipment is available.

5. The milk market: a cowboy market

In short, most stakeholders have an interest in producing safe milk. At the same time, they operate in a 'cowboy market', which affects the efforts to establish a quality system.

> "Milk is less and processors are more. We are fighting for the milk" (Processor at medium-scale company)

The dairy market in Uganda is booming, and therefore competition is increasing. More processors and traders are entering the market, while the dairy sector is still recovering from the import ban from Kenya and the Covid-19 pandemic. Lower quality milk still finds its way to the market. For example, processor AMOS Dairies primarily produces casein, an industrial product, mainly for the American market. This product does not require high-quality milk, so AMOS often accepts lower quality milk but pays a good price. The price of casein has been rising.
As a consequence of the increased competition, processors and cooperatives have to deal with side-selling to traders who offer services and good prices (especially in the dry season):

> "There are many traders on their motorbikes, coming to our farms and they are even willing to milk the cows. If you don't give better prices, you will lose that farmer." (Cooperative board member)

In addition, milk prices fluctuate a lot during the year, greatly influenced by the country's wet and dry seasons. In the rainy season, a surplus of milk is produced and prices can vary from USh600 to USh900 (Ugandan shilling) per litre. In the dry season, production can drop by 50%, increasing the milk price to USh1,500 to USh1,600 per litre. It is a challenge for farmers to maintain milk volumes (and high-quality milk) in this season.
In practice, processors do not raise the prices very much in the dry season, whereas the price in the informal market does increase. This price volatility creates difficulties for farmers to plan and secure loans. Cooperatives and processors are trying to counter this supply challenge by offering good services, good prices and trustful relationships:

> "How do we retain our farmers? We give them advance payments, small interest loans and prompt payments to improve their farms and to pay for their school fees. That's a way of boosting the relationship. We also bought a milk truck to collect milk, and we deduct USh50 per litre for the transport. A trader asks USh100. And some vendors do cheat. One installed a cooler close by, farmers sold him their milk, but he ran away with their money. That's why farmers come to us." (Managing director of a cooperative)

6. Milk quality challenges

Adulteration with water that is not of drinking quality increases microbial counts and decreases the butterfat and SNF content. As a consequence, processors can produce less butter and cheese from a litre of milk. In some cases, milk powder has to be added to yoghurt in order to meet legal specifications, and it costs more energy to evaporate the water to make milk powder. Processors therefore incur additional costs, such as increased transport and energy costs.

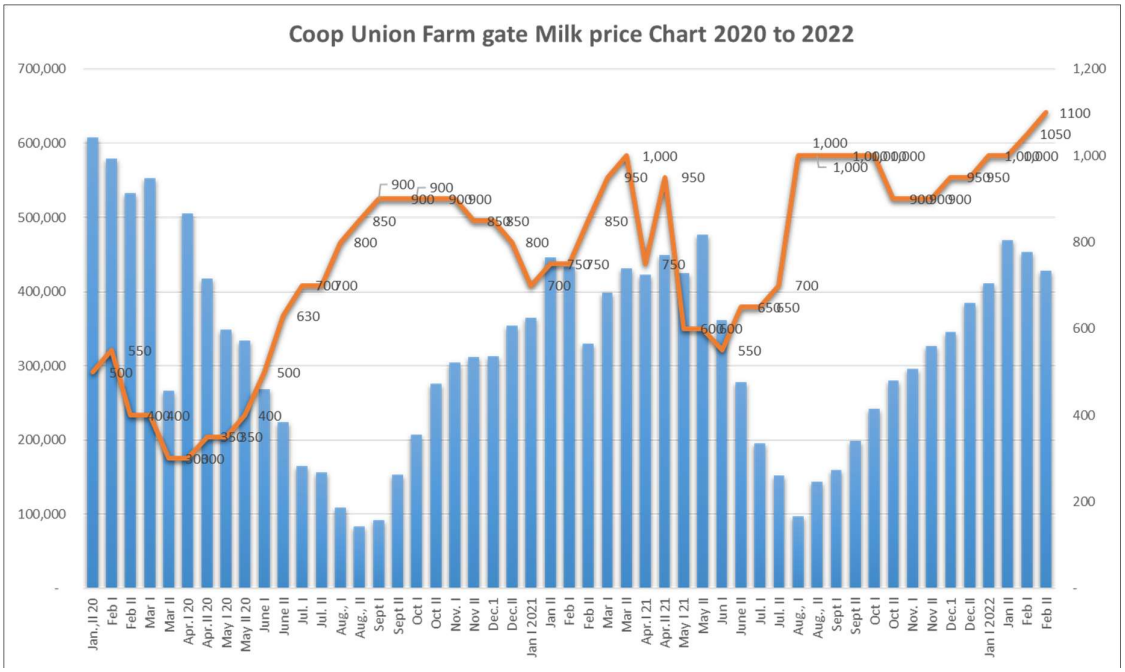


Figure 2: Farm gate milk price 2020-2022 Source: SNV Uganda – 2022

Poor milk quality is the result of several challenges for farmers, such as poor-quality fodder, lack of knowledge, limited access to clean water, inadequate veterinary services and poor animal health management practices. Farmers also must deal with poor roads, inadequate electricity supply and limited financial services. Bulking of milk by MCCs is often constrained by the lack of milk coolers, cold chain transportation trucks and milk testers. Price volatility and low prices[1] do not provide the necessary incentives for farmers to produce high-quality milk. Most processors are said to be more focused on securing milk quantities than on enhancing quality. Investments in formal and trustful arrangements are limited.

These practices were the reasons for the Ugandan DDA to become the legal partner in the pilot with SNV TIDE to pilot a QBMPS. Such a system has been proven worldwide to be an important tool to battle the above-mentioned constraints and to increase food safety.

> "As soon as the cow is milked, the milk is prone to contamination. Bacteria can enter the milk via the udders, the bucket and the hands and health of the milker." (Consultant)

1 *Due to the surplus of milk in the south Western region, farm gate prices there are low compared to other regions (DDA no date)*

> "We saw farmers violating the regulations by adding water to increase the volumes, skimming the cream, adding preservatives to evening milk, mixing evening milk with fresh morning milk, or adding other substances to increase densities." (Former DDA regional manager)

7. Quality-based milk payment system

Prior to the pilot, some steps had already been taken to improve milk quality, as the demand for milk was increasing. Use of jerrycans to transport milk had been banned by the DDA, and some investments in infrastructure and electricity were made, partly supported by the Dutch government:

> "Farmers groups were strengthened, as they started to demand better dairy infrastructure such as coolers and quality containers. With funding from ABI Trust, a consortium of donors largely funded by the Dutch government, the UCCCU [Uganda Crane Creameries Cooperative Union] was able to provide 100 milk coolers, 100 generators, 100 lactoscans and 15 milk cans per cooperative. Traders started to invest more as well, buying trucks and giving out loans to farmers." (Former regional manager at DDA and expert at SNV TIDE II)

The QBMPS pilot was a joint effort by SNV TIDE II, the DDA, three dairy processors and 10 (partly private) milk collectors. More than 1,400 farmers participated. The pilot took about a year and a half in 2018–2019.

7.1 Hypothesis and approach

By providing training, coaching and education in combination with setting up a quality control system along the value chain and a financial incentive to the key stakeholders in the dairy chain, milk quality will be improved, employment increased and food safety enhanced.

This hypothesis was elaborated into the following simple approach, based on the three pillars in the hypothesis: the quality system, training and coaching, and financial incentive. A selected number of processors and their milk suppliers introduced a raw milk acceptance and payment scheme, based on a few key quality parameters. Milk grades were introduced, as was a simple testing procedure. Milk testing was done by both cooperatives (when milk left the MCC) and again by the processors (at receiving the milk) to assure transparency.

Farmers and cooperatives were given feedback on their milk and were technically supported and trained to provide good quality milk and to keep records. Farmers who were not able to meet the set criteria received support to improve performance. Factories introduced a (recommended) 10% bonus over the base price for A-grade milk. Criteria were 0.0% added water and minimal fat and SNF levels. Farmers and cooperatives received this bonus payment when they provided quality milk. To increase awareness and transparency about the bonuses, 'happenings' events for farmers were organized upon payment of the bonuses.

7.2 The testing equipment: reliable, simple and affordable

Reliable, adequate, simple and affordable testing equipment, as well as simple standard operating procedures (SOPs), are important to win and maintain the trust of farmers and cooperatives.

Cooperatives and processors should preferably use the same equipment so that the results can be compared. Regular calibration, maintenance and repair services should be secured and should preferably be carried out by independent and trained mechanics.

The MCCs already possessed plungers, sample bottles, alcohol guns and lactometers, among other instruments to conduct basic platform tests.
Through the QBMPS pilot, 15 solar-powered milk analysers were distributed to the cooperatives, processors and the DDA. Costs were shared between MCCs/cooperatives, processors and SNV TIDE. The analysers measure temperature (this is only measured at intake by the processor), density and fat. Based on those values it calculates SNF and added water, as well as proteins, lactose and minerals. The results are shown on a digital screen and can be printed, as printed results give confidence and do not allow for discussion (which is the case with lactometers).

The analysers do not measure antibiotic residues and aflatoxins. Also, the analysers need daily cleaning with specific cleaning products. This has a cost, and these products are not always locally available. The regularly needed calibration and maintenance was done by the DDA during the pilot, but this should preferably be done by a professional local service provider.

7.3 The system: parameters, grading and procedure

Basic milk composition can easily be measured by the devices explained above, to enable simple and understandable communication and bonus payments based on quality. The pilot therefore introduced several milk parameters, based on which two simple grades of milk were introduced: A

and B. Some interviewees referred to C-grade milk, which is not acceptable according to these parameters.
The difference between A-grade and B-grade milk was that A-grade milk has a higher fat and SNF percentage. Farmers and cooperatives receive the basic price plus a (recommended) 10% bonus payment when they supply A-grade milk and only the basic price when they supply B-grade milk. The grade is based on the average test results of the deliveries of the prior 15 days.

Table 1: Parameters and grading

Quality	Parameter	Logic	Payment
Temperature			
Density	> 1.028 gram/ litre	Adulteration with water	
Fat %	> 3.8		increased payment based on the average fat % on the past 15 days of deliveries
SNF %	> 8.5		increased payment based on the average SNF % on the past 15 days of deliveries
Added water	0%	freshness and composition of milk	
Resazurin	6 = grade A	Freshness of milk	10% bonus
	5 = grade B	Freshness of milk	Basic price
	4 = grade B	Freshness of milk	Basic price < 4 = rejected
Alcohol	> 80%	Freshness of milk	

Source: SNV Uganda

Some processors introduced slightly different parameters in relation to fat and protein percentage because of their specific product portfolio.
The key aim of the pilot was to first build the system of quality control, using a limited number of the most relevant parameters. Once the system works and is trusted, a fruitful discussion can be initiated on adding additional parameters.
The above-mentioned parameters, grades and the following testing procedure were integrated into the national guidelines on QBMPS by the DDA. This policy uptake is a result of the pilot, although by November 2021, these guidelines are still in Ugandan parliament to be ratified.

Box 3: Steps in the QBMPS raw milk testing procedure:
1. Farmers produce and deliver the milk to the MCC
2. Milk is tested at the MCC: Testing with milk analyser, results visible to the farmers.
3. Bulk test, when milk leaves the MCC – Milk analyser test result recorded on a Delivery Note
4. Bulk test at the factory gate – Milk analyser test result recorded on a Goods Received Note
5. Verification – Goods Received Note and Delivery Note are compared
6. Two-weekly reports – Reports on deliveries and receipts shared between processors and MCC.
7. Payments made as per agreement – Usually every two weeks

7.4 Communication and training: show and tell

> "Farmers must realize their actions have influence on the final product. You should show this to them. Cut the handle from the plastic milk cans and show the dirt, then they will see and believe." (SNV TIDE II milk advisor)

> "We also show them the risks associated with the lucrative but short-lived markets. Some of those vendors pay high prices but they can cheat you. That's why we encourage record keeping on incomes, so they can calculate and see that their average income at the end of the year is lower than what the consistent buyer would have paid them." (SNV TIDE II milk advisor)

Clear communication to and with the farmers and cooperatives on the why, the pros and cons of the QBMPS and how it works is crucial to get acceptance of the system. This was (and must be) done prior to the actual roll-out of the pilot. Information on milk, its chemistry, feedback on test results and awareness campaigns on the importance of providing good quality milk proved to be key.
Milk testing was initially organized by the DDA[2] (see next paragraph). In the first three months, DDA provided feedback on test results to the farmers. This phase was followed by another three months of testing, with added explanation about financial consequences. Training was provided on how to improve milk and milk composition, as well as how to handle equipment. A variety of communication and training methods were used, such as classroom sessions and the distribution of leaflets and brochures.
MCC staff were trained in how to handle the analysers by an Indian trainer, because the milk analysers were produced in India. Two extension workers were employed to visit, train and support the participating MCCs, transporters and farmers on a daily basis, as well to troubleshoot when needed. This was critically important.

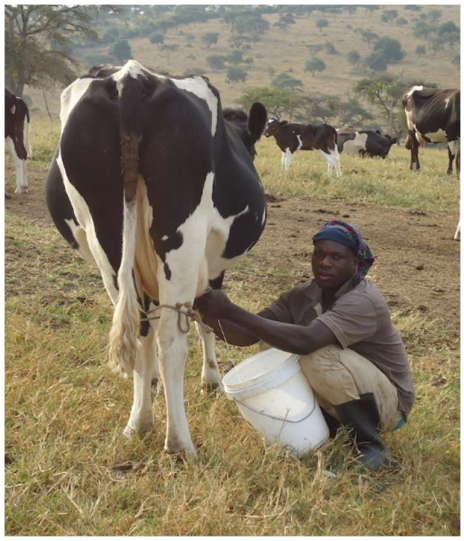
7.5 Bonus payments and financial set-up: a business approach

Dairy farming, milk collection, transportation, processing and milk pricing are all stages of a market-driven private business structure. Any other supporting actor, such as the authorities or organizations like SNV TIDE II, should not directly intervene in that arrangement. They should primarily facilitate the process, to enhance the sustainability of the intervention. SNV TIDE II paid for the costs related to the facilitation of the pilot, including meetings, travel costs, external expertise and logistics. SNV TIDE II, cooperatives and processors shared equally the costs of the analysers.
The bonus should therefore be fully paid for by the sector. The sector determined this bonus of (the recommended) 10%, on top of the milk price, following a recommendation by SNV TIDE II and DDA. The cooperatives were paid by the processor and were supposed to distribute the payments and bonuses to the farmers. The pilot recommended that 60% of the bonus would be paid directly to the farmer, 20% to the collection centres and 20% to the cooperative (to pay for staff costs, etc.). However, this was not handled in the same way by all cooperatives, as they were free to determine this themselves. With approval from its members, one cooperative used the bonus to strengthen its financial position. Other cooperatives deducted a different percentage for costs incurred by the cooperative.-
Some farmers suggested that in the future the bonus should be paid individually to farmers, in line with the quality they deliver. Currently, the milk quality of each individual farmer is tested, but the payment is based on the bulk milk sold to the processors. As a consequence, all farmers receive the same price, regardless of the quality they provided.

2 *DDA did the testing for the baseline and the cooperatives, and processors did the testing during the actual implementation.*

7.6 The implementation

"First of all, the pilot needed to work on trust between the different dairy value chain actors, as a total mistrust existed between them. As cooperatives didn't have contracts, they could easily decide to sell part of their milk to buyers that were offering a better price. Therefore, it took time to 'sell' the pilot to the sector. The question was how we could test in such a way that all parties adhere to the system and acknowledge the result. The actors need to jointly subscribe to the system and acknowledge it and be willing to jointly find solutions. SNV TIDE II's role is only to facilitate this process. It's all about building trust and interaction between the different stakeholders. Without trust, it won't work." (Project Manager SNV TIDE II Uganda)



People, parameters and procedures were prepared thoroughly prior to the actual pilot roll-out, through the following interventions and activities.

Preparation of people

First of all, a meeting with all known processors was organized, to discuss the intention of the pilot and ask for their input. The most enthusiastic processors were selected; this was a diverse group that included a small, medium and a larger processing company with a diverse product portfolio. This first meeting was organized and chaired by the DDA.

A pilot team was established, composed of TIDE pilot experts, DDA, processors, farmers' representatives and cooperatives, once in a while supported by a foreign dairy expert. This team organized, implemented and monitored the pilot and met regularly.

Awareness-raising campaigns were organized on the pros and cons of QBMPS to get milk suppliers on board. The processors selected and invited their most loyal suppliers to participate in the pilot and made agreements, written down in a memorandum of understanding. The selected milk suppliers included cooperatives and milk traders with an MCC.

A meeting with representatives of the 10 selected milk suppliers was organized to explain the pilot plans and the quality system.

Preparation of parameters, prices and procedures

To know whether and how the dairy plants and MCCs were equipped, the testing equipment and facilities already present were assessed. New equipment was purchased where required, and calibration and maintenance arrangements were secured.

SOPs, handouts and training materials for MCC staff and farm advisors on milk quality issues were developed, as was a reporting and data management structure.

Each processor determined its raw milk pricing level, bonus and penalties based on the parameters.

A baseline study was executed to document milk quality aspects. This study formed the basis for setting realistic targets for milk quality.

Pilot roll-out

The actual pilot was rolled out in three phases, each lasting about three months.

Phase I: For three months, milk was tested and feedback provided to the farmers and MCCs about the test results. There were no financial consequences, as this process was used as a guiding tool and training opportunity for improvement in milk handling and hygiene. Technical assistance and training in milk quality for farmers, cooperatives and MCC staff were provided.

Phase II: For another three months, testing and providing feedback and training were carried out on milk hygiene, milk composition and how to improve milk quality. Again, this was done without financial consequence. But information was provided on what the reward or penalty would be based on the delivered quality.

Phase III: A seminar on findings was organized, including the kick-off of the QBMPS pilot. Actual bonus payments were realized. In this phase, MCCs kept records on milk volume, milk quality and composition and payments made to each farmer. Cooperatives and processors organized 'happenings' (information-sharing events for farmers) when bonuses were paid. The amounts paid were listed on a huge signboard.

7.7 Pilot management, roles and responsibilities

The pilot was set up as a processor lead intervention. In collaboration with their suppliers, processors were supposed to proactively organize meetings and training to inform farmers and to ensure the bonus payment.

The DDA was responsible for pilot supervision, monitoring, training and education. To that effect, a pilot team was established, chaired by the DDA, comprising processors, cooperatives, farmer representatives and TIDE pilot experts. They met regularly, once or twice a month.

SNV TIDE II assigned a pilot lead, two extension officers, three other staff and two international consultants to manage, monitor and evaluate the pilot programme. The role of SNV TIDE II was to support communication, selection of participants and the provision, maintenance and repair of equipment. SNV TIDE II also developed SOPs for milk testing, data recording, on-farm milking, milk handling, hygiene and operational management.

The pilot accordingly trained MCC operators, staff and workers, factory staff and workers and milk quality advisors at cooperative and factory level. SNV TIDE II supervised the milk testing during the pilot as well.

8. Results: outputs, impact and success factors

The pilot resulted in several outputs and impacts on different levels. These were observed during the mission and were highlighted in the external assessment report (Daburon, A. and A. Ndambi, 2019).

8.1 At farmer level

"We have a better understanding of what we all face in our business." (Farmer / cooperative board member)

Results

- Improved milk quality due to less skimming and water addition
- Improved awareness about the importance of milk quality
- Improved knowledge of milking, milk handling and animal husbandry
- Increased farm incomes from the bonus payment and from increased milk volumes
- Investments made in aluminium milk cans to replace plastic cans

8.2 At cooperative level

"As a cooperative, we were already fighting for quality milk, as we wanted the best price. We were pushing the DDA to control milk quality in the entire dairy sector. The pilot helped to increase our volumes. The bonus provided by the processor was an incentive for us to further improve the milk quality. We saw farmers reinvesting the money in their farms, to feed their cows well. The pilot contributed a lot to a better relationship between the cooperative and the processor. The regular meetings ironed out the mistrust between us. We have a better understanding of what we all face in our business. Our processor, for example, told us that they have to add milk powder if the quality is low. He explained us that he has to add an extra cost and he proved it to us. It's not the money but that connection that is one of my key takes from the pilot." (Farmer / secretary of a cooperative board)

Results

- Improved quality of collected and marketed milk at the end of the pilot: 85% of the delivered milk was A-grade (was <55% before)
- Improved record keeping (volume, quality and payment)
- MCC staff starting to embrace operating procedures to improve milk quality
- Over €100,000 bonus money paid out to the cooperatives; no fines paid
- Increased profit for cooperatives due to increased volumes and/or bonus payment

8.3 At processor level

"We have always been concerned about the quality of milk, and we were pushing the DDA to monitor quality. I have seen a change during the pilot. We got better products. We used to have 22% of our cheese wasted. We sometimes took a sample to the laboratory, but you could not point to the cause of the problem. The farmers started to be conscious about the importance of clean milk, how to handle milk and how to use antibiotics. So, we have been able to pay a better price. The waste has now reduced to almost 2%. We eventually received a quality mark from the Uganda National Bureau of Standards. We used to apply for it many times, but we always failed. I can now sleep knowing that the quality is good. The pilot brought the

farmers closer as well. It was not just a buyer–seller relationship; we had a conversation." (Managing Director processing company)

Results

- Improved quality of milk resulted in higher acceptance (and less rejection) of milk
- Less energy, transport and other processing costs, as processors do not need to add milk powder. They do not need to evaporate water out of the milk to produce milk powder, and they can pasteurize the milk at lower temperatures. They also incur lower transport costs, as no (added) water needs to be transported
- Processors paid the bonus at least once, though consistency in payments differed from one processor to another
- One processor has started to pay bonuses again, without intervention or support from SNV TIDE II. This processor is also trying to pay farmers individually based on a quality system.

8.4 At government level (DDA)

"We are now more visible to stakeholders because we interact more with them. The relations improved, and more people are asking for information from us. We changed our attitude. Before we could arrest and prosecute you and destroy your milk if you did not adhere to the standards. Now we have a different approach, are more focused on providing training and advice. Cooperatives developed a self-regulating system; for example, they don't allow plastic jerrycans anymore. We also developed a database system and do better recording, on milk quality, quantity, productivity and production. Based on these data the government installed, for example, coolers and purchased milk cans. This system enables us to know the problems and to design training. There is a need to build strong relationships and these have improved greatly because of the regular negotiations and the communication of results to the farmers. Before the processor just announced that it reduced the price." (DDA dairy inspector)

"We used to see the DDA as a regulator and enforcer, we now see them more as a partner." (Processor)

Results

- DDA was an active contributor to the system and developed the procedure and parameters into national guidelines, in collaboration with SNV TIDE II. This Guideline on the Practice of QBMPS is still in parliament to be ratified and is therefore not yet available online.
- The government plans for scaling up the school milk programmes include quality assurance, following the guidelines based on the QBMPS pilot
- In September 2021, preparation started with scaling up at four processing companies, of which one is in Central Uganda. In December, training of milk quality advisors for the school milk programme started. However, the implementation has suffered from school lockdowns due to the Covid-19 pandemic. Primary schools have been closed since April 2019 and are scheduled to re-open in January 2022

8.5 Success factors

"The most successful cooperatives in terms of getting good quality milk were those that did not reject the milk, but gave feedback to the farmers and encouraged them to improve. If the milk is not of good quality, go and find out the problem and try to solve it. If you reject the milk, the farmer does not care, he will just divert to another buyer. You will lose him." (Farmer / cooperative board member)

Some other success factors were:

- Understanding by all stakeholders about the importance of producing food-safe milk products and cooperating in a trustful manner
- A financial incentive to all stakeholders (a business approach to the bonus)
- Partial grant from SNV TIDE II for up-front costs related to testing equipment
- A step-by-step introduction to the QBMPS
- A patient and determined training approach.

9. Challenges

The QBMPS pilot has had a number of challenges at the pilot, market and implementation levels. These were partly observed during the interviews and were also highlighted in the assessment report (Daburon and Ndambi 2019).

> "First of all, Covid-19 paralysed the pilot the whole year of 2020. In addition, Kenya unexpectedly closed its markets in February 2021, while Uganda accounted for 38% of Kenya's dairy imports. As a consequence, processors could only collect a fraction of the milk and they had a very bad year. Farmers sold their cows, as they had no market and no income to invest in fodder. The situation has improved a little and restricted imports to Kenya are allowed again, but the dairy exports from Uganda to Kenya have more or less halved. Other delays were caused because a new manager needed to be hired. The pilot was gradually taken up again in April 2021." (Project manager SNV TIDE II Uganda)

The delays in scaling up the pilot have had some consequences:

> "The programme was a very good thing for all of us in the system, if it is well implemented. The bonus was a reward, like a second payment for the farmers. Now no bonus is paid and farmers ask where their money is. You see, we are fighting again with farmers about the quality of their milk." (Farmer / member of cooperative)

9.1 Other challenges

At farmer level

> "The cooperative leadership, milk assistants, the chairman have been well trained. But we need more sensitization and training of farmers on how they can improve the quality of their milk." (Farmer / cooperative board member)

- The quality payment is not individualized, limiting the commitment of farmers who deliver the best quality milk.
- QBMPS reduced the practice of milk skimming, traditionally done by women (though as well by traders and cooperatives). It was identified as a source of conflict within households as it might reduce women's revenue from ghee sales and affect family nutrition. This topic requires further investigation.

At cooperative level

> "Our big challenge is staff turnover at the cooperative. You will see that the staff trained in testing, cleaning, recording, etc., is no longer there. We have new people, but they need fresh training and there is no guarantee they will stay." (Farmer / cooperative board member)

- Some MCCs initially lost part of their supply at the start of the pilot, because the introduction of quality standards created tension within their sourcing network and members.
- There was limited capacity to train and support suppliers to improve milk quality.
- Timing of collection remains irregular, affecting milk quality.
- It was difficult to ensure regular maintenance and calibration of testing equipment (due to lack of staff skills and availability and affordability of inputs and services).
- The recording and monitoring system was limited (especially on quality parameters).
- There was limited transparency of price setting and bonus payment and use by the cooperatives, partly due to limited record keeping at farm and MCC levels and the use of volume instead of weight, to the detriment of the milk supplier. The scales delivered with the analysers are not used in cooperatives.

At processor level

"The SNV pilot was good, because they facilitated the provision of testing equipment, milk cans and hot water facilities and they trained farmers. I appreciate their effort. But we can only benefit from the QBMPS if all processors follow the same system and reject bad milk. Then it works. Now you see strict rules and regulations, while others have an open door. It is still very tough to get the quality milk, though we used to get it. I can't accept bad milk." (General manager processing company)

- It is difficult to sustain the bonus payment for larger volumes of quality milk and to build a sustainable business model with the QBMPS. There are various reasons why processors stopped the bonus payments. An evaluation needed to be done, the national guidelines are still to be ratified and Covid-19 has restricted meetings and travels, among other things.
- Building trust between processors and suppliers in regard to a consistent and reliable milk testing and bonus payment system is difficult.
- Limited direct contact between farmers and processors prevents trust developing between them.

At government level

"We don't feel the presence of DDA; they are overstressed. They have the information on what can be done and they are capable but they don't have the manpower." (Farmer / cooperative board member)

The role of the DDA has changed from that of policing to having a more cooperative and supporting role. At the same time, the DDA is not well resourced and is said to be not visible to farmers. Its regulatory and inspecting roles sometimes conflict with its developmental and supportive roles.

9.2 Some suggestions for improvement

A number of suggestions for improvement and scaling up were given by the interviewees.

"I would love to have more policies and guidelines that can be adopted by the whole country. Everyone on the local market does his own thing. They sell what they want. We have written guidelines, but they are not communicated." (Farmer / coop board member)

"More sensitization of farmers is needed. The cooperative leadership, milk assistants, the chairman have been well trained. But we need more sensitization and training of farmers." (Farmer / cooperative board member)

"Actually, the QBMPS can be made fairer if you give the incentive to the best individual farmer, so that he or she is awarded for the quality delivered. Identify the best farmers, and let others come and learn. Then the programme will have impact." (Commercial farmer / cooperative board member)

Box 4: The Happy Cow Ltd. pilot in Kenya: some crucial lessons learnt

In Kenya, the dairy processor Happy Cow (https://happycowkenya.com) piloted a QBMPS in 2014 with support from the Kenya Market-led Dairy Programme (KMDP) project led by SNV. As cheese is an important product for Happy Cow, intake of high-quality milk is key, as, for example, residues of antibiotics spoil the processing of cheese and yoghurt. This made them include more parameters in the QBMPS than the pilot in Uganda. In Kenya, the bacterial count and antibiotic residues were included from the onset, and aflatoxin and somatic cells counts were added later on. An A-B-C grading and bonus payment system was introduced. The pilot was organized and implemented with two cooperatives, Olenguruone and New Ngorika, having a total of around 2,600 farmers. The initial plan was to pay the bonus to individual farmers, but this proved to be complex and it was decided that the bonus would be paid per milking can, with each can having combined milk from 5 to 8 farmers.

During the pilot phase, which ran from 2014 to 2019, milk rejection reduced by 70%. However, the percentage of farmers receiving bonus payments remained below 8%.

The implementation of the system faced some challenges, the major one being the high competition for milk purchase from farmers by both formal and informal buyers, especially in periods of milk scarcity. The absence of interventions by the regulatory body to give room for fair competition made the situation worse. Also, it took time for the various players to understand the grading system, affecting their trust for each other. In the Kenyan pilot, the regulatory body (Kenya Dairy Board) was not actively involved in the QBMPS, while in Uganda the Dairy Development Authority played an active role as an arbitrator in the QBMPS pilot, giving it an advantage. Staff of Happy Cow have given many presentations in Kenya and abroad on their experiences in improving milk quality and lobbied strongly for a sector-wide approach. The current Kenya Dairy Industry Regulations emphasize processors paying for milk based on its quality.

Happy Cow achieved an ISO certificate for their milk testing lab during the pilot, which strengthened their market position. They continued the system of quality control and bonus payments, but now it is done at the level of milk cooler tanks. Running an extensive quality control system at farmers' cans level proved too complicated and too costly. Currently, Happy Cow is developing an ICT platform on which the QBMPS will run, along with extension on dairy farm management and clean milk production. In this endeavour they are supported by the European Union.

Source : Ndambi et al. (2019) and interview with Gerard Oosterwijk, director Happy Cow

10. Future plans

SNV is currently working on building up a local pool of experts who can be engaged and hired by the cooperatives and processors to provide maintenance, repair and calibration services for the testing machines and other equipment.

The SNV TIDE II programme restarted the QBMPS in mid-2021. At their request, Jessa Dairy Central Uganda, is now also participating in the QBMPS. By the end of 2021, all four milk processors agreed on the quality parameters they want to apply to their milk intake. One processor intends to start with sampling individual milk supplies as a basis for milk payments based on the quality supplied by each farmer.

Surprisingly, some large milk traders also showed interest in the system as they understood that if they can sell improved quality milk to the processors, they can earn more money; the cooperatives they buy from can also make more money.
The SNV TIDE II project contacted Makerere University to prepare a 10–20-year road map to establish a large-scale regional milk quality testing lab to be used by all actors in the dairy value chain. These labs should use modern high-quality milk-testing equipment, highly skilled and well-paid staff in a modern lab environment. Ownership should be based on the public–private partnerships model, engaging government, processors, traders, cooperatives and farmers.

11. Overall conclusions

Improving relationships, trust and loyalty and changing attitudes in a dynamic dairy market is never the result of an overnight intervention. Patient, step-by-step interventions using a business approach are the key to any (market) development intervention. These are the success factors in the QBMPS pilot in southwestern Uganda, observed during a visit of one week to the SNV TIDE II pilot in Mbarara. During that week, genuine and open discussions with farmers, cooperatives and processors gave a good overall understanding of the QBMPS pilot.
This pilot intended to increase milk quality, food safety and employment through an approach based on providing equipment, intensive training and coaching and a bonus payment.
Most of the people interviewed were very happy with the intervention. Farmers felt rewarded and appreciated for providing good milk. Processors saw their waste and costs decrease as a result of improved milk quality and the elimination of water adulteration and skimming. At the end of the pilot, 85% of the milk was of A-grade quality, meaning no water was added. In addition, milk volumes increased. Communication, relationships and mutual understanding improved. Hence, a clear frustration was felt about the delay in scaling up the pilot, as bonus payments were not sustained after the pilot ended. This was due to various reasons, including Covid-19.

Willingness and intrinsic motivation of all actors involved – farmers, cooperatives, processors and authorities – are necessary preconditions for this kind of intervention work. It requires time to gain this trust and willingness to invest, to be transparent, to adopt different practices, to try to understand positions of others and to jointly seek solutions that work for everyone. People should be actively involved and prepared by a show-and-tell training and communication style. A simple and smart approach was used in selecting equipment and developing procedures and parameters. It clearly contributed to trust and adoption of the system.
This motivation was clearly felt among all participants, based on their particular reasons for investing in quality milk. The active involvement and support by the DDA were notable. One of the key results of the pilot was the fact that the DDA developed national guidelines for a QBMPS-system. In addition, they acknowledged the impact of the QBMPS in their newly developed Strategic Plan.
At the same time, an intervention in a market requires a business approach, with – in this case – the processors in the lead, supported by the authorities, facilitated by SNV. Equipment, inputs and payments should be paid for as much as possible by the sector, not by the pilot. This should establish the foundations for a change that could and should eventually be sustained by the sector itself.
Still, trust in people as well as in the provided equipment remains a challenge, affecting people's belief in the system working. Side-selling by farmers and cooperatives, tempted by a temporary higher price, is still prevalent, and there is hardly any interest in establishing contracts.
At the same time, there is a general awareness of the importance of good quality milk, and many are trying to maintain that quality. Processors and cooperatives are investing in relationships with their suppliers by providing extension, financial or other services that are highly valued. However, there is some relapse in quality noted as well now that bonuses are not often paid.

There is still some work needed. The pilot has not yet been followed up by the stakeholders, in the sense that bonus payments are not or barely paid right now. This is despite the business approach, the enthusiasm of many and the quick wins made in milk quality. The maintenance and calibration of the milk analysers still need to be secured, which is currently being worked on. There is also a discussion, raised by some farmers and cooperatives, about paying the bonus individually as an incentive for the best performing farmers. For some cooperatives this is out of question, as bonus payments to them are a matter of solidarity between members. For them, the need for well-performing members to support poorly performing members is more important. Cooperatives should be free to decide how to share the bonus.
Finally, when the dairy sector is able to scale up the pilot and implement the quality system nationwide, other intended results and impacts such as increased employment and food safety can be measured.

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Dairy Survey SW/Mbarara region 2017/2018

Further reading

SNV TIDE: https://snv.org/project/inclusive-dairy-enterprise-tide

NEADAP: https://www.nlfoodpartnership.com/impact_coalitions/neadap/

Appendix: Three testimonies

"It's not the money, but that connection that is one of my key takes from the pilot."

I was educated on the farm of my parents. Because my father had died when I was young, I already had to take over when I was only 14 years old. I currently have 72 cows; most are of Friesian crossbreed. The only local Ankole cow I have is the one I received when I got married. The productivity of the cows varies, from 6 to 21 litres per cow.
I'm the board secretary of our cooperative, representing 292 members, of whom around half are actively supplying milk. Around 35% of our member farmers have more than 50 cows, but we have smaller farmers as well. Our cooperative is quite unique as we have five youths and three ladies on board, as well as a lawyer and an accountant. We say with pride that we have the best board in Uganda.
We have tried to make the cooperative a business hub. Milk is bulked, so that we can bargain with processors. We have an animal drug shop, we provide tractor and loan services that farmers pay for with their milk. The costs are deducted from the price we pay for their milk.
Our cooperative participated in the QBMPS pilot. We were already fighting for quality milk, as we wanted the best price. We pushed the DDA, our authorities, to control milk quality in the whole dairy sector. Because if we reject the milk, another one takes it. The pilot helped to increase the volumes. The bonus provided by the processor was an incentive for us to further improve the milk quality. We saw farmers reinvesting the money in their farms, to feed the cows well. We should not be paid the same as the ones adding water to their milk. We should be rewarded for doing good.
The pilot contributed a lot to a better relationship between the cooperative and the processor. The regular meetings we have ironed out the mistrust between us. We have a better understanding of what we all face in our business. For example, Lakeside Dairies told us that they have to add milk powder if the quality is low. He has to add an extra cost and he proved it to us. It's not the money but that connection that is one of my key takes from the pilot."
(Farmer / secretary of a cooperative board)

"The quality of our milk has improved, because of the pilot. It helped us to get a stable market."

We registered in 2006 as a cooperative with 48 members, to bulk and market milk and have bargaining power. We now have 189 farmers, including 30 women and 29 youth; 170 are active milk suppliers. We deliver 10,000 litres a day in the wet season and 5,000 litres a day in the dry season. We have four coolers and deliver to different processors and traders like Lakeside Dairies, AMOS, Pearl and traders in town and schools. We also have a cooler outlet in Mbarara.
We provide many services to our farmers, like loans, food, drugs, salt and other activities such as tents and chairs for events. The costs are deducted from the milk. We have started with processing ourselves, making yoghurt, two flavours, because the price of raw milk is very low. Like this we add value and we create employment. We also provide extension services. We were with SNV first, 100%, and exited gradually. Now the cooperative pays 100%. They provide advice on animal health, disease control and milking sheds. The cow is the core business. Without the cow, there is no business. It should not die because of money.

The quality of our milk has improved, because of the pilot. It helped us to get a stable market. The bonus helped us a lot, though it was only a token of appreciation, because they never wanted us to run away. We received Ush3,000,000 only. The processors did not think it so important; they did not follow the formula. But providing the best quality services and quality milk is [improving our] name already. Before, we did not provide extension services, [but when we did] quality [improved on] the farm.

But the prices are low and very unstable. Farm inputs are always higher than [what he earns from] the farm. We don't rely on loans, we want to finance ourselves, that's why we deduct two litres from members and ask them to contribute Ush50 per day. We pay back this money at the end of the year. It's our working capital. We don't have much bargaining power with the processor. They determine the price. But they cannot penalize us, because we channel their milk.

There is a difference between processors and traders. Processors do pay and take large volumes. With traders it is different. They pay always only part of the money; they are waiting for customers. But they pay high prices and we can bargain with them. Schools also have fixed prices. Pearl wants us to supply 80%, but we are also committed to other processors.

No bonus is paid right now, though we still deliver quality milk. We train farmers, provide milk in cans. We need to be rewarded for that. We have other challenges, like cattle tick resistance, high costs of fuel and electricity. We hire a milk tanker for USh1,000,000 a month; that's expensive. Side-selling as well. Farmers are easily taken by competitors. We also face unfair competition from the processor, who sometimes goes directly to the farmers."

(General Manager of a cooperative)

"The quality of the milk improved and the volumes increased."

We were registered in 2006 and started collecting milk in 2008. We had 10 people producing 240 litres a day. In 2010 we received a 6,000-litre cooler from the EADD [East African Dairy Development Project, of Heifer International]. Membership grew; we rented a house in town and we currently have 314 shareholders, including 149 active milk suppliers, supplying around 10,000 litres a day in the wet season (5,000 litres in the dry season). We acquired another cooler from the NAADS [National Agricultural Advisory Services].

We used to supply to Sameer, now Brookside Dairies, between 2011 and 2015. But their system was not good. They sometimes came late to pick up the milk, sometimes after two days. And their payments were late. From 2017 we started supplying to Pearl Dairies, who choose us to join the QBMPS pilot. This is unique as we are based in Central region, whereas the pilot was to be in southwestern region.

We enjoy a good relationship with Pearl. I have the phone number of the managing director and I can call him to bargain or in case of a problem. I did not have that direct relationship with the higher

management of Brookside, as they only sent their small field managers to come and bargain. If we are in business, but you don't deal with me directly, how can I supply?
Pearl pays after two days, Brookside after a week only. From 2018 Pearl started to pay the bonus payment of 10% above milk price. We shared this, 70% to the farmers according to their supply, 30% to the cooperative. The management received 1% of the bonus. We sensitized the farmers in how to use the bonus. It was a good thing, very successful. In total we received USh74,600,498 in 2018 and 188 farmers benefited. The farmers were very happy; this was a new incentive, and they wanted that system to continue.
The quality of the milk improved. Some farmers invested to expand their exotic breed to increase volumes. Some started paddocking, improved the hygiene. The volumes increased from 8,000 in 2017 to 10,000 to 11,000 litres these days. However, our farmers still need some sensitization as they don't want to start modern farming, including the use of supplementary food. Overgrazing is still a problem. They also need cooperative management training. Pearl pays 1,150 per litre, including USh80 for the cooperative operational cost. So, the farmgate price is 1,070 per litre. They set the price, it's a matter of signing it."
(Manager of a cooperative)

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.

www.linkedin.com/company/neadap

www.nlfoodpartnership.com/impact_coalitions/neadap/