



Increased income from dairy

The farmer perspective

SNV-EDGET
Practice Brief 1
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Ethiopia enjoys many of the conditions needed to support a buoyant dairy sector. For centuries, agricultural communities have practiced livestock production across the country's highlands, producing sufficient milk for their own subsistence. Today, rapid urbanisation and high economic growth rates are opening up new opportunities for dairy farmers to supply the emerging domestic market. This potential is also reflected in the rise and increased capacity of dairy processing companies.

This Practice Brief highlights the experience of the Enhancing Dairy Sector Growth in Ethiopia (EDGET) project, which has been implemented by SNV Netherlands Development Organisation since 2013. The project aimed to address three specific bottlenecks that hamper the effective participation of smallholders in the dairy value chain: the shortage of high quality animal feed; inadequate skills in modern dairy management; and weak market linkages on both the supply and demand side.

Why dairy farming?

Prior to embarking on the EDGET project SNV carried out several market assessments which confirmed our initial assumption that dairy farming offers one of the best avenues for smallholders to increase their income. Based on the information gathered from different milk producing areas (or milk sheds) around the country the project identified three key reasons for investing in the dairy sector:

1. Broad potential to scale up dairy development on the demand and supply sides

The dairy sector offers a logical entry point for accelerating rural development due to a number of interrelated factors. First, there is a critical mass of smallholder dairy farmers who already own the basic resources required to establish or upgrade dairy production. These include land, labour and a stock of crossbreed dairy cattle. Moreover, the domestic market for milk and milk products continues to expand. Among factors contributing to this expansion are population growth, increased urbanisation, rising incomes due to sustained economic development, and a rise in agro-processing industries. There is also greater public awareness about the nutritional value of dairy products.

2. Entry point for women's economic empowerment

Women play a significant role in dairy production. They undertake a range of dairy management tasks, including feeding livestock, cleaning cowsheds, looking after calves, milking, and milk processing and marketing. In order to contribute to true empowerment of women dairy farmers rather than simply adding to their daily burdens, EDGET strives to address the needs of male and female farmers in its programmes. This gender dimension will be the focus of a forthcoming EDGET Practice Brief.



3. A source of year-round income

Unlike seasonal crop production, once properly established, dairy farming can generate income throughout the year.

What did EDGET do?

EDGET designed and implemented a set of related interventions to address some of the core constraints as well as opportunities in the smallholder dairy sector. The following activities were at an advanced stage of implementation by the end of 2016.

1. Reaching out to dairy households

In order to identify eligible dairy farmers in the three regions the EDGET project set up village level committees headed by the elected kebele (village) chairman. Other members included the kebele manager, government extension worker and livestock expert at the woreda (district) level, and an EDGET project staff member. To qualify for EDGET support farmers had to own at least one local dairy cow that was ready for artificial insemination (AI) services. This is because crossbreed cattle have a much higher milk production capacity. Female-headed households were particularly encouraged to join the project.

To facilitate training, monitoring and farmer-to-farmer learning, farmers were encouraged to form groups, referred to within the EDGET project as 'Dairy Farmer Extension Groups' (DFEGs), with an average of 25 farmers in each group. DFEG members were asked to select approximately five farmers as lead farmers. The lead farmers received additional training in order to reach out to group members and their farms served as demonstration plots for members of the group.

2. Promoting high quality feed and improved calf management

Diverse studies have revealed that the lack of access to high quality feed is one of the main factors that hinder the further development of Ethiopia's dairy sector.

EDGET designed three core interventions to enhance farmers' access to high-quality feed:

- Promoting forage development using locally available resources;
- Introducing feed improvement techniques using crop residues and other by-products of crop farming; and
- Training farmers on the use of concentrate feed and other industrial by-products to supplement available feed sources.



By the end of 2016, the project had provided extension support to 55,000 households

In its first four years the EDGET project implemented three successive rounds of livestock feed interventions, in collaboration with government and non-governmental stakeholders.

The objective was to ensure that dairy households had the requisite knowledge and skills on how to grow and manage a variety of improved forage crops. To this end the project provided hands-on training, planting material and follow up coaching and advisory services through the lead farmers and farmers' groups.

EDGET's project monitoring data (see an overview of the results on page 7) reveals that around 80% of the total targeted households established improved forage

The EDGET Project

Enhancing Dairy Sector Growth in Ethiopia (EDGET) is a five-year dairy development project implemented in 51 woredas (districts) in the three regional states of Oromia, Amhara, and the Southern Nations, Nationalities and Peoples' Region (SNNPR). The overall goal of the project is to contribute to enhance the livelihood of 65,000 smallholder farmer households through improved dairy production and marketing. The specific goals of the project are to: (i) to double the income of smallholder households from dairy production, and (ii) improve the nutritional status of children, particularly in the first 1,000 days of their lives, through consumption of milk products.

EDGET also seeks to complement the significant investments made by the Government of Ethiopia to promote the contribution of the dairy sector to the country's economic development.

EDGET is implemented by SNV-Netherlands Development Organisation, Ethiopia, and funded by the Embassy of the Kingdom of the Netherlands. It builds on the work of previous Dutch-funded dairy sector programmes, including the Business Organisations and Access to Markets (BOAM) programme (2005-2011) and the Market-linked Innovation for Dairy Development (MIDD) programme (2011-2012).

For more information, please visit the project website at: www.snv.org/project/enhancing-dairy-sector-growth-ethiopia

plots within the first four years. In addition, farmers have acquired skills in a number of feed improvement techniques. These include treating crop residues with urea, silage making, and incorporating effective microorganisms to improve the palatability and nutrient content of animal feed.

A related EDGET intervention introduced high quality calf supplementary feed through a network of local agro-input dealers. Participating farmers have seen significant improvements in calf and heifer development indicators such as weight gain and age of first AI service for female calves. This early success, coupled with the availability of field level technical support, have been instrumental in encouraging dairy farmers to give proper attention to calf management (see Practice Brief 3 in this series). This is important in building the basis for sustainable dairy livelihoods in the future.

3. Improving milk handling practices

Ethiopia's smallholder dairy producers often face losses due to poor milk quality. This is linked to a combination of unhygienic milk handling, storage and transportation practices. EDGET introduced improved milk containers in order to maintain milk quality from the source right up to delivery at the milk collection centres. The containers

are produced by a local industrial plastic manufacturer and are distributed to all households participating in the project. SNV obtained a licence to manufacture and commercialise the technology in Ethiopia from Global Good, a social innovation company.

In order to create access for other dairy farmers, EDGET is also facilitating the distribution of improved milk containers through a network of agro-input dealers in the 51 project districts.

4. Strengthening extension services and farmer-to-farmer learning

EDGET's dairy extension strategy aimed to fill gaps in the existing government extension services, while also strengthening the capacity of the extension system to deliver high quality services to smallholder dairy farmers.

In close collaboration with the Ministry of Livestock and Fisheries Resources Development and its regional bureaus, the EDGET project provided training and capacity building support to farmers on a variety of

relevant topics. These included: forage development; dairy cow and calf management; housing and manure management; hygienic milk handling and processing; and dairy business management.

Initial training on each package was provided at the kebele level. This was followed by advice and coaching at farm level and during farmers' field days. On average EDGET organised three dairy learning events at woreda level and one regional-level event each year.

This approach was designed to ensure timely and well-targeted extension support and promote farmer-to-farmer knowledge exchange and learning. Farmers' dairy management skills have greatly improved as a result of the upgraded extension services. With the resulting rise in milk yields many farmers are earning more from their dairy activities, as highlighted in the household survey (see page 7). Moreover, the peer learning process has helped to narrow the gap between the lead and follower farmers in terms of attitudes, practice and income. One example of this is the rapid dissemination of the supplementary calf feed technology, due to demand from other farmers. The introduction of hygienic milk handling techniques has similarly led to noticeable improvements in a short time.

According to one government extension agent, "EDGET farmers" have gained a reputation as models of good dairy management practices, especially in such areas as producing improved forage, supplementary calf feeding and modern dairy management practices.

5. Supporting farmers cooperatives and market linkages

For the individual smallholder dairy farmer it is almost impossible to acquire a strong position within the dairy value chain. The low volume of milk produced means that it is not economically feasible to process milk into a variety of products. Moreover, it is difficult to get a loan from a bank or a micro finance institute to cover the high investment costs for milk processing.

The EDGET project supports farmers to pool their resources by establishing or strengthening dairy cooperatives. One of the services provided by the cooperatives is the management of Dairy Processing Units (DPUs) that process and market milk delivered through a network of farmer-managed milk collection units.

By the end of 2016, 26 DPUs were in operation across the three regions. EDGET's support included installing the processing technology and related equipment, training DPU staff, and facilitating business development and market linkages.

"EDGET farmers" have gained a reputation as models of good dairy management practices

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A selection of farmer experiences

Earning a decent livelihood from dairy production: Farmer Kidane Ayele's story

Everyone knows farming is hard work. So, as farmer Kidane Ayele puts it, "do yourself a favour and grow something that you love!"

From a young age, Kidane was determined to use his education to escape the poverty faced by many rural families. He began his dairy farm in 2003 after receiving a gift of one local cow from his father. The farm is located in Debre Libanos woreda in Oromia region.

Soon after his cow gave birth to a crossbreed heifer Kidane was able to supply an average of 12 litres of milk each day. He hired an adjoining plot of grassland to produce sufficient feed for his animals.

When the SNV-EDGET project began to provide support to the area in 2014, Kidane was selected to join one of the local farmers groups where he received training and follow up extension support. He established a small backyard forage plot measuring just 100m² where he began to grow desho grass. In three years time, his herd had grown to five crossbreed cows and his milk production increased four-fold, earning him about 450 ETB (US\$20) a day.

In a country where about one-third of the population lives on less than US\$2 a day, Kidane is among the many smallholder farmers who have found a way to earn a decent income from dairy farming. Together with several neighbouring farmers, he plans to establish a private milk collection centre in order to realise a greater share of the profits. He also plans to process milk produced during the fasting season when there is lower demand.

Story prepared by Dida Debela, SNV-EDGET Dairy Extension Promoter, Oromia

Adding value to milk production: Birhanu Zeleke's story

Birhanu Zeleke is a dairy farmer in Shala Chabeti kebele, Tiyo woreda, Oromia region. He began dairy production in 2009 with one crossbreed cow that he bought for 2,000 ETB (US\$90). He feeds his cows with fresh backyard forage during the wet season and crop residues mixed with concentrate during the dry season. He has also built an improved cowshed. By making use of artificial insemination he has increased his herd to seven genetically improved cows and heifers in seven years.

Birhanu sells part of his milk at the farm gate to private milk traders. He also takes part of his produce to the Waji Bilalo Primary Milk Cooperative, located about five kilometres from his home.

Birhanu's wife takes care of the day-to-day dairy production and management activities, including feeding and milking the cows, cleaning the barn and producing forage crops in the backyard. Similar to other dairy farming households, she processes the evening milk into butter and cottage cheese that is sold at the nearby market. These processing activities are an important income source for female smallholders.



A SNV-EDGET Dairy Extension Promoter measures the progress of a calf as Birhanu's mother looks on.



Birhanu feeds his cows with hay from his forage plot.

Story prepared by Kedir Abishu, SNV-EDGET Dairy Community Mobiliser, Oromia

A story of farmer innovation

Tesfaye Teklehaymanot used to grow cereals on his small farm in Hetosa woreda, in the Oromia region. When he learnt that he could use the crop residues as animal feed, he decided to venture into dairy farming as it would also provide him with manure to improve the productivity of his farm. After participating in the EDGET training programme he was able to provide good housing and care for his animals. He also began to grow evergreen forage such as elephant and desho grass on his backyard plot using planting material provided by the project. As he explained to EDGET staff, "...using dry feed alone will also make the animal's body dry."

Tesfaye has introduced other improvements such as harvesting rain water from the roadside to ensure that he has a sufficient supply for the dry season. He has introduced improved manure management, enabling him to produce biogas as a clean energy source. After three years, Tesfaye started to distribute his excess forage harvest to neighbours, earning an additional income. He now earns enough money from selling milk and forage to cover all his household expenses.

Story prepared by Nura Haji, SNV-EDGET Dairy Extension Promoter, Oromia



Tesfaye Teklehaymanot feeding his calves with improved forage

The next challenge: from improved dairy production to a viable dairy business

"Before we learnt about how to grow improved forage, we were doing the same thing every day. Sometimes we had a good harvest, but sometimes our farm produced nothing. I am so grateful that the EDGET project has come because it is transforming our lives."

With these words, farmer Ato Tafese Tademe, one of the dairy farmers supported by the SNV-EDGET project in Sidama zone, SNNPR region, tries to explain how project is helping farmers to gain back some control over their livelihoods. Ato Tafese is a member of Elenito Dairy Farmers Extension Group in Gure kebele.

Before joining the project Ato Tafese was struggling to support his large family. He has since participated in various training and capacity building events where he has gained many new skills. These include how to develop and utilise improved forage, how to build better housing and take better care of his cows and calves, how to handle milk in a hygienic way and how to manage manure and crop residues to improve the productivity of his land.

After feeding his cattle with improved feed from his backyard forage plot measuring around 920 m², Ato Tafese's milk production has nearly doubled, to an average of eight to twelve litres of milk per cow. Ato Tafese has also realised his goal of adding one healthy crossbred calf to his stock each year without affecting his milk production. In three years, his annual income has increased from around 2,520 ETB to 17,680 ETB (US\$775).

Ato Tafese believes he can expand his output even more, but he is not satisfied with the price he currently gets for his milk. He says that he would like to have better access to market information so that he can get the best value for his dairy products. Together with other members of his farmers group he has joined the EDGET-supported Dairy Processing Unit (DPU) in his woreda. He hopes that the DPU will help farmers to negotiate a better price for their milk.

Story prepared by Yohannes Oliye, Dairy Community Mobiliser, SNNPR



Some early lessons

While the EDGET project is still ongoing some of the experiences highlighted in this Brief offer some insights for introducing further improvements and ensuring that even more farmers benefit. We can group these under two broad lessons.

1. Effective extension services require a farmer-led approach

Building on the existing government structure, the EDGET project designed and implemented a farmer-centred extension service delivery approach to address gaps and strengthen the overall extension system. The Dairy Farmer Extension Groups served as the basic units for farmer-level learning and exchanges. But EDGET also invested in building the capacity of government extension agents and hired additional dairy extension promoters to effectively reach all farmers. The most capable and motivated lead farmers have become an important link in the chain and receive training and support in order to directly engage with their peers.

Some of the successful features of this approach include:

- Bringing together farmers who share a common interest in improved dairy management and who are ready to learn from each other;
- Ensuring that training packages and other extension messages are delivered right up to the individual farmer;
- Adopting a variety of outreach tools to encourage peer learning. These include onsite visits, regular farmer learning meetings, and exchange visits to farmers in other locations;
- Using farmers' knowledge and identified gaps as the starting point for developing dairy development packages (see Practice Brief 2 on Improved Forage);
- Carrying out continuous monitoring and follow up at village and woreda levels through the network of project field staff and kebele level dairy development committees.

• This intensive approach has helped the project to reach a large number of farmers and to register concrete results within a relatively short time.

• Through regular interactions among project staff, government extension officers and farmers' groups, the project is able to monitor which practices are being taken up and to step in when problems occur. A forthcoming practice brief will provide a more detailed analysis of the innovations introduced by the EDGET extension approach, as well as strategies for ensuring its sustainability.

• **2. Integrated approaches are needed to address market and institutional constraints**

• From the outset the EDGET project sought to adopt a holistic approach that takes account of the multi-faceted

challenges faced by smallholder farmers within the dairy value chain.

Alongside strategies to improve dairy production at farm level, EDGET continues to explore measures to secure farmers' access to inputs through partnering with a network of agro-input dealers. A number of interventions to address market-side constraints – such as strengthening milk collection and dairy processing facilities - are also underway. While some of these measures are still at an early phase of implementation, there are indications that the project has started to stimulate dairy markets in some areas. SNV aims to publish a new set of learning documents in the second half of 2017 to share some of the lessons learnt with other stakeholders in the dairy sector.

Capturing results at the farmer level: The EDGET Household Survey

In August 2016, SNV EDGET conducted a household survey of 100 randomly selected farmers in order to gain assess progress towards achieving the project's objectives. The sample comprised roughly 10% of the 1,200 farmers who had participated in the project baseline survey in 2014.

One of the questions we asked farmers was whether they had generated revenue from dairy activities for one year between September 2015 and August 2016, to which 92% of the farmers said "Yes." By comparison, the baseline data showed that only 46% farmers were earning an income from dairy activities at the start of the project in 2014.

We then recorded the amount of revenue generated and expenses incurred by the sampled farmers.

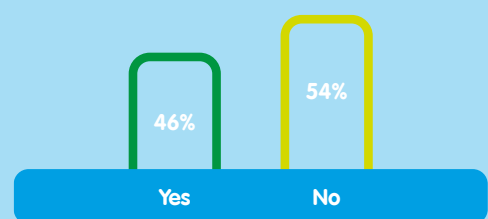
By deducting expenditure on various farm inputs from farmers' current gross income from dairy and comparing this to their previous (baseline) income 77% of households registered a rise in income. Among farmers who reported an increase in dairy income, 87% reported that they had achieved double or more of their previous income.

When asked to explain the main reason for the rise in household income, the majority of respondents (77.9%) attributed it to the support provided by the project. 10% of households linked it to ownership of crossbreed dairy cattle, while six households (7.8%) mentioned the increase in milk price and demand. About 1.3% of respondents associated the rise in income with the good weather conditions.

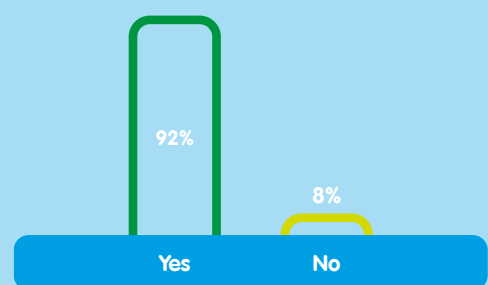
While the sample is quite small, these results do indicate that the EDGET is moving in the right direction in its goal of supporting smallholder farmers to double their income through dairy farming. Asked to name some of the interventions that most contributed to the increase in income, respondents highlighted:

- Improved availability and reduced costs for dairy feed as a result of the forage and feed improvement intervention;
- Improved dairy management and feeding practices due to the capacity building support received;
- Additional income earned from sales of forage seed and planting materials.

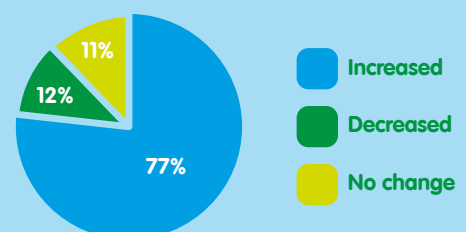
Did the household earn an income from dairy in 2014?



Did the household earn an income from dairy in 2016?



Changes in household net income (2014-2016)



Improving our practice

Over the past few decades the Government of Ethiopia and its partners have implemented diverse programmes aimed at strengthening the country's dairy sector. The EDGET project builds on these efforts by implementing a large-scale, integrated and farmer-centred approach to address the specific constraints that smallholders face in entering the dairy value chain.

Working with the existing government structure, the project is developing a "fit-for-purpose" extension system to rapidly reach the target 65,000 households and build their technical capacity to sustainably earn a living from dairy production.

Building on the lessons learnt from past interventions in the dairy sector, EDGET focused on addressing one of the foremost challenges faced by smallholder farmers: how to ensure a constant supply of high quality feed for their cattle (see Practice Brief 2 on Improved Forage). EDGET was the first dairy project to include large-scale support for improved calf management. It has also worked with local manufacturers and agro-input dealers to produce and distribute more hygienic milk containers.

However, not all innovations in the project have come from external sources. In some communities, outstanding farmers have helped to introduce good practices in improved forage production, building on their local knowledge and exchanges with their

peers. As highlighted in the farmer stories featured in this publication, dairy farmers are not only fulfilling their livestock feed needs but also turning forage production into a new source of income.

In October 2016, EDGET gathered a group of field-level project extension staff, representatives from one of the regional bureaus of the Ministry of Livestock and Fisheries Resources Development, and extension services providers working at the zone and woreda levels. The aim of this first EDGET learning event was to assess some of the preliminary results of the project and draw key insights for future implementation. Participants acknowledged that while EDGET has made significant progress in just three years of field work, there is still a lot to learn from the feedback obtained from farmers. For example, after the initial introduction of different types of forage, what subsequent choices/adaptations do farmers make? And how can the project create opportunities to expand income opportunities to those beyond the immediate reach of the project?

This series of practice briefs is an attempt to capture some key lessons on how to build a dairy support programme "from the ground up." By combining "stories of change" at farmer level with reflections of what SNV is learning at project level, we hope to gain new insights on how to link up the various dairy sector interventions to achieve lasting impact.

With this series of reflections, we also aim to demonstrate that while the EDGET journey has just started, we are moving in the right direction. The task ahead is to consolidate these early lessons in order to build a truly farmer-driven knowledge network that will help transform the dairy sector in Ethiopia.

There are indications that EDGET has started to stimulate dairy markets in some areas



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A set of longer farmer stories is also available.

Once published, all publications in this series will be available online via the following link: www.snv.org/project/enhancing-dairy-sector-growth-ethiopia/

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Author: Zelalem Atnaf (SNV-EDGET)

Contributors: Dida Debela, Kedir Abishu, Nura Haji and Yohannes Oliye (SNV-EDGET); Bona Ali (Arsi Zone Livestock & Fisheries Resources Development Office)

Editing and coordination: Wangu Mwangi (Learning for Development)

Peer reviewers: Hans (JW) Meenink and Jurjen Draaijer (SNV-EDGET); Heinz Greijn (Learning for Development)

Photography: Tewodros Beshah, Dawit Studio and Top Digital Studio

Graphic design and production: Stefanie van der Vlies (ZOUT design & communicatie); Meseret Kebede (SNV Ethiopia Communication)