

# Four important facts on opportunities in the Ethiopian dairy sector

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Ethiopia offers huge opportunities for dairy sector development. With a growing economy and an increasing number of urban middle class consumers, demand for dairy products is expected to rise, making the dairy sector an interesting sector for investors and developers. This practice brief examines the opportunities and challenges for dairy production and marketing. It addresses four important facts about the Ethiopian dairy sector that can support future (medium-scale) investors in identifying business opportunities along the dairy value chain and in developing feasible business plans for their investment. Results and data are based on a study in the SNNP region.

## Ethiopia: a growing economy

Economic and demographic indicators in Ethiopia are favourable for growth of the dairy sector: in 2016, Ethiopia ranked 9<sup>th</sup> in the world in terms of growth in population (now exceeding 100 million) and 14<sup>th</sup> in terms of GDP growth (6.5% to 1900 US\$ per capita)<sup>1</sup>. Ethiopia is expecting a doubling of the number of middle class consumers by the year 2030<sup>2</sup>. Like in other growing economies, it is expected that the growth in the middle class population and increased urbanisation will lead to an increased purchasing power and hence higher demand for livestock products including milk. Although still low, per capita milk consumption in Ethiopia has been increasing at the rate of 2.2% per year over the period 2010 to 2015<sup>3</sup>. In addition, Ethiopia has a large cattle herd (around 14 million) and high diversity of agro-ecologies, many of which are favourable for dairying.

## Facts & Figures

- **Dairy herd:** 14 million cattle
- **Milk production:** 3.8 million tonnes/year
- **National production share:**
  - 63% Rural smallholders
  - 22% Pastoral & agro-pastoral
  - 14% Peri-urban and urban
- **Species:**
  - Indigenous breeds: 97% of milk produced
  - Improved or crossbreds: 3% of milk produced
- **Consumption:** 19 kg per capita per year

## Key messages:

- Improved dairy breeds give three times more revenue than local breeds, meanwhile their operating costs are only 40% higher than those of local breeds.
- It is advisable for new investors to use high yielding crossbreds, as they will get better profit margins. Farmers with local breeds can gradually upgrade their cows by breeding, using semen from exotic bulls.
- Dairy production, processing and marketing all have profitable margins in Ethiopia. Actors should consider access to the raw materials and to their markets as key determinants of their costs and hence their profitability.
- Actors need to handle a fluctuating demand for dairy products in Ethiopia and build stronger vertical and horizontal chain linkages to support production, processing and marketing of dairy products.
- Dairy farmers need to consider intensification options such as optimal fertilisation, improved fodder production and fodder conservation in order to minimise challenges associated with land and feed availability.

## 1. Using improved breeds rather than local breeds triples milk revenue for the farmer, with just a 40% cost increase

Smallholders sometimes prefer to use local breeds as they are more adaptable to the environment, easier to manage and cheaper to rear.

Figure 1 shows the returns of both farmers with crossbreds and those with local (indigenous) breeds. The farmers with crossbred cows get about 1 ETB less per litre of milk due to lower milk solids content. However, the higher volume of milk produced per day (8.4 litres/day from crossbred cows compared to 2.3 litres/day for local breeds) gives farmers with crossbreds a three times higher revenue of 108 ETB per cow per day as compared to 31 ETB for farmers with local breeds (see Figure 2) . This respectively gives farmers with crossbreds a gross benefit of 41 ETB per cow per day compared to 15 ETB per cow per day.

Figure 3 confirms that the costs per litre of milk are lower for local breeds as compared to crossbred cows. The higher costs for the crossbred cows are mainly due to their need for more and better quality feed and for more labour for their husbandry (in hours/litre of milk). When looking at the proportions of cost items, we see that the proportions of costs are quite similar for local and crossbred cows, despite an absolute direct cost difference of 21 ETB per cow per day.

Feed costs are the highest cost component, accounting to around 46% of total costs; this is followed by labour costs accounting to 26% of total costs.

In summary, farmers with crossbreds spend 21 ETB (40%) more per cow per day and gets 77 ETB (350%) more revenue per cow per day. This implies that, though crossbred cows are more expensive to maintain, they produce a lot more milk. This makes them economically more attractive than local cows. It should be noted that this example only considers the direct operational costs of the dairy enterprise. When looking into investment costs (estimated at 32,000 ETB per cow for crossbreds and 10,000 ETB for local cows<sup>4</sup>). We would, however, still come to the same conclusion: that the economic benefits of keeping crossbred cows are much better than keeping local cows. We should also keep in mind that crossbreds need better management than local breeds in order to realise their full production potential and also, if well managed, a larger herd size would be more profitable than a smaller one<sup>5,6</sup>.

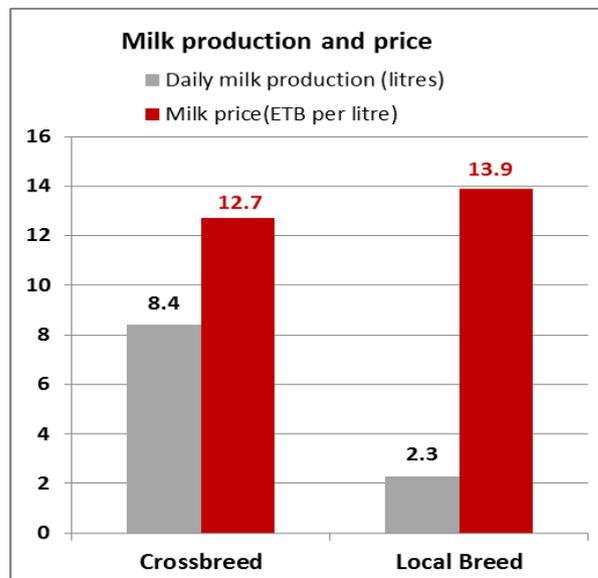


Figure 1: Milk price & daily milk production

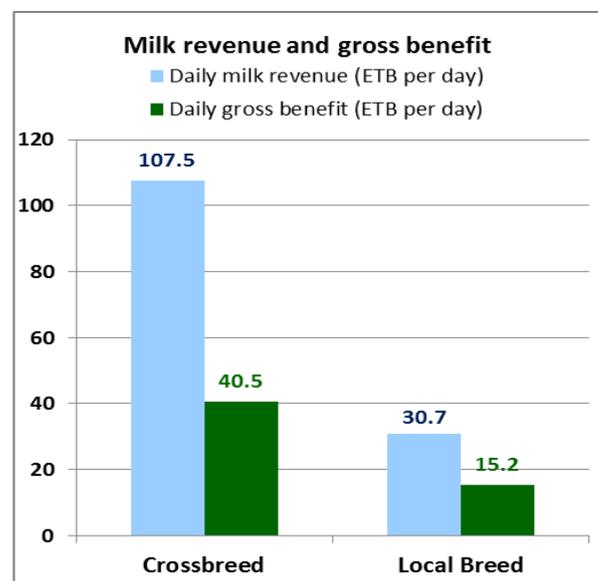


Figure 2: Revenue per cow for crossbred and local breeds

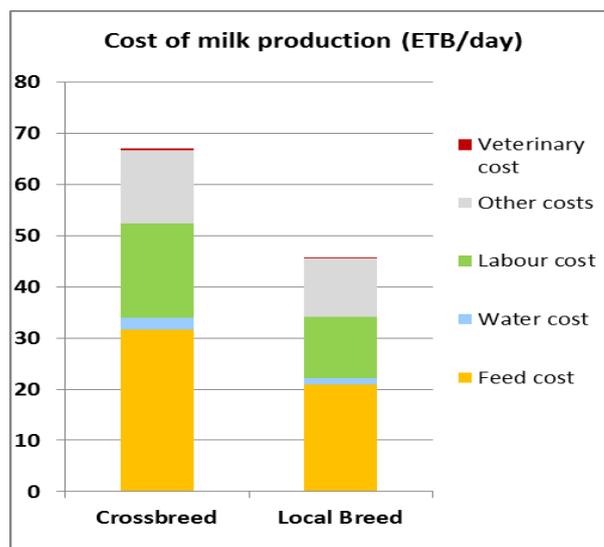


Figure 3: Daily direct costs per cow in absolute costs for crossbreds and local breeds

## 2. All actors in the dairy chain earn more than 17% above their direct cost

Table 1 shows the costs and revenue of various actors along the dairy value chain. We see that the costs and revenues per litre of milk vary depending on the type of product and the geographical location of the actors. The table also shows that investment in value addition at local level was very minimal, as on average, the cost of fresh milk accounted for more than 96% of the total cost of milk products. This seems to be typical for (peri-) urban informally marketed dairy as compared to rural dairy farming and formally marketed pasteurised dairy products.

**Table 1:** Costs and revenues per litre of milk for different actors in the dairy chain

Actors	Town	Production / buying cost (ETB)	Running cost (ETB)	Total cost (ETB)	Revenue (ETB)	SGP (ETB)	SGM in %
<b>Producers</b>	Across the study towns			8.06	11.94	3.87	32%
<b>Milk shops</b>	Hawassa	13.66	0.21	13.87	18.00	4.13	23%
	Shashamane	10.50	0.21	10.71	18.00	7.29	41%
	Dilla	11.66	0.45	12.11	20.00	7.89	39%
	Average	11.94	0.29	12.23	18.67	6.44	34%
<b>Local processor</b>	All except in Dilla	13.50	1.05	14.55	22.00	7.45	34%
<b>Kiosks/ super markets</b>	Hawassa	22.00	0.50	22.50	27.00	4.50	17%

SGP (Simplified Gross Product) = Turnover (gross sales) – Direct costs,  
SGM (Simplified Gross Margin) = (SGP/Revenue) \* 100

For the local processors, milk shops, kiosks and supermarkets, their gross product and gross margins were more driven by the cost price of fresh milk than by their selling price for processed milk. The proximity of the processors and retailers to their input suppliers and the number of middlemen in the chain contributed to the cost of milk at each actor's gate. Availability of improved infrastructure such as better roads could reduce the transaction costs, hence increase the profit of various actors. To conclude: the dairy sector offers an attractive sector for various partners along the dairy value chain.



**Picture:** A typical milk shop

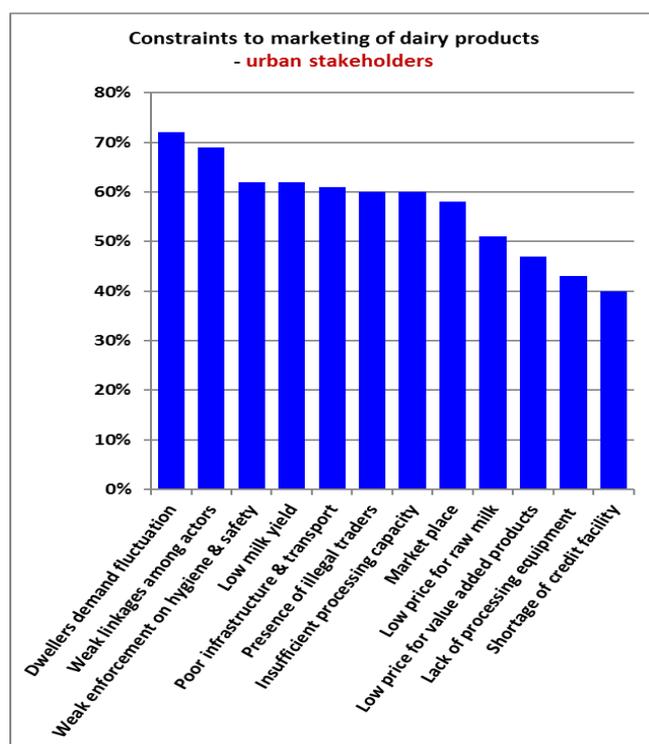
## 3. Limiting factors affecting the marketing of dairy products: fluctuating demand & weak linkages among actors

The three main challenges of the actors marketing milk were the fluctuating demand for milk, the weak linkages among actors, and the weak enforcement of hygiene and food safety regulations (see Figure 4).

The *fluctuating demand* is mainly the result of reduced demand for milk during the main fasting periods of Orthodox Christians, which last over 100 days in a year. Processors need to become more advanced in advancing shelf-life of milk surpluses to deal with these fluctuations.

The *linkages between stakeholders* is also an issue because chain actors operate individually without good backward and forward linkages with suppliers and clients. Stronger contracting and investments in supplier services are called for.

Because of the *weak enforcement* of hygiene and safety regulations, adulterated and poor quality milk can be found in the markets, competing with better quality milk processed in the more formal channels. To counter this, actors need to handle a fluctuating demand for dairy products in Ethiopia and build stronger vertical and horizontal chain linkages to support production, processing and marketing of dairy products.



**Figure 4:** Ranking of constraints marketing of dairy products by urban stakeholders (milk shop owners, processors and supermarket owners)

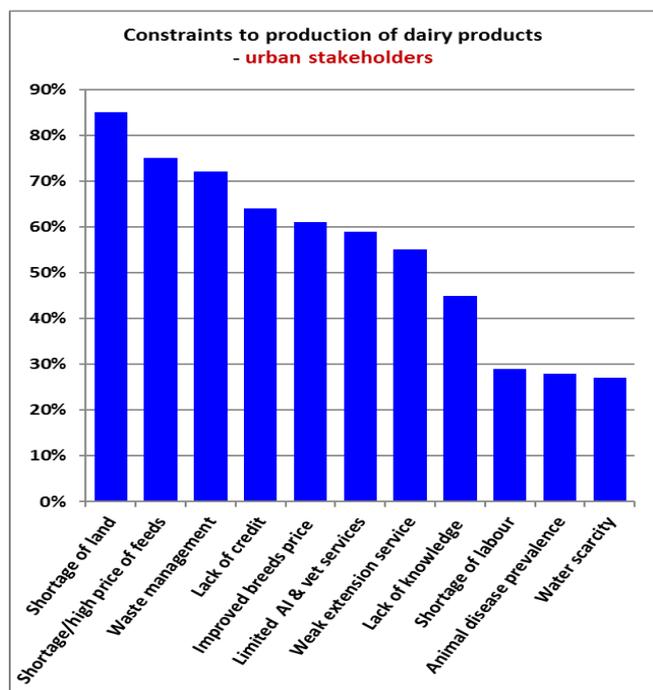
#### 4. Limiting factors affecting production of milk: availability of land (85% of farmers), shortage of feed

Shortage of land, shortage of feed and/or high feed prices, and manure/waste management are the three major constraints to dairy production in both urban areas; meanwhile water scarcity, shortage of labour and animal disease prevalence were the least common constraints (see Figure 5).

**Land:** In Ethiopia, over the years pressure on land has increased due to the growing population and higher demand for agricultural products. Proper management of land, including intensification options such as irrigation and fertilisation, could improve fodder and crop yields and reduce the stress on farmers due to land shortage. The fertiliser gift per hectare of arable land was only 24 kg in 2014, compared to a world average of 139 kg in the same year<sup>7</sup>. Changes in manure management – with manure being collected and applied on pasture or cropland, either with or without treatment, rather than being used as household fuel – could also improve both soil nutrients and soil organic matter, and lead to higher crop yields<sup>8</sup>.

**Feed:** Drought situations are increasingly occurring in Ethiopia over the last years, which has greatly affected feed and fodder availability. In addition to land management options explained in the previous paragraph, planting of fodder rather than use of crop residues and feed conservation options such as hay production and silage making would ease the shortage of feed.

**Waste disposal:** Most farmers do not envisage a manure management system when constructing their farms. For small farms manure is often used to produce dung cake, which is used for fuel. However for medium and large scale farms, the volumes of manure generated will require a proper management plan. Options such as creating proper storage facilities for manure, composting, and application of manure or compost as a fertiliser on own crop- or fodder land should be considered, as should and also sale to other crop farmers.



**Figure 5:** Ranking of constraints to production of dairy products by urban producers

**Pictures:**  
Milk collection at a local collection centre  
Milk transportation by motorbike, bicycle & truck.  
Transportation is mentioned as one of the limiting factors for marketing

## Recommendations

Crossbred cows offer three times more revenue than local cows, meanwhile their operating costs are only 40% higher than those for local cows. New investors into dairy farming should consider the use of improved genetic material (crossbred cows) as the best option for an economically sustainable investment. Farmers already keeping local dairy cattle can: 1) gradually increase the proportion of crossbreds on their farm by breeding using semen from exotic breeds and using the resulting offspring to replace their culled cows or 2) sell the local breeds and replace them with crossbreds, provided additional financing is available to meet higher investments and operating costs.

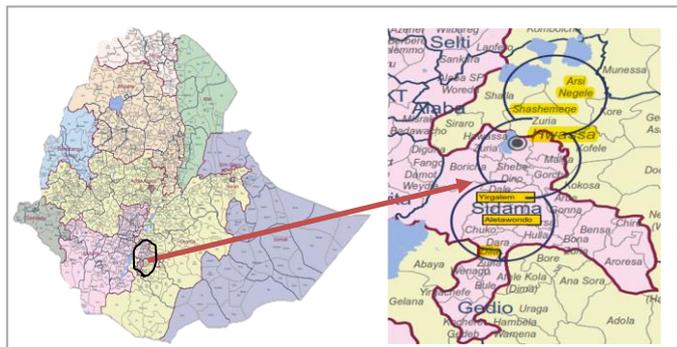
Milk production, processing and retailing all provide attractive economic benefits to small and medium scale investors in Ethiopia. The Ethiopian dairy sector therefore provides good investment opportunities all along the dairy chain. Actors should consider accessibility to the raw materials and to their markets as key determinants to their costs and hence their profitability.

Dairy farmers should consider manure management options that allow for manure collection, treatment/storage and application as a fertiliser. Prospective farmers should also consider intensification options on their land, such as optimal fertilisation, improved fodder production and conservation in order to minimise the impact of potential challenges associated to land and feed availability.

## Methodology behind this Practice Brief

This Practice Brief is based on a study conducted in the southern milkshed of Shashamane-Hawassa-Dilla in SNNP Region. This area was selected in order to assess major opportunities and constraints of dairy production and marketing outside the usual dairy focal area around Addis Ababa, and because of its interesting perspectives for dairying. Weather conditions in this area favour fodder and crop production; large volumes of crop residues are annually produced that could serve as good feed supplements for dairy cattle<sup>9,10</sup>. There is a traditional practice of dairying in this area. The secondary towns of Hawassa, Arba Minch, Dilla, Sodo and Shashemene offer a significant market in close proximity.

The study assessed and interviewed a total of 358 dairy farmers with crossbred and local cows in this region, using a structured questionnaire. Other value chain actors from urban and peri-urban areas were interviewed using open ended checklists.



**Figure 6:** Map of the study area Shashamane-Hawassa-Dilla in SNNP Region

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