



BRIDGE: Building Rural Income through Inclusive Dairy Business Growth in Ethiopia

PROJECT BRIEF

**The dairy cold chain in Ethiopia:
Findings from a milk cooling tank census**

The BRIDGE project recently carried out a census of all milk coolers in the country, creating more insight in the utilization and functionality of milk coolers as well as the milk collection centres (MCCs). This brief shares the key findings from a survey conducted in September and October 2020. In assessing the importance of the milk cooling technology for the dairy sector, a distinction is made between functionality and utilization of milk coolers.

The survey found that there are **180 milk coolers** in Ethiopia, out of which 149 (83%) are functional. This means that the milk cooling tank has been installed and could cool milk. The remaining 31 (17%), either have not been (completely) installed or have broken down. Out of the functional tanks, only 56 (or 31% of the total) are operational, i.e. the milk cooler functions and chills collected milk.

Table 1: Functionality of milk coolers			
Owner	Tanks	%	Explanation (common reasons)
Functional and operational	56	31%	Ownership and location are key factors for functionality
Functional, not operational	93	52%	Not enough milk (43), lack of water or power (31), lack of market incentive (28) and/or no skilled manpower to operate (24)
Non-functional	31	17%	Not all parts supplied (19), lack of power or water (16) and/or no technical expertise available (12)
Total	180	100%	

The two most important determinants for the operational status of milk coolers are **ownership** and **location**.

Ownership

Out of the **56** milk coolers in operation, **41 (73%)** are owned by milk processors. This is out of the total of 68 (38%) that are owned by processors, indicating that a high proportion (60%) of the tanks owned by processors is actually in operation. Add to this the fact that the majority of tanks owned by processors (38) was actually bought by them, rather than being assisted by NGO or government projects. The

conclusion can therefore be drawn, that processors buying tanks themselves gives the highest chance of the tanks being utilised. The record for NGOs and (government) projects is very poor, as only 20% of the tanks bought with NGO or government support are actually operational. Farmer groups (mainly cooperatives) also have a poor record, as they own **37%** of the milk coolers, of which only **16%** is operational.

There are 180 milk cooling tanks in Ethiopia
Only 31% are actually operating
Most of the tanks bought with support from projects are not operating
73% of operational tanks are owned by processors



Location - Distribution of milk coolers

Table 2 presents the distribution of milk coolers across regions. Almost half of all milk coolers (i.e. 88 out of 180) can be found in Oromia (49%), while Amhara has the second highest number (48 or 27%). The total installed capacity is 437,000 litres, but only 142,200 is

actually utilised and operational. Considering that the current estimates for the milk being processed in the country is 340,000 litre per day, that means that only less than one third of the milk being processed is sourced using cooling somewhere along the chain.

Table 2: Distribution of milk coolers				
Regions	No. of cooling tanks	Installed capacity (ltr)	Functional tanks	Utilised capacity (ltr)
Oromia	88	240,300	37	98,500
Amhara	48	99,700	15	35,700
Tigray	22	47,000	3	6,000
SNNPRs	14	28,000	-	-
Sidama	5	18,000	1	2,000
Somali	1	3,000	-	-
Afar	1	500	-	-
Dire Dawa	1	500	-	-
Total	180	437,000	56	142,200



The map shows the physical distribution of milk coolers across the country. Further details can be found:

https://www.google.com/maps/d/u/0/edit?mid=11kObzt5-yImUec4lqA9yfUIh5vkvx_QZo&usp=s_haring

Milk Collection Centres (MCCs) and milk cooling tanks

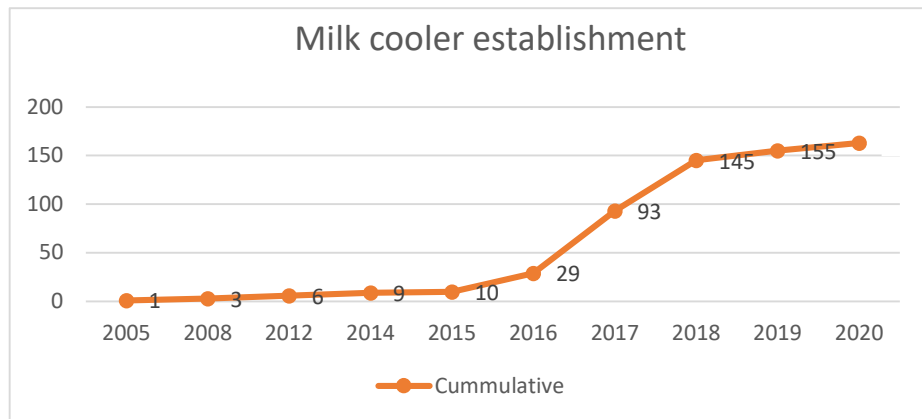
This briefing focuses on milk cooling tanks. Most of the cooling tanks in Ethiopia have a capacity of 2 – 3,000 litres (average 2,428 litres), with the smallest holding 500 litres and the largest 15,000 litres. Milk coolers with a volume of 2,000 litres are most common (65%). On average, the operational milk coolers collect 2,595 litres of milk per day. In 86% of cases, most milk supplied to the milk coolers was transported in plastic containers.

The facility where the milk cooling tank is housed is the Milk Collecting Centre (MCCs). The 180 milk cooling tanks are located in 131 MCCs. Most of the MCCs have just 1 milk tank, but 21 MCCs have two tanks and 14 of them have even 3 tanks.

Additional findings

Almost all milk coolers are either located near Addis Ababa, or along the roads leading to Addis Ababa, illustrating its dominant position as milk destination. Some 71% of all milk coolers have been supplied by NGO and government projects. This includes 100 milk coolers provided by the Livestock Market Development project (LMD), funded by USAID. Only 14% of the milk coolers that were acquired with support of projects are in operation.

Since 2017, the number of milk coolers acquired through the support of projects in Ethiopia have increased significantly. This increase coincides with the LMD distribution of dairy equipment to Ethiopia starting in 2017.



Out of the 180 cooling tanks, only 17 use the more efficient ice bank technology. Its relevance for the Ethiopian conditions is demonstrated by the fact that 16 out of the 17 ice banks actually are operational. The source of energy is another factor to consider. From the 180 milk cooling tanks, 36 rely on a (diesel) generator only, with 86 depending on electricity and 58 able to use both. In terms of utilisation, only 57% of the tanks use all (100 %) of their capacity for the last one year. The role of milk chilling does not to be fully appreciated in the chain, as 45 % of the respondent indicated that there is no selling price difference using cooling tank. It is also noteworthy, that milk stays on average for 19 hours in the milk cooling tank, with ranges from 0.5hrs – 96 hrs.



Building Rural Income through Inclusive Dairy Business Growth (BRIDGE)

is a five-year (Sep 2018- Dec 2023) project financed by EKN and implemented by SNV and Wageningen University and Research. The core objectives of the project are to improve the income of dairy farming at household level and contribute to dairy sector transformation.

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