



RESEARCH
PROGRAM ON
Livestock

*More meat, milk and eggs by and for
the poor*



Pasteurization to improve traditional dairy products

Key messages and solutions

- Pasteurization is a simple process in which milk is heated to 65°C for 30 minutes or 73°C for 15 seconds, killing pathogenic bacteria
- Milk pasteurization is the first step to process safe and high quality products
- Milk must be boiled or at least pasteurized before consumption



Problem statement

Raw milk can be a source of pathogens that cause foodborne illnesses and can lead to serious health problems. Research in Abergelle showed that 68% of the milk samples had high levels of bacterial contamination (greater than 100,000 CFU/ml). Moreover, *E. coli* and *Staphylococcus aureus* were isolated from 8.8% and 5.5% of the samples respectively.

Pathogenic microorganisms such as *Brucella*, *Staphylococcus*, coliforms and *E. coli* are killed or greatly reduced by pasteurization.

Fermented milk is widely-consumed in Ethiopia. Producers say they face quality problems that directly infringe in the marketability of these products. In some locations, *Ergo* was observed to have heavy gas formation, which could be due to contamination with fecal bacteria like enterococcus coliforms and *E. coli* that will affect the health of producers and consumers.

Pasteurization will reduce these problems and will make raw and fermented milk products safer.

Benefits

Using pasteurization for milk leads in:

- Safe dairy products
- Fermented milk with improved texture
- Products with extended shelf life



Evidence

- The technique was tested in Tigray, Abergelle and Yabello with goat and cattle farmers. The intervention is easy and essential to apply. In Abergelle, almost 85% of farmers introduced to this technology started practicing it.



Suitability

- The intervention is appropriate for pastoral and agro-pastoral communities that produce dairy products. The needed equipment is a fire source, a suitable pot and a simple thermometer to control temperature especially in the case of cheese processing.
- The technique contributes mainly to human nutrition (safer food), market linkages (better products) and consumer preferences through enhanced product texture (consumer preferences).

Resource requirements (low to high)	
Land	○○○○○○
Water	○○○○○○
Labour	○○○○○○
Cash	○○○○○○
Access to inputs	○○○○○○
Knowledge and skills	●○○○○○

Impact areas (low to high)	
Food security	○○○○○○
Human nutrition	●●●●●●
Employment and livelihoods	○○○○○○
Natural resources base	○○○○○○
Gender empowerment	○○○○○○
Market linkages	●○○○○○

Value chain focus



Contacts

Muhi El-Dine Hilali, ICARDA, m.hilali@cgiar.org; Barbara Rischkowsky, ICARDA, b.rischkowsky@cgiar.org; Barbara Wieland, ILRI, b.wieland@cgiar.org

Acknowledgements

This is a product of the CGIAR research programs on Livestock and Fish (2012-2016) and LIVESTOCK (2017-2022) as well as the International Fund for Agricultural Development (IFAD)-funded SmART Ethiopia Project - Improving the Performance of Pro-Poor Sheep and Goat Value Chains for Enhanced Livelihoods, Food and Nutrition Security in Ethiopia. The project is led by ICARDA in collaboration with ILRI, national and other international partners. The Project thanks all donors and organizations who globally support its work through their contributions to the [CGIAR system](#). Organizations contributing to this work are: ICARDA, ILRI, EIAR, ARARI, TARI, and OARI.