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"Solidarity in a competing world — fair use of resources"

Quality of Milk and Dairy Products under Traditional Smallholder System in Northern Ethiopia

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Abstract

In Ethiopia, goats represent an important component of the farming system. In Abergelle, goats make the highest contribution to farmers' livelihoods, compared with other agricultural enterprises. Processing of traditional dairy products is an important activity by women that contribute to the nutrition and livelihood of the family. The main products are Kibe; local butter, Ergo; local fermented milk and Arera. However, hygienic conditions are often poor and milking practices are conducive to contamination.

Farmers' local knowledge on traditional processing methods were assessed through a survey conducted in eight villages in Abergelle regions using a structured questionnaire aiming to collect data on milk production, processing and hygienic practices, to develop a safer, low-cost processing technologies.

In total 375 households were surveyed. It was found that Ergo is mainly consumed by the family whereas Kibe is the main sold product for 44 % households. However, processing Kibe is labour intensive 12 %. Moreover, farmers are facing problems related to product quality. Due to hygiene conditions, product spoilage was observed in 28 % of the farms. Product taste is attributed to proper cleaning and fumigation of the milk container with Ekema wood 43 %, and 6 % of households reported a problem of appearance due to elevated acidity of Ergo.

Moreover, 91 samples of goat milk and milk products were collected. Analysis of milk components showed a big variation in composition. Fat content that is important for butter production was varying from 2.8–9.9 %. Almost 60 % of analysed milk samples tended to become acidic due to high microbial load. In addition, alkaline milk was observed in some farms indicating mastitis, which is confirmed by elevated values of electric conductivity, up to 7.3 $^{\mathrm{mS}}/_{\mathrm{cm}}$.

Samples found to have a prevalence of 5.4 % of *Staphylococcus aureus* and 8.7 % of *E. coli*. The standard plate count for 79 % of the samples was $\geq 10\hat{6}$, indicating a serious deficiencies in production hygiene.

The quality of raw milk is a challenge for milk processing, and there is a need to focus on goat husbandry and management to produce healthy milk. Improving processing practices and hygiene is crucial to overcome constraints and enhance the livelihood of households.

Keywords: Ergo, fermented milk, goat milk, Kibe, quality

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