The roles of Kenya dairy producers in the quality of marketed milk

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Key points

- Only 22% of milk samples collected from farmers at collection centres (CCs) in Metkei, Eldoret and Limuru, Kiambu were unacceptable according to standards for bacterial quality set by the Kenya Bureau of Standards (KEBS).
- Interviews revealed generally good hygiene practices by producers.
- The generally good quality of milk at farm level sharply contrasted with previous findings of milk quality from sampling of milk from traders and consumer households in urban areas where milk quality was relatively much lower, with over 60% of samples of unacceptable bacterial quality (Omore et al. 2005[1]).

Introduction

The informal milk trade dominates the Kenya milk market with approximately 86% of milk sold unpasteurized (Omore et al., 2005). In the absence of cold chain, milk quality deteriorates very fast due to rapid bacterial multiplication. Quality can be compromised at any point along the market chain, but poor hygiene practices by farmers have been perceived as the main contributor to the low milk quality in the market.

A study of milk quality sampled from milk traders and consumer households (Omore et al. 2005) found the bacteriological quality of informally traded milk is low.

This was attributed to poor unhygienic handling by farmers and traders, delays during transit and lack of cooling facilities. It has not been clear to what extent each node in the chain contributes to the low bacteriological quality of marketed milk. To overcome this, the Kenya Dairy Board has implemented measures in different parts of the country targeted at different value chain actors to improve the quality of milk in the market and guarantee quality to consumers of dairy products. One of those measures is a training and certification program that requires value chain actors to first acquire basic skills in milk quality control before licensing. This brief presents results of a survey on milk quality in smallholder farms in Limuru and Eldoret and relates this to quality of milk along the market chain from the earlier market study by Omore and others (2005).

Box 1: Bacterial count

Bacterial counts in milk rise if milk is not chilled or if hygienic standards are not maintained.

Total bacterial count is a direct bacteriological test and is a reflection of temperature and time since milking while coliform count reflect levels of hygiene or sanitation, as they are mainly fecal in origin. Both are measured in colony-forming units per millilitre (cfu/ml).

Milk from a healthy cow contains very few microorganisms, usually less than 1000 total bacteria per ml of milk (Omore et al., 2005). However, soon after milking depending on the environment, bacterial contamination, delays in transit and lack of cooling facilities lead to a rapid bacterial growth phase within two hours and reaching several millions within six hours. Contamination may occur at any point along the market chain.

Results

Figure 1 shows the bacteriological results measured against the KEBS benchmarks. Generally, about 22% of milk samples from the two sites (Limuru and Eldoret) had exceeded KEBs standards for bacteriological counts (<2,000,000 cfu/ml total counts and <50,000 cfu/ml coliforms counts).

Figure 1: Comparison of total bacterial and coliform counts at farm level in Limuru and Eldoret
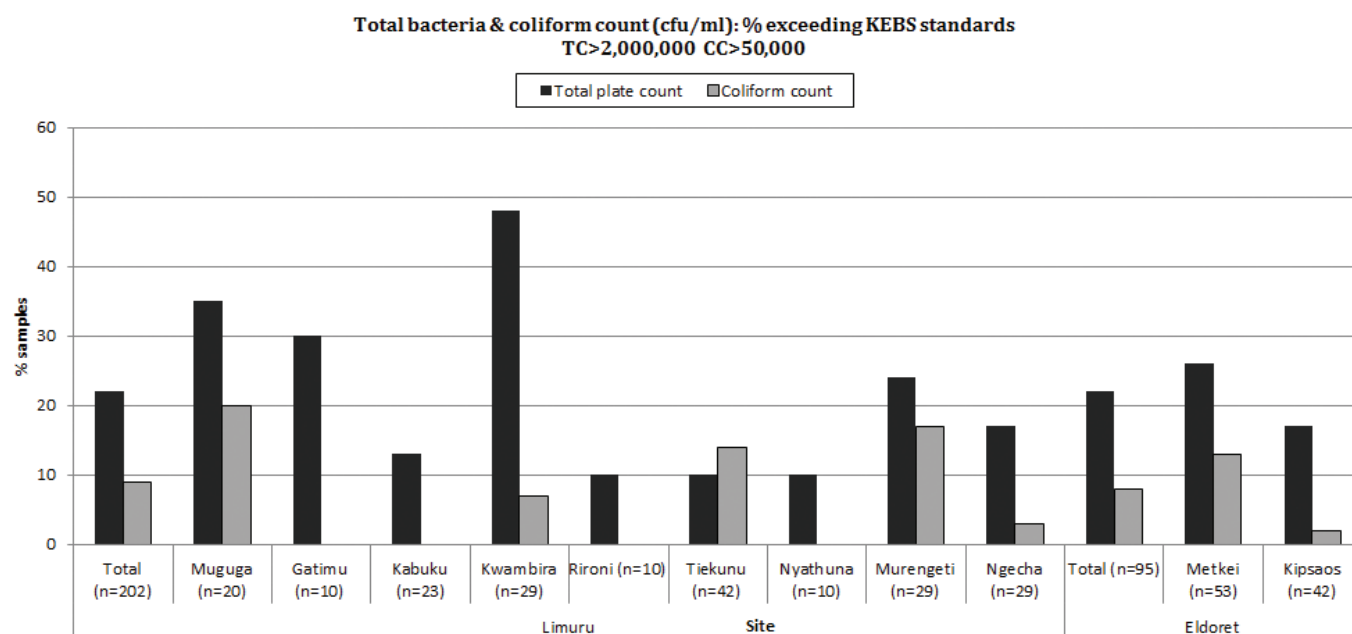
These findings are consistent with results from a previous Smallholder Dairy Project (SDP) study where milk from farmer groups had lower total bacterial and coliform counts compared to other milk handlers in the informal channel (Figure 2). Elsewhere in his research, Oduor (n.d.) observed that 80% of milk delivered by farmers to processing plants met the minimum quality standards.

Figure 2: Comparison of bacterial counts in milk among cadres of milk traders.

Bacterial counts (cfu/ml): % unacceptable by KEBS
Raw: TPCs>2M, CPC>50,000; Pasteurised: TPC>30,000, CPC>10
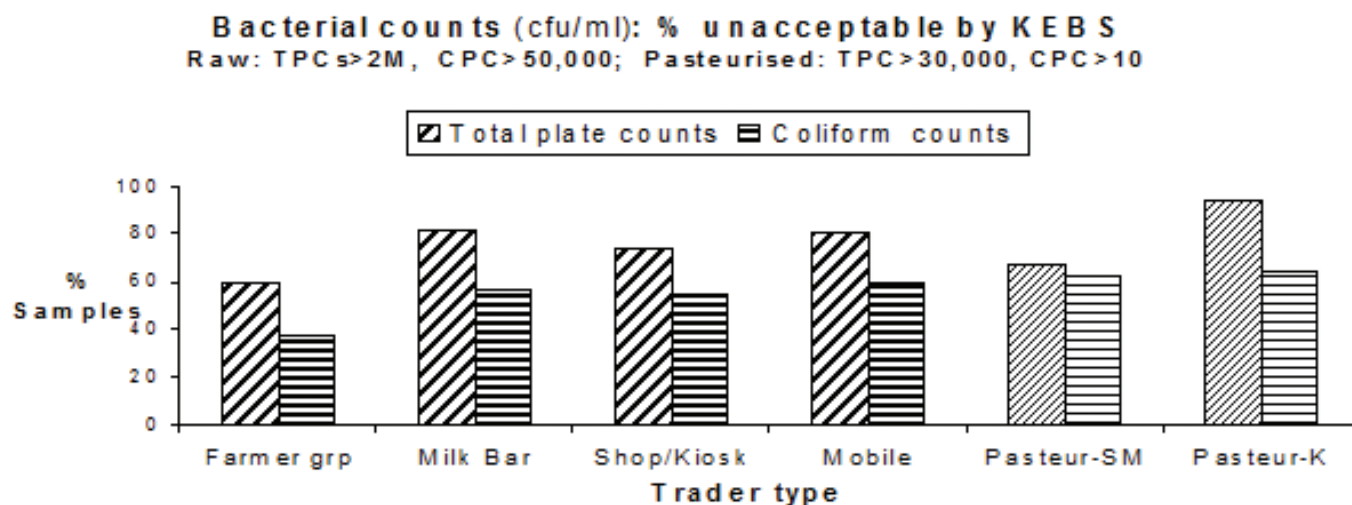
Source: Omore et al., 2002

These results challenge the perception that poor hygiene practices by dairy farmers is the main source of poor milk quality. On the contrary, a general inference made from this study is that milk is of good bacterial quality at the time of collection at the farm. This could be attributed to the good hygienic practices by farmers (Table 1). Cleanliness was observed in most farms and farmers mostly used clean sources of portable water. Farmers have also increasingly adopted use of aluminium cans which enhances the quality of milk delivered. Chilling of milk is rare among milk producers (due to lack of electricity) and is non existent during transportation by small-scale traders and farmers.

Table 1: Proportion of farmers observing hygienic practices at the farm

Farmer practices		Limuru	Eldoret
Hand washing		99%	99%
Udder washing		99%	97%
Teat dipping		10%	8%
Milk containers	Aluminium	100%	95%
	Plastic	0%	5%
Water source	Piped	80%	6%
	Community/private pump	7%	57%
	Rain catchment/rivers/streams	1%	17%
	More than one source	12%	20%
Housing cows		98%	16%
Awareness on drug withdrawal		90%	94%

Conclusions

- Though producer awareness and practices are generally good, these can further be improved because milk quality management starts at the farm.
- Milk quality mostly deteriorates in the hands of milk traders.
- Incentives to improve milk handling practices as opposed to rules and regulations (which seldom work) should be encouraged. For example, training and certification and regular monitoring of milk handlers and milk quality that has previously been shown to contribute to milk quality improvement should be encouraged.
- Ultimately, a cold chain is needed to maintain milk quality along the market chain.

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