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## Milk Handling Practices and Microbial Contamination Sources of Raw Milk in Rural and Peri-Urban Farms in Nakuru, Kenya

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### Abstract

Milk contamination begins the moment it leaves the udder. Milk contamination if not prevented will lead to milk losses along the dairy value chain. The objective of this study was to identify the risk factors associated with contamination of milk with spoilage microorganisms and to quantify these losses along the dairy sub value chain. A survey was carried out to identify the risk factors followed by microbiological analysis of the sources of contamination identified, and milk along the sub value chain. Contamination sources sampled from were; the udder, milking hands, milking and bulking containers which provided 560 samples. Milk samples along the sub value chain were 461 from the udder, farm gate, transporters and at the cooling centres. Microbiological analysis included total viable counts (TVC), Coliform counts (CC), Thermophilic bacteria counts (ThBC) and Psychrophilic bacteria counts (PBC). The survey showed that only 11 % of rural farmers practiced hand and udder drying compared to 50 % in peri-urban. Regression of risk factors versus farm gate milk from viable colony counts, showed that udder swabs were the highest source of contamination of milk ( $r = 2.73$ ). Losses due to microbiological quality were determined based on the KEBS standards ( $2 \times 10^5$  CFU ml<sup>-1</sup>). Transporters node at peri urban location recorded the highest percentage (30%) of probable losses. It is evident from the results that effective udder cleaning and observation of high hygiene may reduce the risk of microbial contamination and milk losses along the dairy sub value chains.

**Keywords:** Handling practices, probable losses, peri-urban, risks, rural