

## ABSTRACT

The cow, the milking and milk handling procedures at the farm level expose the milk to potential risk of contamination with spoilage microorganisms. Milk contamination if not prevented will lead to milk losses along the dairy value chain. The objective of this study was therefore to identify the risk factors associated with contamination of milk with spoilage microorganisms at the farms in rural and peri urban in Nakuru County Kenya. A survey was conducted using a pre-tested semi structured questionnaires (250) and an observation checklist to identify the risk factors. A total of 560 samples obtained from the following identified contamination sources; the udder, hands, milking and bulking containers and water sources were analyzed for total viable counts (TVC), Coliform counts (CC), thermophilic bacteria counts (ThBC) and psychrophilic bacteria counts (PBC). The results from the survey showed that only 11% of rural farmers practiced hand and udder drying compared to 50% in peri-urban. Water treatment by either chlorination or boiling was done by 11% in rural and 30% in periurban respectively. Regression of risk factors versus farm gate milk from viable colony counts, showed that udder swabs were the highest source of contamination of milk ( $r = 2.73$ ). In the rural, hands of milking personnel recorded the highest for TVC ( $\log_{10} 3.7$  CFU/ml). It is evident from the results that effective udder cleaning and observation of high personal hygiene by the hand milkers may reduce the risk of microbial contamination in both systems of milk production.

**Key words:** Risks, handling practices, contamination, rural, peri urban.