**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 and dairy losses due to spoilage by microorganisms is rampant in Africa especially in small scale farms. Raw milk handling at the farm has been reported to be a major contributor to milk contamination with spoilage and pathogenic microorganisms. The aim of this study was identify practices which are risks to milk contamination with microorganisms and evaluate the microbial quality of surfaces which milk comes in contact with from the moment it leaves the udder to the point it is collected at the farm’s gate. The study was carried out within 2.5 years between 2013 and 2015. A total of 560 samples were collected for microbiological analysis representing the contact surfaces (contamination sources; hand swabs, udder swabs, milking container rinse, bulking container rinse, water sources). The analyses done were; Total Viable Counts (TVC), coliform counts (CC), Thermophilic bacterial counts (ThBC) and Psychrophilic bacterial counts (PBC). Results from the questionnaire and observation checklist showed that only eleven percent in rural and fifty percent in peri urban practiced hand and udder drying before milking, while water treatment was practiced by 9% and 30% in rural and peri urban respectively. From microbiological analysis udder swabs recorded the highest counts in TVC (8×103cfu/ml) in peri urban. Rural farms recorded the highest TVC from hand swabs (log 10 3.7 cfu/ml) and this was highly correlated (50%) with TVC of milk at the farm gate. Between the udder and farm gate, TVC increased by 0.5 log cycle and 0.4 log cycle in rural and peri urban repectively. Mitigation measure in controlling milk contamination at the farm should target hygiene and majorly udder and hands.

**Key words:** raw milk, handling practices, contamination sources