

**TOTAL QUALITY IMPROVEMENT IN
COMMERCIALY ESTABLISHED PASTEURIZED
MILK PLANT UNDER ISO 22000:2005 STANDARD**

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By

HENARATHGE DILANKA PRAMODI RANASINGHE

**Department of Animal Science
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

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ABSTRACT

The most important aspect for consumers in food production is its safety. Therefore, producers must assure food safety throughout the complex food production chain. Current dairy industry faces challenges because quality failures are more widespread consequences. The ISO 22000:2005 deals with issues of safety in food production, which is based on HACCP system. This study was designed to identify critical control points (CCPs) in pasteurized milk production process in a commercially established pasteurized milk plant while analyzing the gap needed to be fulfilled to implement the standard. Preliminary study was carried out to familiarize with the production process while identifying the sample collecting points. Samples were collected from raw ingredients receiving to the final product. Collected samples were analyzed for physical, chemical and microbiological hazards. To determine microbiological hazards, total plate count (TPC), Coliform and yeast and mould tests were done. Adulteration tests for chemical hazards were done and visually observed for physical hazards. In gap analysis, established prerequisite programs (PRPs) in the factory were studied and requirements for each PRP were identified. Then solutions were provided to fulfill the existing gap and those were ranked based on the Sum of Ranks value in Friedman test. According to analysis, physical contaminants were present in raw milk samples. However, no chemical contaminants were detected. Microbiological hazard analysis revealed that TPC and coliform count were high in raw milk samples from bowser. TPC counts of raw milk samples from different milk collecting centers were 7.39 ± 0.31 , 7.43 ± 0.27 , 7.37 ± 0.31 , 7.01 ± 0.20 and 7.40 ± 0.26 log cfu/ ml respectively while Coliform counts were 5.27 ± 0.48 , 5.18 ± 0.55 , 5.19 ± 0.31 , 5.32 ± 0.37 and 5.23 ± 0.42 log cfu/ ml respectively. All samples collected before pasteurization were positive for coliform. Post pasteurization contamination was observed in few batches while samples collected after pasteurization were positive for coliform. Therefore, receiving of raw milk and pasteurization were identified as the CCPs in the production process and storing of finished product identified as a control point. In gap analysis, thirty-four solutions were identified and highest ranked solutions were informed the workers to report their illnesses, monitoring daily hygiene of workers and covering raw ingredients with wrappers. Lowest ranked solution was implement a short training program daily for the temporary employees.

Keywords: HACCP, Pasteurization, Coliform, Total Plate Count, Critical control points, Gap analysis