

TITLE: MICROBIOLOGICAL QUALITY IN STAINLESS STEEL MILK CONTAINERS AND WATER USED IN MANUAL MILKING SYSTEMS

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ABSTRACT

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The quality of milk depends on environmental and anthropogenic factors in its different stages of production and is linked to the type of technology, knowledge and application of good milking practices (GMP) by producers. Thus, the objective of this work was to evaluate the microbiological quality of two critical points in milking management: the water used for the process and the milk stainless steel containers (milk containers). The research was conducted with 60 small milk producers (<25 liters/day) that use a manual milking system and are organized and located in the northern Sierra of Ecuador. The research was conducted between September 2018 and January 2019. For the microbiological analyzes, 30 water samples were collected from the sources used at the milking site; and samples were taken from the milk containers inner surface with sterile swabs. To determine the mesophiles the standard plate count (SCP) method was used, as well as the most probable number method (NMP) for total coliforms and fecal coliforms. The results showed that 63% of producers use drinking water, 17% use water from springs and 20% use water treated with chlorine from irrigation systems. The count of mesophiles in water presented an average of $6.9 \pm 0.86 \text{ Log } 10$; for total coliforms, 20% of the samples were out of the norm ($> 1000 \text{ NMP}/100 \text{ ml}$), and 10% presented contamination by fecal coliforms. In the milk containers, the average of the SCP was $5.6 \pm 0.83 \text{ Log } 10$. The use of water for cleaning udders, hands of the operator, utensils and for drinking by the same cattle was verified in situ. The microbiological quality of the water and the cleaning of the milk containers can compromise the quality of the milk. The results show that producer training, verification and permanent control procedures are required.

Keywords: water quality, manual milking, GMP

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