Abstract

The objective of this work was to determine on-farm risk factors for psychrotrophic bacterial counts in bulk tank milk from dairy farms in Argentina. Raw milk samples from bulk tanks of 27 dairy farms were examined for total psychrotrophic counts (TPC), proteolytic psychrotrophic counts (PPC) and lipolytic psychrotrophic counts (LPC) (dependent or outcome variables). A survey recording infrastructure conditions, milking equipment and milking management (independent variables) was performed. Bivariate association proofs and logistic regression analyses were used to determine association between independent variables and psychrotrophic bacterial counts. Milk cooled in plate heat exchangers or barrel tanks were 16.39 and 10.52 times more likely to yield TPC and PPC above the standard established for high quality milk compared with milk cooled in bulk tanks, respectively. Periodic cleaning of cooling tanks (3 times a week or daily) was associated with lower TPC (approximately 1.5 log CFU/ml) than weekly cleaning frequency and farms where milkers did not wash their hands during milking time were 7.81 times more likely to have higher PPC. No association was found between LPC and any of the independent variables. The only variable associated with TPC and PPC in a logistic regression model was the refrigeration system used on the farm. Dairy farms that possessed bulk milk cooling tanks yielded the lowest bacterial counts. Results of this study highlight the importance of both the type of cooling system used on the farm and its adequate hygienic maintenance for obtaining low psychrotrophic counts at dairy farm.

Keywords

Psychrotrophic bacteria, bulk tank milk, risk factors.