

Abstract Submission Form

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H. H. Liao, L. Y. Chen, and S. H. Wang
Northern Region Branch, Taiwan Livestock Research Institute, MOA

Preferred presentation

Poster

Preferred session

Session 5: SC Milk Analysis – How to relate on farm sustainability and milk analysis?

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Title of your paper

The effect of different brands of automatic milking systems on bulk tank milk bacterial and somatic cell counts in dairy farms in Taiwan

Insert ABSTRACT text

The automatic milking system (AMS) is a new type of equipment for the domestic dairy industry in Taiwan. We introduced our first AMS in 2019, and so far a total of 25 AMS are in use. 9 farms used Lely Astronaut (Lely, Rotterdam, Netherlands) and 7 farms used DeLaval VMS (DeLaval, Tumba, Sweden). The milking equipment design and routine procedure may differ depending on the brand of AMS. Among them, the most well-known part is that the robot arms are used in industries with hydraulic drive (DeLaval VMS) or designed for animal milking with pneumatic drive (Lely Astronaut). On the other hand, the teats were individually cleaned, stimulated, and dried by cleaning teat cups with warm air (DeLaval VMS) or cleaned and stimulated by rotating brushes (Lely Astronaut). In this study, the bulk tank milk total bacterial counts (BMTBC) and somatic cell counts (BMSCC) records were collected from 3 dairy farms that have used AMS for over 3 years and have become stable in system operation and feeding management for each brand in 2023. The two brands were anonymously represented by brand A and brand B. Differences regarding these milk quality parameters were contrasted using a t-test. The results showed that BMTBC in brand B was higher than in brand A, with a highly significant difference ($13.47 \pm 1.39 \times 10^3$ cfu mL⁻¹ v.s. $27.06 \pm 3.06 \times 10^3$ cfu mL⁻¹, $P < 0.001$). The difference in BMSCC was also significant between brand A and brand B

($171.40 \pm 7.14 \times 10^3$ cells ml⁻¹ v.s. $202.90 \pm 9.65 \times 10^3$ cells ml⁻¹, $P < 0.05$). Significant differences exist among the domestic dairy industry using different brands of AMS in BMTBC and BMSCC. However, the quality of raw milk still complies with the Class A regulations on the standards of purchasing, acceptance, and pricing of raw milk. Preliminary speculation indicates that BMTBC and BMSCC are affected not only by different brands of AMS but also by different feeding management models of dairy farms. The records were collected only from 6 dairy farms. Therefore, it is expected that more dairy farms will be able to use AMS in the future and use them smoothly to provide more information for reference and stabilize the development of the domestic dairy industry in Taiwan.

Enter keywords

automatic milking system, bacterial counts, somatic cell counts, milk quality, dairy farm