

Analytical observations on hygienic milk production in buffalo farms of Nilwala basin

S P P N Gayani, W W D A Gunawardena* and N M N K Narayana

Department of Animal Science, Faculty of Agriculture, University of Ruhuna, Kamburupitiya

The objective of this study was to ascertain the conditions and management practices related to clean milk production and the variation of raw milk quality under the prevailing conditions of the buffalo farms of Nilwala basin. Thirty randomly selected farmers from four selected divisional secretariats were included in the survey (Forty-three milk samples from randomly selected individual animals and 30 bulk milk samples were analyzed). Survey data were collected using a pre-tested questionnaire. The study was focused on prevailing management practices including housing, surrounding of the milking place, and type of utensils used in milk collection etc. Raw milk samples were analyzed using standard procedures for Standard Plate Count (SPC) and Coliform Count (CC) to determine microbial aspects and to check the physico-chemical properties (pH and acidity). Keeping quality was also tested using Methylene Blue Dye Reduction Test (MBDRT) for all the milk samples. Effect of mentioned management practices on the quality of milk were analyzed by using one-way ANOVA and t-test from JMP IN version 3.26 of SAS system.

Standard Plate Count (SPC) of milk produced by cows reared by the farmers who have completed only primary education showed a higher value (2.7×10^6 cfu ml⁻¹) compared to the farmers with higher education (1.3×10^6 cfu ml⁻¹). The SPC was higher (2.36×10^6 cfu ml⁻¹) when plastic utensils were used as compared with aluminum containers (2×10^6 cfu ml⁻¹). Samples drawn from unclean animals showed a higher SPC (2.95×10^6 cfu ml⁻¹) than from clean animals (1.3×10^6 cfu ml⁻¹). The SPC of the individual samples varied from 1.09×10^6 cfu ml⁻¹ to 3.33×10^6 cfu ml⁻¹. In bulk samples it was from 2.92×10^6 cfu ml⁻¹ to 5.38×10^6 cfu ml⁻¹. The Coli form Count (CC) of individual milk samples varied from 2.8×10^4 cfu ml⁻¹ to 4.9×10^4 cfu ml⁻¹. In bulk milk, CC varied from 3×10^4 cfu ml⁻¹ to 5.1×10^4 cfu ml⁻¹. The range of tritrate acidity of milk varied from 0.16 % to 0.35 % and from 0.19 % and 0.39 % in individual animals and in bulk milk samples, respectively. The pH values of individual and bulk samples varied from 6.46 to 6.68 and 6.45 to 6.64 respectively. From bulk milk samples, 46.6 % reduced its color within 2 hrs and none of the individual samples reduced its color within 2 hrs in MBDRT so keeping quality of bulk and individual milk samples can be graded as fair and good respectively. CC of the individual and bulk samples are higher than the standard values.

Tel: 041-2292200