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IDENTIFICATION OF A SUITABLE PLATFORM TEST TO MAKE PAYMENTS BASED ON MILK QUALITY AT THE FARM GATE LEVEL

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In Sri Lanka, farm gate price of milk purchases is dependent on the fat percentage and the content of total solids of milk, whilst little consideration is given to the quality of milk in relation to cleanliness. Remuneration based on cleanliness of milk is important in order to extend the keeping quality of milk to reduce health hazards and enhance processing. The objective of this study was to assess the prescribed tests to evaluate cleanliness of milk and to determine an appropriate test for use in Sri Lanka based on cost, testing time and sensitivity.

Milk for this study was collected from 25 randomly selected farmers at a milk collecting point in the mid-country. Two milk samples (50 ml) were collected from each farmer during each month over a six-month period. All samples were transported to the laboratory at 4° C and maintained at that temperature until the assays were completed. Each milk sample was subjected to seven tests to assess the cleanliness. The tests included an assessment of appearance, smell and taste (AST), 68% alcohol test, the methylene blue reduction test (MBRT), the Resazurin test (RT) boiling test, determination of the total bacterial count, evaluation of acidity and pH of milk. All tests were done according to prescribed methods. The results indicated that AST was an essential screening test but the assessment was qualitative and highly subjective. The determination of pH to assess milk quality demanded technical skill and the use of a special electrode, hence costly. The conventional alcohol test is a quick method to assess milk quality at the farm-gate level but lacked sensitivity. However, alteration of the acidity in the conventional test from 68% to 75% alcohol increased the sensitivity of this test. The boiling test although easy to perform is not quantifiable to use in a payment scheme. The total cell count is an inaccurate reflection of the bacterial activity hence it is not reliable.

RT and the MBRT are both suitable tests to assess milk quality as they directly measure bacterial activity, require less skill to perform and are cost effective. However, serial sample analysis is a must for an accurate assessment. Further the tests are time consuming. In comparison, MBRT is preferred to the RT, since RT although is less time consuming requires additional apparatus such as a Lovibond comparator and is also photosensitive thus imposing practical difficulties in using it in a tropical country at the field level.

The results of this study indicate that in terms of sensitivity, cost effectiveness and efficiency the MBRT is the most suitable as a test to assess milk in order to remunerate on quality at the farm gate level.