

Determination of the BactoScan Conversion Factor for the United Kingdom

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Abstract

The microbiological quality of almost all commercially produced raw milk in the United Kingdom of Great Britain and Northern Ireland (UK) is determined by flow cytometry using BactoScan equipment. However, European Commission standards for raw milk are laid down as standard plate counts in Regulation (EC) No 853/2004 Annex III, Section IX, hence there is a need to have a conversion factor between the IBC determined by commercial companies, and the TVC cited in legislation. Using methodology based on BS EN ISO 4833:2003, this study undertook to determine the conversion factor. Three commercial laboratories using BactoScan equipment, and accredited to ISO17025 for their use, undertook duplicate analysis of 1,800 routine samples of raw milk from farms across the UK to determine IBC values. In addition duplicate bacterial enumeration of all samples, using BS EN ISO 4833:2003, was undertaken to determine TVCs. Overall, 1,799 valid results were obtained and regression analysis of the IBC against the TVC results, as \log_{10} values, gave the equation:

$$\text{Log}_{10}(\text{TVC}) = 0.9151x \text{Log}_{10}(\text{IBC}) - 0.5696 \quad (r^2 = 0.6694).$$

Hence this relationship constitutes the UK BactoScan conversion factor which is to be used to convert IBC values for raw milk determined in commercial premises into valid TVC results with reference to European Commission legislation.

Keywords: BactoScan, conversion factor, individual bacterial counts (IBC), raw milk, total viable count