

EVALUATION OF RELIABILITY OF LACTOMETERS FOR THE CALCULATION OF SOLID NON-FAT (SNF) OF COW AND BUFFALO MILK

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Solid-non-fat (SNF) content is used for price determination of milk together with the fat content. Although the only accurate way to determine Solid-non-fat (SNF) content of milk is the gravimetric method, lactometers are widely used in Sri Lanka for this purpose as it is more convenient. A Modified Richmond's formula is used to calculate SNF content of the milk of cows, buffaloes and goats as well, after measuring lactometer reading and fat content (Sebastian *et al.*, 1974). In other countries of the world, many researches have been carried out to determine the reliability of lactometers indicating wide variation between gravimetric and calculation methods (Rao and Bector, 1980). However, no comprehensive study has been done in Sri Lanka to study the reliability of available lactometers which is really necessity to keep the farmers in the industry.

Therefore, a systematic study was carried out with the objective of selecting the most reliable lactometer from the commonly used lactometers for the calculation of SNF% of cow and buffalo milk in Sri Lanka. The SNF content of milk was determined using gravimetric method and also calculated using lactometer values obtained from six lactometers *viz* [Zeal, BS734, Dutch type, ISI, Benny and Field type]. Two hundred milk samples were collected from cow and buffalo (hundred from each species) and lactometer readings were taken under the room temperature (RT) and at the calibrated temperature (CT) for each lactometer. Modified Richmand's Formula was used to calculate SNF of milk. Oven drying method was used as gravimetric method of determining SNF as a control for comparison. Results revealed that different lactometers deviated differently from gravimetric values which was significant with some lactometer based values ($p < 0.001$). Field type and ISI lactometers were not significantly different ($p > 0.05$) from gravimetric value at room temperature (RT) and Zeal, Field type and ISI were not significantly different ($p > 0.05$) from gravimetric value at calibrated temperature (CT) of cow milk. All the lactometers were significantly different ($p > 0.001$) from gravimetric value of buffalo milk. Finally, it can be concluded that Field type is the most reliable lactometer followed by ISI and Zeal for the calculation of SNF of cow milk and no any reliable lactometer is found for the calculation of SNF of buffalo milk.

Key words: Lactometer, Solid-non-fat (SNF), Gravimetric method