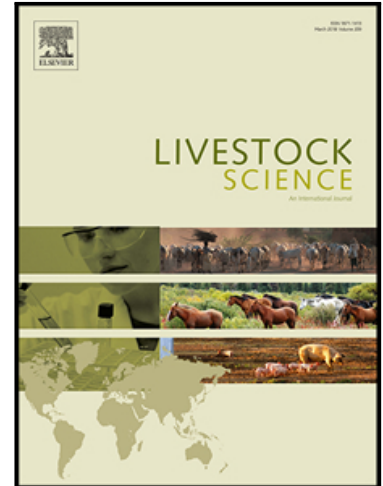


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Short communication: Improving repeatability of cows' body weight recorded by an automated milking system

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ABSTRACT

We showed a systematic approach to tackle problems present in body weight (BW) data collected in automated milking systems (AMS) at each milking and further data edits, leading to an improved repeatability. The AMS units provide data on numerous characteristics of cows, including body weight (BW), which are potentially useful both for genetic studies and many other purposes (e.g. management). Online collection of BW is prone to errors due to sensor(s) malfunction, improper calibration, sensors' drift, etc. The cumulative influence of the following adjustments on BW repeatability were studied: no adjustments - the full initial data set; *Adjustment I*: removing data from one unstable AMS unit; *Adjustment II*: removing data based on the raw data distribution; *Adjustment III*: removing data based on the distribution of residuals; *Adjustment IV*: predicting the removed data points. Additionally, the number of BW records required over the short term to estimate a cow's BW at that time was established. In total, 676 113 BW measurements for 558 cows collected in 6 AMS units were analyzed. The repeatability of the BW obtained using the initial unedited data set was 0.72. After removing one AMS unit the repeatability increased to 0.78. Removing potentially incorrect data based on the raw BW measurements distribution further increased the repeatability to 0.81. Removing data based on the residuals did not increase the repeatability any further; however, substituting missing data by predicted values increased repeatability to

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