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Validation of scan sampling techniques for behavioural observations of pastured lambs

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Abstract

*The study of farm animal behaviour is a critical tool for assessing animal welfare. Collecting behavioural data with continuous sampling or short scan sampling intervals (eg every 60th second) is considered ideal as this provides the most complete and accurate dataset; however, these methods are also time and labour intensive. Longer sampling intervals provide an alternative in order to increase efficiency, but these require validation to ensure accurate estimation of the data. This study aims to validate scan sampling intervals for lambs (*Ovis aries*) housed on pasture. Grazing, lying, standing, drinking, locomotion, and mineral consumption were evaluated from six pens of crossbred lambs (six lambs per pen) for 15 h. Data from 1-min instantaneous scan sampling were compared with data from instantaneous scan sampling intervals of 5, 10, 15, and 20 min in two statistical tests: generalised linear mixed model and regression analysis. Using the mixed model, the percentage of time each behaviour was performed did not differ amongst sampling intervals for all behaviours except grazing, which was statistically different at 20-min intervals. Using regression analysis, lying and grazing estimations were accurate up to 20-min intervals, and standing was accurate at 10- and 20-min intervals only. Locomotion, mineral consumption, and drinking demonstrated poor associations for all tested intervals. The results from this study suggest that a 10-min instantaneous scan sampling interval will accurately estimate lying, grazing, and standing behaviour for lambs on pasture. This validation will assist with the efficiency of future data collection in lamb behaviour and welfare research.*

Keywords: *animal welfare, lamb, pasture, scan sampling, sheep, validation*