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Inter-observer reliability of Qualitative Behavioural Assessments (QBA) of housed sheep in Norway using fixed lists of descriptors

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Abstract

Qualitative Behavioural Assessment (QBA) is a whole-animal approach used to quantify the expressive style of animals' behaviour. The aim of this study was to evaluate the inter-observer reliability of principal components and individual descriptors from QBA of housed sheep in Norway using a fixed list of descriptors. In part 1, eight animal welfare inspectors from the Norwegian Food Safety Authority scored 12 two-minute video clips, using 12 pre-defined terms. In the second part, three of these observers visited ten sheep farms and scored the behaviour using a modified list of eight terms. The scores for all assessors within each part were analysed using Principal Component Analysis (PCA). The level of agreement for the first two components and for individual terms was assessed using Kendall's coefficient of concordance (W). In part 1, only seven observers were assessed for reliability of principal components due to missing data, and for these observers the agreement was high for PC1 and moderate for PC2. For the sub-group of three inspectors that also participated in part 2, the reliability was high for both components. In the on-farm assessments in part 2, these three observers obtained only moderate agreement for PC1 and low agreement for PC2. Results illustrate that good reliability can be achieved with QBA for housed sheep using videos, but that equally satisfactory reliability is more difficult to obtain using the method on-farm. The result in part 2 may be related to less-controlled circumstances concerning exactly what the observers see when sheep are kept indoors with high stocking densities, observer drift, and limited between-farm variation, which is a challenge for many types of reliability studies in field conditions.

Keywords: *animal welfare, behaviour, fixed list of descriptors, inter-observer reliability, qualitative behavioural assessments, sheep*