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Evaluation of consistency over time of the use of the Animal Welfare Indicators protocol for horses

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Abstract

Consistency over time is a basic requirement for welfare assessment schemes since consistency must not depend, for example, on the day it is carried out. This study analysed the consistency of the indicators of the Animal Welfare Indicators (AWIN) protocol for horses (*Equus caballus*) over time. Given the multi-dimensionality of animal welfare, the AWIN protocol includes a variety of indicators evaluating, eg the health status or the behaviour of the animals. Fourteen establishments keeping horses in Germany were visited four times each (day 0, day 3, day 42, day 90). For the evaluation of reliability and agreement between the different visits, ie across time, the reference visit on day 0 was compared to the other visits via calculation of Spearman's rank correlation (RS), intra-class correlation (ICC), smallest detectable change (SDC) and limits of agreement (LoA). The indicator, Qualitative Behaviour Assessment (QBA) was analysed by Principal Component Analysis (PCA). Most of the indicators demonstrated sufficient consistency over time. Indicators that were inconsistent included parts of the Horse Grimace Scale, outcomes of behavioural tests, the presence of swollen joints as well as the indicators hoof neglect, alopecia on the legs and water cleanliness. The QBA was consistent for the period of 42 days, but not for 90 days. Overall, those indicators with insufficient consistency over time require to be revised or replaced in future welfare assessment schemes.

Keywords: animal-based indicators, animal welfare, AWIN, consistency, horse, reliability