Assessment time of the Welfare Quality® protocol for dairy cattle

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Abstract

The Welfare Quality® (WQ) protocols are increasingly used for assessing welfare of farm animals. These protocols are time consuming (about one day per farm) and, therefore, costly. Our aim was to assess the scope for reduction of on-farm assessment time of the WQ protocol for dairy cattle. Seven trained observers quantified animal-based indicators of the WQ protocol in 181 loose-housed and 13 tied Dutch dairy herds (herd size from 10 to 211 cows). Four assessment methods were used: avoidance distance at the feeding rack (ADF, 44 min); qualitative behaviour assessment (QBA, 25 min); behavioural observations (BO, 150 min); and clinical observations (CO, 132 min). To simulate reduction of on-farm assessment time, a set of WQ indicators belonging to one assessment method was omitted from the protocol. Observed values of omitted indicators were replaced by predictions based on WQ indicators of the remaining three assessment methods, resources checklist, and interview, thus mimicking the performance of the full WQ protocol. Agreement between predicted and observed values of WQ indicators, however, was low for ADF, moderate for QBA, slight to moderate for BO, and poor to moderate for CO. It was concluded that replacing animal-based WQ indicators by predictions based on remaining WQ indicators shows little scope for reduction of on-farm assessment time of the Welfare Quality® protocol for dairy cattle. Other ways to reduce on-farm assessment time of the WQ protocol for dairy cattle, such as the use of additional data or automated monitoring systems, should be investigated.

Keywords: animal welfare, dairy cows, on-farm assessment, prediction, protocol, Welfare Quality®

Introduction

The use of animal-based indicators is gaining increased preference over resource- and management-based indicators in farm animal welfare assessment schemes. Animal-based indicators, which measure the state of the animal rather than its environment, are assumed to possess a higher validity than resource- and management-based indicators because they are more closely linked to the actual welfare state of animals (Webster et al 2004; Blokhuis et al 2010). Duration of assessing animal-based indicators on-farm, however, is a main constraint with regard to feasibility (Müller et al 2007; Knierim & Winckler 2009; Blokhuis et al 2010). In the Welfare Quality® (WQ) protocol for dairy cattle, for example, 60% of the indicators are animal-based, but take about 90% of the total on-farm assessment time (depending on herd size; Welfare Quality® 2009). Consequently, on-farm assessment time of the WQ protocol ranges from about 4.4 to 7.7 h for herds of 25 to 200 cows (Welfare Quality® 2009). Assessment time and associated costs of on-farm assessments may hamper the practical implementation of the WQ protocol in welfare audit programmes (Knierim & Winckler 2009). Various studies have shown associations between indicators of dairy cattle welfare. Lame cows, for instance, were associated with a lower body condition and changes in lying behaviour (Bowell et al 2003; Ito et al 2010; Blackie et al 2011). Also, a higher frequency of agonistic behaviour in dairy herds was associated with larger avoidance distances towards cows (Waiblinger et al 2003).

Two out of four assessment methods in the WQ protocol contain more than one animal-based indicator (Welfare Quality® 2009): behavioural observations (BO; six indicators), and clinical observations (CO; 13 indicators). When an indicator belonging to one of these assessment methods is replaced, cows still need to be observed to...