Is the response to humans consistent over productive life in dairy cows?

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Abstract

Dairy cattle have a high level of interaction with humans throughout their productive life. Welfare and productivity are affected if cows find these interactions aversive, so tests assessing fear of humans have been included in welfare assessment protocols. Practicality issues suggest that all animals on large farms cannot be tested. If a sub-sample is chosen, then animal factors affecting the response must be investigated. To assess the effect of age, 114 Holstein cows were tested at regular intervals across their productive lifetime. Animals were tested at 12–15 months of age, first breeding, prior to first calving, then at early, mid and late lactation for 1st and 2nd lactations and into their 3rd lactation. The test involved approaching each cow when standing in the passageway of the barn with sufficient space to retreat. Response was recorded on a 0–8 incremental scale, and several qualitative terms were scored using sliding scales from absence to full presence. There was a significant effect of age on response. Cows became more approachable with increasing age, up until the middle of the first lactation, with no further change beyond this stage. Cows became more at ease and less nervous with increasing age. Individual cow within-group rankings for tests at each stage showed correlation with rankings in the following stage. As this is a single-farm study, further research is necessary to assess interaction of factors such as housing, breed and quality of human handling on the long-term development of fear of humans. However, the results suggest that the age of the animal tested affects the response, and that animals of different age groups should be tested when a sub-sampling is required to assess welfare on large farms.

Keywords: animal welfare, dairy cow, fear, human approach, temperament, welfare assessment

Introduction

In most dairy farming systems, frequent contact with humans is a necessary part of the daily routine for lactating cows. Because of this, it is desirable that the relationship is a positive one from both the animal’s and the farmer’s point of view (eg Waiblinger et al 2006). The quality of the interaction is known to affect the welfare and productivity of the cows. Fearfulness of handlers reduces milk yield (Rushen et al 1999; Breuer et al 2000), and cows that are handled in a forceful or negative manner are more reluctant to approach a human experimenter (Breuer et al 2000; Hemsworth et al 2000) and avoid human contact (Waiblinger et al 2003). Cows can recognise individual handlers and learn to avoid or approach them accordingly (Munksgaard et al 2001).

Due to the importance of the quality of the human-animal relationship, it is desirable to include a measure of fearfulness of humans in on-farm welfare assessment tools. A number of welfare assessment protocols for dairy cattle (including Welfare Quality® [2009]) use an avoidance test as a measure of fear of humans. Producers, consumers and other stakeholders will have confidence in the welfare-assessment protocols if the farm-level results are reliable. The reliability aspect of the human approach/avoidance tests at the cow level has been the subject of a number of studies. The response of individual cows to an approaching human shows consistency when tested repeatedly on a single day or over a period of weeks (Windschurmer et al 2008; Gibbons et al 2009) and consistency at the farm level when revisited on a bi-monthly basis (Winckler et al 2007) and have been shown to correlate well with other tests of fear of humans (Rousing & Waiblinger 2004; Gibbons et al 2011).

A problem with implementing comprehensive welfare assessment protocols on farms with large numbers of animals is the time, and consequently, cost, of performing the assessment. This has led to sampling strategies being investigated, in which not all of the animals are assessed (eg Main et al 2010). For the sampled group to reliably represent the whole farm population, the factors affecting the measure must be understood so that they can be taken into account when choosing the appropriate individuals to use in the sub-sample. The age of the animal is probably one of these factors.