

Corrigendum

Can animal-based welfare assessment be simplified?

A comparison of the Welfare Quality® protocol for dairy cattle and the simpler and less time-consuming protocol developed by the Danish Cattle Federation

SN Andreasen, P Sandøe and B Forkman

Department of Veterinary and Animal Sciences, University of Copenhagen, Grønnegårdsvej 8, 1870 Frederiksberg, Denmark

DOI: <https://doi.org/10.7120/09627286.23.1.081>

In the above paper published in *Animal Welfare* (2014), volume 23; pp 81-94, 44 Danish dairy herds were evaluated using the Welfare Quality® protocol. The calculations of the scores according to the protocol were performed by INRA (Institut National de la Recherche Agronomique), France, following the outline in the protocol (Welfare Quality® 2009). Because of an error, the reason for which we have not discovered, there was a mistake in the original calculations performed and delivered by INRA. According to these calculations, all 44 farms received the highest index score, 100, for agonistic behaviour. We noticed this in the paper, and speculated in the paper on reasons why this was the case. Some time after publication of the paper, a colleague checked the calculations and pointed out to us that the calculations for agonistic behaviour were faulty. We immediately contacted INRA, and received revised calculations where the results for agonistic behaviour had been revised. All other results were essentially the same.

Therefore we had to recalculate all results involving the index score for agonistic behaviour. Following this, Table 3, giving the Welfare Quality® scores for the 44 farms had to be revised (see below):

In addition, the correlations found using the Spearman Rank Correlation had to be revised. However, a significant positive correlation was still found between WQ P3 and DCF P3 ('Good Health'), $\rho = 0.6623$; $P < 0.0001$ and between WQ P4 and DCF P4 ('Appropriate Behaviour'), $\rho = 0.4156$; $P = 0.0050$.

We also had to delete the following two sentences discussing the finding about agonistic behaviour: "All 44 farms received the highest index score, of 100, for agonistic behaviour (WQ). Only two of the five measures used to address agonistic behaviour in the WQ protocol were recommended as useful (Laister *et al* 2009a). The non-existent variability may suggest that these measures can be excluded under Danish conditions."

Apart from these changes, further corrections were unnecessary, since all the statistically significant correlations found in the paper still hold.

A revised version of the paper with the above-mentioned changes and an explanation of the reason for the changes has been made available online.

Acknowledgement

Thanks are due to Søren Saxmose Nielsen for helping us doing the necessary recalculations.

References

- Laister S, Brörkens N, Lolli S, Zucca D, Knierim U, Minero M, Canali E and Winckler C 2009a Reliability of measures of agonistic behaviour in dairy and beef cattle. In: Forkman B and Keeling L (eds) *Assessment of Animal Welfare Measures for Dairy Cattle, Beef Bulls and Veal Calves, Welfare Quality reports No 11* pp 95-112. Sixth Framework Programme: Cardiff University, United Kingdom
- Welfare Quality 2009 *Welfare Quality® assessment protocol for cattle*. Welfare Quality® Consortium: Lelystad, The Netherlands

Table 3 Correlations between the Danish Cattle Federation protocol (original and extended) and the Welfare Quality® protocol.

	WQ [†] and DCF [‡] protocol		WQ [†] and extended DCF [‡] protocol	
	Spearman ρ	P-value	Spearman ρ	P-value
P1. Good feeding	-0.1754	0.2546	0.4064	0.0062*
P2. Good housing	0.1957	0.2030	0.5991	< 0.0001*
P3. Good health	0.6623	< 0.0001*	0.7714	< 0.0001*
P4. Appropriate behaviour	0.4156	0.0050*	0.3273	< 0.031*
Overall score	0.1590	0.3026	0.4730	0.0012*

[†] Welfare Quality® protocol;

[‡] Danish Cattle Federation protocol;

* Significant finding.