**Supplementary Material S3**

Improved Choquet integral for criterion 6: absence of injuries.

These values belong to table 6.4 in [Botreau *et al.* (2009](#_ENREF_1)) and replace the Choquet integral in both Botreau *et al*. (2009) and chapter 5.2.1.6 in Welfare Quality (2009). The Choquet integral for criterion 6 presented by Botreau *et al*. (2009) is incorrect, because experts 1,4 and 5 assigned incorrect scores, i.e. scores lower than the minimum score for one or more measures (Table 6.4 in Botreau *et al*. (2009)).

***Table 1***New calculations of Choquet integral belonging to Table 6.4 in [Botreau et al. (2009](#_ENREF_1))*.*

|  |  |  |
| --- | --- | --- |
| Parameter | Estimated value | Measure |
| μ1 | 0.0599 | Breast burn |
| μ2 | 0.0557 | Hock burn |
| μ3 | 0.0057 | Foot pad dermatitis |
| μ4 | 0.1682 | Lameness |
| μ12 | 0.1333 |  |
| μ13 | 0.1667 |  |
| μ14 | 0.2667 |  |
| μ23 | 0.1667 |  |
| μ24 | 0.2667 |  |
| μ34 | 0.2833 |  |
| μ123 | 0.1595 |  |
| μ124 | 0.5387 |  |
| μ134 | 0.6220 |  |
| μ234 | 0.6679 |  |

**References**

Botreau R, Buist W, Butterworth A, Perny P and Veissier I 2009. Reports on the construction of welfare criteria for different livestock species. Part 3 – Subcriteria construction for Broilers on farm. Deliverable 2.8c, subtask 2.3.1.2, Welfare Quality® (EU Food-CT-2004-506508), Lelystad, The Netherlands.

Welfare Quality 2009. The Welfare Quality® assessment protocol for poultry (broilers, laying hens). The Welfare Quality® Consortium, Lelystad, The Netherlands.