

## **Relationships between various measures used to assess the welfare of broiler chicken on farm**

**C. ARNOULD and L. COLIN**

INRA, unité Physiologie de la Reproduction et des Comportements, UMR INRA 85, CNRS 6175, Université de tours, Haras Nationaux, 37380 Nouzilly, France

**E-mail: [cecile.arnould@tours.inra.fr](mailto:cecile.arnould@tours.inra.fr)**

In order to carry out an overall assessment of welfare on farm it is necessary to use several parameters, the best being to use parameters related to the animals. However, the use of a lot of animal-based parameters on farm is time consuming and is difficult to implement as a routine. This study aims therefore at determining the relationships between several animal-based parameters used when assessing the welfare of broiler chickens in order to reduce the number of measures. Data were obtained from 17 flocks of high growth rate broilers reared under commercial conditions. Fifty to 100 birds per flock were assessed for pododermatitis, hock burns, plumage cleanliness and presence of pathologies. Lameness (gait score) was also assessed on 120-260 birds per flock and level of bird activity were measured on 30 birds per flock. Data were analysed using correlations both at the level of the individuals (Pearson Chi-square test) and at the level of the flocks (Spearman rho test). Pododermatitis and hock burns were highly correlated with plumage cleanliness at individual level. At flock level, mean scores of pododermatitis were not correlated to mean gait scores or to the percentage of birds affected by pathologies. In addition, mean gait score had a tendency to be correlated with bird level of activity. All the measures described in this study can be used to assess welfare on farm. However, dermatitis, lameness and presence of pathology are highly relevant measures that should always be recorded to provide an overall assessment of the welfare of broiler chickens. Furthermore, the level of activity of the broilers could be easier to use than gait score to assess walking problems. This study has been partly supported by the European project Welfare Quality®.

**Keywords:** welfare, on-farm assessment, health, behaviour, broiler chicken