Welfare Quality® parameters do not always reflect hen behaviour across the lay cycle in non-cage laying hens

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Abstract

The integration of outcome-based measurements to animal welfare assessment programmes can provide a new perspective on the individual animal’s experience. Identifying variability in individual experiences can facilitate understanding of animals at the periphery of the welfare spectrum, compared to those at the average. Welfare Quality® physical measurements and behavioural observations were taken from the same fifteen non-cage laying hens throughout their production cycle. The average amount of time performing each of nine behaviours and the amount of variation in each behaviour’s performance was compared at four different ages: 19, 28, 48 and 66 weeks. The same analysis was performed for all Welfare Quality® physical measurements. To identify associations between a hen’s behaviour and her physical condition, a cluster analysis was performed for all ages, as well as on data collated from all ages. No differences were observed among the four ages for the average amount of time performing many of the behaviours, but the amount of variability differed for most behaviours observed. Physical measurements taken at 19 weeks differed from those taken at later ages. Bodyweight consistently clustered with time spent preening, yet the patterns of clustering differed at each age. These results highlight the importance of age when conducting welfare assessments. Auditors also should report not only the average, but the variability of responses; while the average response of the flock may appear consistent across time or treatment, differences among the hens within the same flock may vary drastically.

Keywords: animal welfare, behaviour, group welfare, laying hen, outcome-based measures, Welfare Quality®

Introduction

Traditionally, animal welfare audits and certification programmes have used resource-based measures (RBM), such as the availability of adequate food, water, veterinary care, and space, to assess how well a housing system meets animals’ needs. However, using only an RBM approach, one could perform an on-farm audit without looking at a single animal. Therefore, the importance of outcome-based measures (OBM), such as behaviour or individual physical condition, is beginning to be emphasised as part of animal welfare assessment (Butterworth et al 2011). As the laying hen industry transitions from small conventional cages to group housing, the hens housed in these alternative systems may face different challenges than those historically faced by their conventionally caged counterparts. Thus, understanding the relationship between environment, behaviour and OBM is increasingly important.

Outcome-based measures of behaviour are typically reported at the group level by collating individual measurements to provide an average response for the group or an overall farm-level score (Johnsen et al 2001). However, many of the fundamental concepts of animal welfare are rooted in an individual’s response to a situation, thus the concept of animal welfare inherently implies the importance of the individual experience (Duncan & Mench 1993; Dawkins 2003; Fraser 2008). Most theories of welfare apply to individuals because only individuals possess the characteristics (eg affective state, perception, needs, motivation) that make lives better or worse and individual variation with regards to genetics, experiences, and temperament, can impact how the individual perceives its current situation and ultimately determine its welfare.

Therefore, RBMs are extrapolated and weighed to infer how an animal is performing based upon its environmental conditions (Veissier et al 2011). However, the average condition of the group may not accurately reflect the condition of a specific individual and the condition of individuals within the same group may vary widely. Yet, issues of practicality limit the ability of on-farm assessors to examine each individual, and welfare must be assessed at the group level for there to be any chance of improving the welfare of an individual in a production system.

The Welfare Quality® assessment protocol for poultry (WQ) provides practical and accessible feedback to producers while examining individual hen physical condition by providing a combination of RBM and individual OBM to provide welfare information at the individual, pen, and farm level (Temple et al 2011, 2013). For a complete listing of the RBM and OBM measured as part of the WQ poultry assessment, please refer to