

Title: The effects of time off feed and water on the welfare of spent laying hens - Phase 2: Behavioural indicators

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The study aimed to equate physiological changes induced by time off water with behavioural changes in order to understand its welfare implications for spent hens during transport.

The acceptable time length that laying hens can spend without water before welfare is compromised is unknown. No scientific literature exists on what can be considered acceptable changes in terms of hen welfare. A previous AECL project (MCCP: 2009-320) provided physiological evidence that the welfare of spent hens is challenged by deprivation of food and water for 24h and more, using the time points of 12, 24, 28 and 32h.

The present project attempted to go further by looking at behavioural evidence in addition to physiological evidence, including 18h as a time point instead of 28h, and adding a control treatment given ad libitum access to water but no feed for 32h. Hens should first try to adjust behaviourally to water deprivation by showing an increased motivation to access water resources. Hence, behavioural changes should provide useful information regarding the perceived need by the hen to drink.

Experiment 1 investigated the behavioural changes occurring at 12, 18, 24 or 32h after water and feed removal, or solely after 32h off feed, in conjunction with the physiological measures of corticosterone concentration, packed cell volume, osmolality, comb colour score, and weight loss. Experiment 2 employed a motivation test using the rationale that higher dehydration times (0, 12, 18, 24 or 32h) should lead to a higher price paid to access water, in this case willingness to squeeze through a narrow opening (150, 135, 120 or 100mm).

The results showed that, under favourable handling, social and climatic conditions, the welfare of spent hens became challenged due to water deprivation. Behavioural changes occurred as early as 12h and 18h, preceding the physiological changes (weight loss, packed cell volume, osmolality) at 24h and 32h. Behavioural differences reaching a plateau at 24h with no differences between 24h and 32h on most behaviours, but some behavioural changes were already apparent at 18h.

Physiological changes were maximal by 24h, to a similar level to what was seen at 32h, suggesting that a plateau was reached. Consequently, the results presented in this report, in accordance with the previous study, questions the welfare of hens that have water withdrawn for 24h or longer.

It should be recognised that factors other than feed and water deprivation are likely to influence hen welfare during transport, such as the health status of the hens prior to loading, their body condition, stress of handling, social stress of mixing, duration of transport and the weather during transport and lairage. The threshold indicative of acceptable welfare remains debatable depending on value-based judgements.