

**Title:** The importance of nests for the welfare of laying hens

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### *Summary*

A unique feature of the methodology in this project was the use of low-light video and infra-red light, whereby each bird was uniquely identified and able to be viewed on digital video to determine when and where each egg was laid.

Over six experiments, the hens were actively observed to determine the rate at which hens consistently laid in the nest box. Throughout a series of experiments, the features of the nest box or group size were modified in order to provide a comparison between nest boxes.

Corticosterone concentrations were measured at the 23 week stage of life and suggested that social factors around this age may cause an increase in hen stress levels with the presence of a nest box. This also coincides with the time hens are determining their preferred egg-laying site.

While the result may be associated with some form of social competition for a resource, presumably the nest box, it is contrary to the perception that hens will be stressed if they are unable to lay in a nest box.

Competition among the hens for preferred egg-laying sites, in this case the single nest box in the cage, was probably greater as the timing of egg laying became more synchronised. The extent of the assumed competition for the nest box may also be relevant to determining whether hens are excluded from using the nest box and become floor layers.

Hours of light and darkness were modified in order to reveal the synchrony of egg laying times. There were no effects of consistently laying in the dark or light on any of the stress physiology parameters measured. When egg-laying coincided with darkness, hens did not perform the typically active pre-laying 'searching' phase of nesting behaviour. The manner of inserting a period of light during the night time, whether by a gradual introduction over weeks or an abrupt introduction, did not result in a stress response for hens.

As most eggs laid by hens in the dark are laid on the wire floor with no impact on stress levels, this suggests that the nest box may not be important to hen welfare, at least when egg laying occurs in the dark.

Increasing the number of birds per nest box was also measured, and it was determined that a high number of birds habiting a single cage did not affect daily egg production. It can therefore be assumed that are social factors within cages can influence hens' preference for laying in the nest box.