

# Influence of improved nest-site recognition and nest size on the laying behaviour of hens

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## Key words

Laying hens, group-nests, nest choice, preference test, pre-laying behaviour

## Aim of the study

We aimed to evaluate specific nest characteristics thought to influence nest attractiveness in laying hens and study their effects on nest choice and pre-laying behaviour. The nest characteristics studied were size, internal structure, and visual stimuli on curtains.

## Material and methods

Two experiments were conducted in which groups of 20 laying hens had access to two commercial group-nests differing either in size or in the presence of a wooden partition. Egg numbers per nest were used to assess nest preference. Additional measures were taken from video observations: number of nest visits per egg in both experiments, posture of hens in nests in experiment 1, and egg-laying location for experiment 2. The third experiment was performed with groups of 30 laying hens with access to either six identical nests or six nests differing in outer appearance with colours and symbols on the curtains. The distribution of eggs between nests and the number of nest visits per egg were recorded to evaluate nest choice. We also assessed how social factors affected nest choice in experiments 2 and 3.

## Results and significance

Laying hens preferred the smaller nests as more eggs were laid, fewer nest visits per egg were performed and more hens were seen sitting in these nests. In the second experiment, we recorded more eggs and fewer nest visits per nest in the partition nest and hens were also consistent in selecting this nest. These results point to the attractiveness of smaller group-nests and added cover provided by the partition. In the third experiment, we found some evidence that hens used the visual stimuli on nest front curtains as an aid in nest choice as fewer nests were visited overall. However, the distribution of eggs among nests and the consistency of nest selection was not affected. In terms of social factors, we found a high occurrence of nest visits to occupied nests which increased with age although its frequency did not differ between groups of hens having access to identical or heterogeneous nests. Therefore, whether or not nests were occupied was more important to the hens than nest appearance. In addition, in the second experiment, hens of a lower social status showed a different pre-laying pattern than higher ranking hens.

## Publications, posters and presentations

Ringgenberg, N.; Fröhlich, E.K.F.; Harlander-Matauschek, A.; Würbel, H.; Roth, B.A Nest choice in laying hens: effects of nest partitions and social status. Submitted to *Applied Animal Behaviour Science*

Ringgenberg, N.; Fröhlich, E.K.F.; Harlander-Matauschek, A.; Würbel, H.; Roth, B.A. Effects of variation in nest curtain design on pre-laying behaviour of domestic hens. Submitted to *Applied Animal Behaviour Science*

Ringgenberg, N.; Fröhlich, E.K.F.; Harlander-Matauschek, A.; Würbel, H.; Roth, B.A. (2014) Does nest size matter to laying hens? *Applied Animal Behaviour Science* 155, 66-73 (Prix Jean-Pierre Miéville 2014)

ISAE Conference, Vitoria-Gasteiz 2014 (presentation), Int. Tagung Angewandte Ethologie, Freiburg i. Br. 2013 (1<sup>st</sup> poster prize), European Symposium on Poultry Welfare, Uppsala 2013 (presentation)

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