Effects of coloured illumination of hen houses on the behaviour of laying hens: additional choice experiment

Andreas Suter, Peter Spring, Beat Huber-Eicher
Swiss College of Agriculture SHL, Bern University of Applied Sciences, CH-3032 Zollikofen

Key words
Coloured light, laying hens, animal welfare, colour preference, choice experiment

Aim of the study
The present study is a continuation of an earlier study (project 2.10.02), where we were looking at the effects of coloured illumination on the behaviour and production parameters of laying hens. Subsequently we wanted to know which of three coloured illumination (white, red and green) hens would prefer when having a free choice. Additionally we were interested in the question whether hens would prefer different colours to perform different groups of behaviour like resting, foraging, preening …. .In large flocks this could help to better separate groups of hens that are engaged in similar activities leading to less disturbances and more calmness in the flock.

Material and methods
8 Groups of 25 laying hens had each free access to 3 identical compartments (5.0 x 3.3 m) equipped with a litter area, raised perches, food and drinking facilities and nestboxes. The compartments were illuminated either with white, red or green LED's. For two weeks the hens had the opportunity to get accustomed with the experimental setting. During the following 2 weeks it was noted in which of the three compartments the hens stayed (all together 80 scans per group). Additionally we recorded the hen's behaviour (separated in 12 categories).

Results and significance
Hens spent sign. more time in white compartments (55 % of time, mean of 8 groups), than in red (26%) or green (18%) and laid sign. more eggs in white compartments (47%, mean of 8 groups) than in red (19%) or green (34%).
It was then testes whether the hens spent different amounts of time with an observed behaviours once they were in a specific compartment (time spent with a specific behaviour in % of the whole time spent in a compartment). No differences were found except for Preening, Dustbathing and Walking: When in white compartments birds showed a tendency to spend proportionally more time with Preening (9%) than in green compartments (6%). In red compartments birds spent proportionally more time with dustbathing (11%) than in white (5%) or green compartments (2%). Finally, Birds spent proportionally less time with walking in white compartments (11%) than in red (16%) or green compartments (18%).
In summary, hens apparently prefer illumination with white LEDs when having the choice between white, red and green LED's. They seem to use the coloured compartments as an additional area to be explored (more Walking) and red was attractive for Dustbathing.

Publications, posters and presentations
Effekt von farbiger Stallbeleuchtung auf das Verhalten von Legehennen. 17.3. 2011 Presentation at the Swiss College of Agriculture, Zollikofen.
Effekte farbiger Stallbeleuchtung auf das Verhalten und Produktionsparameter von Legehennen. 29.3.2011. Presentation at the spring conference of the Swiss Association for Animal Production in Zollikofen.
Farbige Stallbeleuchtung für Legehennen: Auswirkungen auf Verhalten und Produktion. 4.5.2011 Presentation at the annual congress of the Workinggroup of Expert Advisers for Poultry Husbandery in Zollikofen

Project *2.11.01*

Project duration *June 09 – October 2010*