



Incubation and early-life strategies to minimize feather pecking and cannibalism in laying hens

One of PPILOW's experiments aims to develop innovations to reduce feather pecking in laying hens. This will help farmers in keeping laying hens with intact beaks. This experiment is split up in short term effects of the strategies on animal welfare (incubation and rearing) and long-term effects (laying phase).

Incubation and rearing: short-term effects

We know that incubation and early life are important for the healthy development and functioning of animals. We also know that feather pecking has multiple underlying causes, among which are fearfulness and lack of foraging opportunities. By adapting the incubation and rearing environment the birds may become less fearful, more robust, and less prone to develop feather pecking. We studied the effect of a light-dark cycle with green light during the entire incubation, as this has been shown to reduce fearfulness in broilers. In addition, in early life, we investigated if foraging enrichment with insect larvae had a positive effect on fearfulness and feather pecking. We studied fearfulness and feather pecking using multiple behaviour tests. The experiments were finished in September 2021 and data analysis is currently ongoing.



Incubation and hatching in a green light/dark cycle



Insect larvae provided in perforated cylinders



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Preliminary results indicate that lighted incubation and insect enrichment did not affect body weight nor age at onset of egg production. Access to larvae stimulated foraging behaviour and decreased fear of humans. Limited effects were found on feather pecking during rearing and levels of feather pecking during rearing were low. More results will follow in the upcoming months.

Laying phase: Long-term effects

The effects of the incubation and rearing treatments were followed into adulthood at ILVO's experimental free-range facility, where the hens would spend approximately one year in mobile poultry houses with access to a large, tree-covered outdoor range. While ranging, the groups of hens also had access to live insect larvae in operant feeders placed on the range in alternating 12-week periods. The hens' body condition was scored approximately every 8 weeks to monitor feather condition and other health measures, and they were subjected to behavioural tests early and late in the laying period to obtain measures on fearfulness and stress responsivity.



The two types of tree-covered areas of the outdoor range: short rotation coppice of willow (left), and hazel trees (right).



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After an extended period of indoor confinement due to avian influenza there was an outbreak of feather-pecking in all groups during the first experimental round, with no difference between treatments for feather condition. Only a single instance of a substantial wound (i.e. excluding scratches) from cannibalism was recorded. The second experimental round is ongoing, with feather condition still good in all groups (no difference between treatments), though unlike the previous round, the hens in the current round have had access to a covered outdoor veranda throughout the current influenza confinement. Data analysis is ongoing, with results to follow after August 2022 when the second experimental round is completed.



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