

# Feather pecking in organic rearing hens

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**Abstract – Feather pecking is the main welfare problem in organic laying hens. Several studies showed that rearing factors are of crucial importance for feather pecking not only during rearing, but also during the laying period. In order to collect background information for our handbook about organic pullet rearing, we collected data from 29 flocks from week 1 to week 30. We wanted to know the degree of feather pecking during rearing, risk factors for feather pecking and the persistence of feather pecking throughout the whole life. Feather pecking was seen in 54% of the rearing flocks, although symptoms were very subtle. The main risk factor was high density during the first 4 weeks of life. Finally, feather pecking once started during rearing, seems to be very persistent throughout the whole life. If there was feather pecking during rearing, 82% of these flocks continued feather pecking during lay. If there was no feather pecking during rearing, 90% of these flocks neither feather pecked during lay.** <sup>1</sup>

## INTRODUCTION

Feather pecking is the main welfare problem in laying hens, also in alternative systems. Several studies showed that the rearing factors are of crucial importance for feather pecking not only during the rearing period, but also during the laying period (Blokhuys and van der Haar, 1992; Gunnarsson et al., 1999; Huber-Eicher and Sebö, 2001; Johnsen et al., 1998). Only some studies have been done in 'the field' instead of in experimental situations. Because we intended to write a handbook for organic farmers about the prevention of feather pecking, we were interested in information about this behaviour in this specific group of rearing farms. We wanted to know the degree of feather pecking in rearing hens, risk factors for feather pecking in rearing hens and the persistence of feather pecking throughout life, once it had started during the rearing period.

### *Logistics of the Dutch rearing situation*

In the Netherlands, the rearing is coordinated by the hatcheries, who contract rearing farms. Some of these rearing farms can only do warm rearing (0-6 weeks of life), while others can do only cold rearing (7-17 weeks). However, most of them can do both. Sometimes at 6-7 weeks of age the pullets are moved from the one stable to the other or even to another farm. At 17 weeks of age, the hens out of one rearing flock can be spread over several laying farms.

## METHODS

For our study we concentrated on 10 different rearing farms, who were contracted by 3 hatcheries. We monitored 29 flocks of pullets on these 10 farms. However, some of our 29 flocks have spend their first weeks on another farm. Therefore, in our study 19 different farms were involved that did warm rearing and 10 different farms that did cold rearing. There was some overlap between the 19 warm and the 10 cold rearing farms, formed by the farms that could do both. Finally, the hens raised on our 'study' farms went to 29 different laying farms.

We collected data from week 1 to week 30 about management, housing and feather pecking damage. Feather damage was assessed by walking between the pullets. With help of a small hand counting device, 100 chicks were scored for being feather pecked or not, ending with a percentage of pullets being feather pecked. The pullets were visited at 5 ages during rearing and once they were 30 weeks old on the laying farm. On the laying farms, again data were collected about housing, management and feather damage.

## RESULTS

A flock was defined as being feather pecking when at least 6% of the hens at any age till 16 weeks showed symptoms of feather pecking. For example, if a flock showed damage at 3 weeks of age, but not at 16 weeks, it was categorised as 'being feather pecked during rearing'. Because feather pecking in rearing hens is very subtle, the first 5 flocks were all categorised as not being feather pecked. Therefore we could use the data of only 24 flocks. Moreover, some laying farms did not want to participate in the study. Therefore of some rearing flocks we do not know how they performed as adults.

During the rearing period feather pecking was seen in 13 out of 24 flocks (54%). Table 1 contains the summarised information of the 24 flocks, categorised in feather pecking and non-feather pecking flocks.

Some farms provided food and water on elevated grid floors above a manure pit. At these farms the pullets were confined on the grids during the first 4 weeks of life, because otherwise they were unable to jump to their food and water. Therefore we used the age categories 0-4, 5-6 and 7-17 weeks.

We used Genstat (Release 7.2) for doing T-tests. Although nearly all the differences between the 2 categories were the same as expected from literature results (for example 'larger group size leads to more feather pecking'), in our study we

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could identify only one risk factor being statistical significant (with  $p < 0.01$ ). In the feather pecking category the density during the first 4 weeks of life was 35 chicks/m<sup>2</sup>, while in the non-feather pecking category it was 22 chicks/m<sup>2</sup> ( $p = 0.003$ ).

Of 21 flocks we had information on feather pecking both during rearing and during laying. Of 11 flocks that feather pecked during rearing, 9 (82%) of them did so during lay. Of 10 flocks that did not feather peck during rearing, 9 (90%) neither did so during lay. When rearing flocks were spread over different laying farms, the general picture was that the degree of feather pecking on the laying farms was more or less the same. There were only 2 exceptions. The first concerned a feather pecking rearing flock, that went to 4 different laying farms. The hens continued feather pecking on 3 of these laying farms and did not on 1 of them, which housed them in a group of 160 in a mobile stable, which is regarded as very extensive. The second rearing flock that was divided over 4 different laying farms, did not feather peck during rearing. On 3 laying farms they neither feather pecked, while on 1 they did. This laying farm did not provide litter in the stable and there was only one small pop-hole for 2200 hens, which thus generally stayed inside. Both these factors are known to be risk factors for feather pecking in adult laying hens (Bestman and Wagenaar, 2003).

Table 1: General information about the flocks, categorised in feather pecking flocks and non-feather pecking flocks.

Factor	Feather pecking (n=13)	No feather pecking (n=11)
Mean group size weeks 0-6	11.500	6.300
Mean density first 4 weeks (in chicks/m <sup>2</sup> )	34	21
Floor cover first 4 weeks	5/13 litter 8/13 grids	8/11 litter 3/11 grids
Mean density weeks 5-6 (in chicks/m <sup>2</sup> )	25*	18*
Floor cover weeks 5-6	10/13 litter 3/13 grids	10/11 litter 1/11 grids
Perches weeks 0-6	5/13	7/11
Scattered grain weeks 0-6	2/13	3/11
Daylight weeks 0-6	11/13	7/11 insufficient
Presence of blood mites	0/13	3/11
Mean group size weeks 7-16	4.500	5.700
Mean density weeks 7-16 (in chicks/m <sup>2</sup> )	9.9	10.5
Floor cover weeks 7-16	13/13 litter	11/11 litter
Scattered grain weeks 7-16	5/13	9/11
Perches (in cm/hen)	6	7
Daylight weeks 7-16	8/13 insufficient	9/11 insufficient
Age first outside (in weeks)	12	11
Mean % outside at 16 weeks	25	24

\*  $p = 0.003$

#### DISCUSSION

We found that more than half of the rearing flocks showed feather pecking behaviour. Since feather pecking is regarded as a symptom of reduced welfare in both actor and victim, this means that the current situation of organic rearing in the Netherlands is far from ideal. Especially when we take into account that feather pecking is very persistent

throughout the whole chicken life. We found that once they started during rearing, the chance is very high (82%) that they continue to do so during adult life. This means that the laying farmer cannot do so much anymore to stop this unwanted behaviour. We found that high density during the first 4 weeks of life is the main risk factor for feather pecking. Although the other factors we looked at, were no risk factors in the sense of being statistically significant, they in general are known to increase the risk of feather pecking, for example the use of grid floors during the first weeks of life, the absence of perches and no additional grain scattered as a pecking incentive (Blokhuis and van der Haar, 1992). Bäumer (1955) wrote that during the first weeks of life, a pullet learns to eat. He describes that they will peck at everything in order to find out what is edible and what not. If their environment consist mainly of flock mates, the chance is big they start pecking at their flock mates' plumage. If the floor consists of grids without pecking incentives such as scattered grains, the chance is big, that the at first normal explorative pecking at their flock mates, develops into the abnormal behaviour feather pecking.

#### CONCLUSIONS

Based on our findings we conclude that the current situation in Dutch organic pullet rearing is far from ideal and can even be called alarming. We suggest the rearing farmers at least to keep their pullets in lower densities and in more enriched environments.

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