

# A guide to the practical management of feather pecking & cannibalism in free range laying hens



Department for Environment, Food and Rural Affairs  
Nobel House  
17 Smith Square  
London SW1P 3JR  
Telephone 020 7238 6000  
Website: [www.defra.gov.uk](http://www.defra.gov.uk)

© Crown copyright 2005

Copyright in the typographical arrangement and design rests with the Crown.

This publication (excluding the logo) may be reproduced free of charge in any format or medium provided that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright with the title and source of the publication specified.

Further copies of this publication are available from:

Defra Publications  
Admail 6000  
London  
SW1A 2XX  
Tel: 08459 556000  
Email: [defra@iforcegroup.com](mailto:defra@iforcegroup.com)

This document is also available on the Defra website  
(at [www.defra.gov.uk](http://www.defra.gov.uk)).

Published by the Department for Environment, Food and Rural Affairs.  
Printed in the UK, February 2005, on recycled material containing 80%  
post-consumer waste and 20% totally chlorine free virgin pulp.

PB 10596

# Introduction

Feather pecking is an abnormal behaviour whereby some laying hens peck others sometimes removing feathers, which can result in poor plumage, patches of feather loss, skin damage and even death. Where feather pecking develops into injurious pecking and the protective function of the bird's plumage is lost, this can trigger cannibalism which is a serious animal welfare problem. Feather pecking is distinct from aggressive pecking which is often aimed at the head, although in aggressive pecking there may be elements of feather pecking present.

The traditional method of alleviating the problems associated with feather pecking has been to beak trim laying hens. This is normally done when the birds are 7 to 10 days old. Beak trimming is the removal of not more than one-third part of both a bird's upper and lower beaks, measured from the tip towards the entrance to the nostrils. Under the Welfare of Farmed Animals (England)(Amendment) Regulations 2002 (SI 2002 No. 1646) Schedule D, however, beak trimming of laying hens in all systems, including free range, will be prohibited from 1st January 2011.

Recognising that the requirement to stop routine beak trimming represented a major technical challenge to the Industry, during 2002 Defra announced the setting up of an "Action Plan on Beak Trimming" working group, whose purpose was to draw up an action plan to work towards the ban on beak trimming in all systems of production by the end of 2010. As part of this process, a number of workshops were arranged to provide a forum for discussion on the practical management of feather pecking and cannibalism in free range flocks.

The guidance contained in this booklet is a distillation of the views expressed at those workshops by those with first-hand knowledge of tackling the issue on a day to day basis. It is not a statutory or industry code and is not guaranteed to be effective in all circumstances. The approach adopted at the workshops and throughout this booklet is one of 'risk analysis' – i.e. what factors increase the risk of feather pecking and cannibalism and which factors reduce the risk. Whilst the guidance is based on best practice found in the field it should be noted that for some of the suggestions, no research work has been undertaken to scientifically validate these findings.

It should also be stressed that the adoption of any of the techniques mentioned in this booklet should be viewed in the context of the overall operation of the unit. For example, certain techniques employed may indeed reduce the incidence of feather pecking, but could at the same time, lead to other husbandry problems. Changes should be made cautiously, as changing one factor can affect another. Also, the very unpredictable nature of feather pecking should not be underestimated. It is often not clear what the trigger factor is.

*Advice should therefore be taken from your veterinary or other adviser before any changes are made to the husbandry system operating on the farm.*

# Factors likely to decrease the risk of feather pecking

This section reviews a number of key factors that are associated with a reduced risk of injurious pecking.

## **Matching housing conditions in rear and in lay**

Field experience suggests that one of the most important factors in reducing the risk of injurious pecking is the need to ensure that the housing conditions in the rearing phase are as closely matched as possible to those that the bird will experience in the laying house.

It is good practice, for example, for the drinker system that is used during rearing to be the same as on the laying unit. Also, having the same or similar feeding systems and times of feeding in both the rearing and laying houses helps reduce the stress of transition between the two stages.

The aim should be for a “seamless transition” from rearing to laying accommodation. To achieve this, there is a fundamental requirement for good communication between the laying farm and the pullet rearer to ensure that the birds are reared to the appropriate standards. It is also good practice for the stock keeper to inspect the pullets at least once before delivery to discuss the progress of the pullets with the rearer and to check that the agreed rearing programme is being followed.

## **Good quality pullets**

Correctly reared, healthy, well-feathered pullets are not only essential prerequisites for successful egg production, but they also seem to be vital in ensuring that the risks of feather pecking problems are minimised. Underweight and uneven pullets will be less likely to adapt to life in the laying house and tend to be more susceptible to stress, which in turn may increase the risk of injurious feather pecking.

Requirements for pullets destined for free range systems should include:

- Floor reared with access to perches (and possibly perforated floors) from an early age (for example, from 10 days of age at the latest).
- A big-framed pullet with a good appetite. Breeders target weight should be closely followed, especially in the 5 to 10 week period.

- A comprehensive vaccination programme, devised by the vet, to match the laying site disease profile as far as possible.
- Wormed and resistant to coccidiosis. (The producer should be aware of dosage levels given, and at what age the inclusion of coccidiostat ceased).
- Reared to an agreed lighting programme in light-proof houses, where the birds' day length cannot increase unintentionally.

## **Bird temperament**

There seems to be a strong association between bird temperament and the likelihood of injurious pecking. Birds with a calm yet 'robust' temperament tend to be better able to cope with changes in the environment and errors of management, and less likely therefore to indulge in damaging feather pecking.

The way that the birds are managed during the rearing phase is widely felt to play an essential part in achieving a pullet with this 'robust' temperament, and pullet suppliers often adopt a variety of approaches to try and develop these positive behavioural traits. This can range from getting the pullets used to loud noises, through to extended flock walking to reduce the pullets fearfulness of people.

## **Maximising the use of the range area**

The incidence of injurious feather pecking tends to be reduced where birds make good use of the ranging areas available. It should therefore be a priority to encourage the birds' natural desire to roam. Birds find open spaces a threat however (increased risk of being spotted by predators), which is why a barren area is much less attractive to the birds than one which provides some form of cover in the form of natural or artificial shelters. Shelters such as trees and bushes help in encouraging the hens to use the range area. Trees and bushes provide dappled shade and encourage the birds to actively explore their environment, rather than pecking other hens. Additionally, if a high proportion of birds use the range, the average stocking density in the house is reduced for a longer period of time, which decreases the risk of pecking problems arising. Having water available outside the poultry house will also help to



encourage the birds to range and spend longer outside. Care should be taken when providing external water supplies to avoid contamination from wild bird droppings.

Hens should be let out onto the range area as early as possible in the day. There is no need to keep them in the house once they have learnt to lay in the nest boxes.

Where permanent shelters are not appropriate, (for example on tenanted land), temporary, man-made shelters can be erected by driving a number of posts into the ground and stretching suitable material or netting over them. Where the ground underneath is liable to be poached, moveable shelters can be used. It is important to provide covered areas over the whole of the range, not just close to the shed.

Encouragement should be given to the birds to maximise the whole of the range area and participate in dust bathing and scratching. Additionally,

hens encouraged to roam minimise the pressure that would otherwise be exerted on the areas immediately around the house.



## **Pullet transfer and transportation**

It is important to recognise that transferring the pullets from their rearing house to their laying house can cause serious stress. Care should be taken before, during and after their transfer to minimise this problem.

In order to minimise stress, current industry practice is to move birds during the night time period and allow them to roost overnight in the transport crates on the transport vehicle before unloading. In this way the least interruption to feed and water intake will occur, and in summer, heat stress will be avoided as the birds will be transported during the coolest part of the day.

Irrespective of what time of day the pullets are transported, arrangements should be made between the rearer, the haulier and the egg producer so that the time the birds are kept on the vehicle is minimised. It is then important to unload the pullets as quickly and carefully as possible.

When the birds arrive on the farm, time spent ensuring that they find feed and water quickly will pay dividends.

## **Good management**

There can be little doubt that “good stockmanship” and conscientious and knowledgeable management play a vital role in minimising stress levels on the birds. Whilst good stockmanship incorporates a multitude of different skills and abilities, perhaps the most important ones are attention to detail; spending sufficient time with the hens to learn about their normal and abnormal behaviour; being conscientious and diligent; maintaining good records and being adequately trained to perform the tasks required.

*Good stockmanship ensures that potential problems can be spotted at an early stage, and appropriately tackled before drastic remedial action needs to be undertaken.*

## **Good house design and layout of equipment and perches**



This is an area where taking expert advice can prove to be invaluable. Inadequate, poorly designed or poorly laid out feeders, drinkers, nest boxes and perches will create stress in the flock which could lead to

feather pecking. The bird must be able to reach the nesting areas easily without moving through a maze of feeders, drinkers and perches that could cause frustration and stress. Poorly positioned or inadequately controlled lights which produce bright spots or areas of shadow can be a precursor to injurious pecking which could be avoided with careful planning and installation.

## **Good quality litter**

It is important to try to keep the litter friable so that the hens are able to dust bathe. The laying hen has a genetic pre-disposition to forage and dust bathe. If this behaviour is thwarted, the bird becomes stressed and frustrated.

The widely held view is that white (untreated) wood shavings provide the best litter as they are less dusty than chopped straw. However, chopped straw can provide a suitable, cheaper alternative in some situations. Dry, warm litter is essential if the beneficial bacteria and fungi are to multiply and assist in breaking down the faeces and keeping the litter friable. When litter becomes capped and cold, bird condition deteriorates and left unchecked, bird health and welfare will be compromised with an associated risk of injurious pecking occurring.

Getting the design of the litter area, access arrangements and drainage correct are vital to achieving and maintaining good litter conditions. Raking or forking the litter when weather conditions are poor can help to prevent a wet cap from occurring, but the benefits will be lost if (for example) the gutters are overflowing or if the area outside the popholes is a quagmire.

# Factors that increase the risk of feather pecking

This section considers factors that, when combined, will increase the risk of feather pecking. Laying hens are usually able to cope with individual stressors when they occur 'one at a time'. A feeder breakdown, for example, would not normally be expected to precipitate a bout of feather pecking. A feeder breakdown *during* an acute infestation of red mite *coupled* with the house lights being left on full, could however 'tip the balance' and trigger a sudden and serious bout of injurious pecking. In most cases of serious pecking, it seems to be the accumulation of a number of stressors that leads to problems, and once started – they can be extremely difficult to stop.

The most prolific trigger appears to be any unplanned deviations from the normal practice and routine – in other words, "change". Where 'changes' do have to be made, they need to be planned and managed.

## **Changes when moving pullets from the rearing farm to the laying farm**

The time when pullets are moved from the rearing accommodation to the laying farm is a critical time for keeping stress levels in birds to an absolute minimum. One of the main changes that pullets can encounter at this time is the deprivation of litter and access to the full house space when they are initially penned on raised platforms during the first few days in the laying house. The aim of this practice is to ensure that they successfully find the food and water and learn where they should be perching at night-time. Managed carefully over a short period (i.e. a few days), the birds seem to cope fairly well with this widely-used practice. Where the birds are confined over a prolonged period however – e.g. where producers are training the birds to use the nest boxes, this is likely to be particularly stressful and could encourage feather pecking, in addition to possibly contravening the Egg Marketing Regulations.

## **Changes in feed**

Irrespective of the reason for a change of feed, it has been found that sudden, unexpected changes in feed composition can often trigger feather pecking. Feed formulation could be changed for a number of reasons. For example, the composition may be changed at the request of the producer

or his adviser in order to rectify production or husbandry problems. It could be changed by the feed compounder in response to price pressures, or it could simply be due to a change in feed supplier.

Despite this potential 'risk', it is still usually advisable to use a phase feeding regime, to match the birds changing nutritional requirements through lay to the nutrient density of the feed. Allowing the egg size (egg mass output) to get too high (for example) is stressful to the hens, and can be controlled by adjusting their nutrient intake. Injurious feather pecking, increased mortality and cannibalism may occur if this change is not made.

There can be merit in providing a period of overlap between feeds where new and old feed formulations are both in the feed bin at the same time. This allows for some blending of rations to occur and makes for a more gradual (and perhaps less stressful) changeover to take place.

## **Changes in the environment**

External changes in the bird's immediate environment are also a major factor in terms of risk of injurious pecking developing. Some of these can be predicted (and therefore managed) whilst others, such things as changes in the weather and sudden, unexpected noises such as low flying aircraft and hot air balloons are much less predictable and the producer can do little or nothing to influence them. Procedures do exist for producers being able to register their farm as being a 'no-fly' zone with the Ministry of Defence (and the local ballooning club), and this may help to reduce this particular risk.

There are a number of potential risk factors that the producer can help to ameliorate. Excessive numbers of visitors to the unit can increase the birds' stress levels and trigger feather pecking. Visitor numbers and frequency of visits should therefore be kept to a minimum. However, regular inspection of the flock by their stockman is essential.

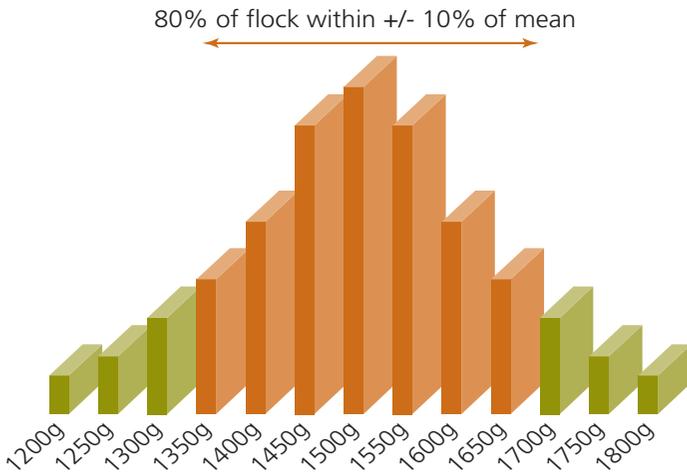
Equipment malfunctions and breakdowns, (leading to food or water absence for example), are also a problem which can be guarded against, to a degree, by a regime of planned maintenance.

Predators, primarily foxes, but also dogs, mink and badgers can cause panic in a flock leading to outbreaks of feather pecking. The siting of the unit can influence the likelihood of such problems, with thick cover adjacent to the range area encouraging foxes. Flexible electrified fencing powered by a mains transformer, will generally provide satisfactory levels of protection against most predators, and requires less attention than a battery powered unit.

Wild birds, even small ones such as finches, must be kept out of the laying house as they can induce fear reactions, such as feather pecking, in the hens.

### Unevenness of the flock

A flock which has a large variation in bodyweights is said to be “uneven”. Flocks with too much variation in body weights tend to be more prone to feather pecking than their more-even counterparts. Uniformity is expressed as the percentage of individual weights which occur within 10% of the current flock average (mean).



A desirable goal is for 80% of birds to fall within 10% of the mean. If, for example, the average flock weight at 18 weeks is 1500 grams, 80% of the birds should weigh between 1350 grams and 1650 grams.

A flock with, say, 80% of birds within 15% of the mean body weights will be more prone to feather pecking than a much more uniform flock with, say, 80% of the birds within 5% of the mean. Uniformity of the flock is an essential indicator of quality and is equally as important as achieving the average target liveweight.

It should be noted that pullets will experience weight loss in transit between the rearing and laying farm of approximately 10% of their bodyweight, which should be regained within approximately two weeks of arrival.

### **Poor pullet quality**

In times of reduced egg incomes, poor quality pullets at cheaper prices are sometimes seen as an attractive alternative to good quality pullets which have had more time and care invested in their production. However, poorer pullets with a lower overall health status are seen as being less able to cope with the many challenges they receive during lay. Paying for well-reared pullets is a wise investment both in welfare and economic terms.

### **Disease and pest challenges**

Birds challenged by a disease outbreak will be more prone to feather pecking incidents. Disease prevention within the flock is vital and all new pullets must be given all the recommended vaccinations. There should be a thorough cleansing and disinfection procedure at turnaround, and high standards of hygiene and control during the laying period should reduce the risk of bacterial and viral transmission.

A written 'Poultry Health and Welfare Plan' should be devised in conjunction with the veterinary adviser. The plan can be a fairly simple document, but the scope of the plan should include vaccinations, veterinary interventions, disinfection programme, insecticide treatments, feed specifications and husbandry and management activities. To be effective, the plan should be specific to the site, and not just a vague, non-specific, generalised document. Under the plan, the health and welfare of the birds should be regularly monitored, and any problems should be acted upon immediately to prevent escalation. The plan should be reviewed regularly and any changes deemed necessary should be implemented and recorded to ensure continuous improvement.

## Red mite and vermin

In recent years, poultry red mite has become a serious problem in free range systems. The presence of large numbers of red mite will increase stress levels in the birds and predispose them to pecking. Similarly, mouse and rat infestations can lead to panic in flocks. A multi-factorial approach to pest control needs to be adopted which includes elements of design, proofing, housekeeping, monitoring and treatment.

*Requirements common to both rodent & insect control programmes:*

- Houses and equipment should be designed so that the number of harbourages are minimised, and pest proofing features are incorporated wherever possible.
- A regular programme of inspections should be implemented so that infestations can be detected at an early stage. This is crucial to the success of any pest control programme.
- As far as possible, products with different active ingredients should be used on a cyclical basis to reduce the risk of resistance developing. (This is particularly important in the case of red mite control products).

*Other recommendations – rodent control*

- Good housekeeping is essential, for example, spillages of feed should be cleared-up promptly
- Attention should be given to external harbourages which can provide shelter for rats
- Repairs to double-skinned walls and roofs should be undertaken promptly to reduce the chances of rodents gaining entry to internal voids.

*Other recommendations – red mite control*

- Thorough cleaning and disinfection of all mite harbourages at turnaround is absolutely essential. The 'risk' areas tend to be those that are most difficult to get at and because of this, they tend to be the very areas that get missed or not cleaned thoroughly. Particular attention should be given to the areas around (and underneath) slats, and to cracks and crevices in nestboxes, chain feeder legs etc.

- After cleansing and disinfection, it is essential to treat with an approved residual acaricide once the house is dry, to delay the build-up of red mite in the subsequent flock. It is vital to spend sufficient time to undertake this task thoroughly.

## **Lighting variations**

Variations in the intensity of light can be a significant trigger to injurious feather pecking. This can often be observed when beams of bright sunlight enter into a darker shed. Similarly, a very high intensity of artificial light within a poultry house can also precipitate pecking problems. Whilst the intensity of natural light is much higher than that of artificial light, birds experiencing these higher levels on the range have more room to escape the attentions of would-be aggressors.

Lighting should be installed to give an even distribution of light and should incorporate some means of adjusting light intensity to control aggressive pecking should this begin to occur. If light levels are too low at the start however, there is little room for manoeuvre should a problem occur.

## **Sub-optimal nutritional Intake**

The nutritional composition of the poultry feed being used must match the requirements of the bird at all stages of its life. Inability to meet this requirement will increase stress on the bird.

Birds in free range systems tend to be more sensitive to marginal dietary deficiencies than birds in laying cages, and low levels of intake of some of the key nutrients can predispose the birds to pecking. Sodium levels, in particular, are known to be critical to bird behaviour and if levels are too low, highly aggressive and injurious feather pecking can be triggered very quickly.

## **Birds coming into lay too early**

Practical experience has shown that if birds come into lay too early, they may be more prone to feather pecking. Although the trend in recent years has been for pullets to come into lay earlier and earlier, it is thought that where the onset of lay is delayed (perhaps to as late as 20 weeks) the risk of subsequent injurious pecking is reduced.

Liveweight is an essential indicator to help the producer plan when to increase day length to trigger the pullets to start laying. A liveweight of 1500 to 1550g, is generally thought to be minimum bodyweight required before lighting should be stepped-up. This liveweight can usually be reached by about 18 to 19 weeks of age. This is a complex issue however and one that producers should discuss with their vet or other specialist adviser.

# Summary

Bouts of injurious feather pecking are often attributable to the accumulated effects of a number of stress factors occurring at the same time. Producers need to think in terms of 'risk' – some factors will increase the risk of pecking, others will reduce the risk. The aim should always be to tilt the balance towards reducing risk.

*Factors that increase the risk of injurious pecking include:*

- Moving from pullet rearing accommodation to the laying quarters
- Underweight and / or uneven flocks with large variations in bird weights
- Changes in feed provided for the hens
- Changes in the environment, such as changes in the weather, sudden unexpected noises, equipment malfunctions etc.
- Disease and pest challenges – especially red mite and vermin
- Changes in light intensity and lighting patterns

*Factors that decrease the risk of injurious feather pecking include:*

- Good quality pullets, with an even size and weight, reared to exacting standards.
- Pullets reared in housing conditions that closely mirror those that the bird will encounter on the laying farm (the 'seamless transition')
- Pullets which have a calm disposition yet are robust enough to cope with changes in the environment and management (able to 'soak-up the bumps')
- Birds which maximise the use of the range, are active and engage in dust bathing and litter scratching activities.
- Competent and calm stock keepers
- Well-designed houses with good quality litter

# BEIC code of practice for beak trimming



**Correctly trimmed at 9 days**



**Result at 20 weeks**

Beak trimming of laying hens in all systems will be prohibited from 1st January 2011. In the meantime, in order to ensure that the highest possible standards of welfare are maintained at all stages during the beak trimming procedure, a Beak Trimming Code of Best Practice has been produced.

The working group involved in the production of the Code included representatives of the breeding, hatchery, pullet rearing and egg production sectors, Defra, vets and ADAS, and it is their recommendations, based on knowledge and practical experience that has enabled the practical guidelines to be incorporated in the Code.

The Code of Practice sets out the steps to take in the planning and preparation process; how the beak trimming procedure should be carried out on the day; training requirements and Health and Safety issues for operators.

Copies of the Code of Practice are available from:

British Egg Industry Council, Second Floor, 89 Charterhouse Street,  
London, EC1M 6HR.  
Tel: 020 7608 3760.

## Legislation

The Welfare of Farmed Animals (England) (Amendment) Regulations 2002 (SI 2002 No. 1646)

The Veterinary Surgery (Exemptions) Order 1962 (SI 1962 No. 2557)

## Further advice and information on animal welfare

For advice on all veterinary and welfare matters, contact your private veterinary surgeon.

General advice on welfare matters can be obtained from:

- The State Veterinary Service (Local Animal Health Office – address and telephone number in your local telephone directory).
- Defra operate a comprehensive web site with links to the animal welfare, publications and Farm Animal Welfare Council pages at [www.defra.gov.uk](http://www.defra.gov.uk)

## Publications

Defra produce a number of publications on animal welfare which are free of charge, unless otherwise stated, from Defra Publications, Admail 6000, London, SW1A 2XX, (telephone 0845 955 6000, or via the Defra website – [www.defra.gov.uk](http://www.defra.gov.uk))

Relevant publications include:

- Code of Recommendations for the Welfare of Livestock – Laying Hens (PB7274)

## A guide to the practical management of feather pecking & cannibalism in free range laying hens

- Heat Stress in Poultry – Solving the Problem (PB1315 – currently under revision)
- Poultry Litter Management (PB 1739)
- The Welfare of Hens in Free Range Systems (PB 6490)

## Acknowledgements

This booklet was written by the ADAS Poultry Group with valuable contributions from Trevor Bray, John Widdowson and Darrell Smith. Contributions from members of the Beak Trimming Action Group are also gratefully acknowledged.





**PB 10596**

**Nobel House  
17 Smith Square  
London SW1P 3JR**

**[www.defra.gov.uk](http://www.defra.gov.uk)**

