



Injurious Feather Pecking in Laying Hens is one of a range *Animal Welfare Approved* fact sheets designed to provide practical advice and support to farmers. For more information visit our website.

SHORT DESCRIPTION OF TECHNICAL PAPER CONTENT

About this fact sheet

This technical paper provides farmers who are participating in the *Animal Welfare Approved* program with advice on *injurious feather pecking in laying hens*. Possible causes of feather pecking are examined, together with extensive practical advice on methods to prevent this serious welfare issue in poultry.

KEYWORDS

Welfare; poultry; feather pecking; dietary deficiencies; amino acids (methionine); ranging;

Animal Welfare Approved Technical Paper No. 5

Injurious Feather Pecking in Laying Hens

Animal Welfare Approved has the most rigorous standards for farm animal welfare currently in use by any United States organization. Its standards have been developed in collaboration with scientists, veterinarians, researchers, and farmers across the globe to maximize practicable, high-welfare farm management.



Injurious feather pecking can include gentle feather pecking, severe feather pecking, vent pecking and more general cannibalistic feather pecking.

Gentle feather pecking is thought to be part of the natural process of establishing a 'pecking order' within the flock and should not cause farmers too much concern. However, if the pecking becomes aggressive birds may be seen with bleeding from pecking wounds and, in severe cases, cannibalism and death can occur. Action must therefore be taken where feather pecking is causing a health and welfare issue.

What are the causes of feather pecking?

Modern research suggests that there are several possible factors that can contribute to feather pecking, including:

- Nutritional imbalances
- Mineral deficiencies
- Insufficient feed or drinker access
- Excessive light
- Overcrowding
- Hens not using the range area.

Should I expect to see feather pecking?

Feather pecking is known to be a major problem for intensive indoor flocks. The birds are kept at a high stocking rate and have little opportunity to express natural

behavior. Injurious pecking leading to cannibalism is the major reason for removing part of the beak of these birds.

Animal Welfare Approved flocks must be kept in free range systems with continuous access to range and foraging areas. Whilst this can help reduce the risk of feather pecking, research shows that less intensive systems may still be at risk.

Green *et al* (2000) carried out a survey of UK farms with barn, free range and organic birds in 2000. They found that 55% of the farmers who responded reported feather pecking in their laying flocks. A further study in the UK by the University of Bristol (2001) showed that 46% of farmers reported that feather pecking was a regular occurrence in their free range flocks and 56% reported feather pecking in the last flock depopulated. Similarly, Bestman and Wagenaar (2003) carried out a study in Holland which specifically looked at organic free range flocks and found little or no plumage damage in 29% of flocks, moderate damage in 19% flocks and severe damage in 52%.

From the data above, it seems that the majority of flocks will see some feather pecking at some time. Remember it is important to distinguish between feather pecking and feather loss. As birds come to the end of their laying cycle they begin to enter a molt phase and will naturally lose their feathers. This alone is not a cause for concern.

What can I do if I get an outbreak of injurious feather pecking?

An outbreak of injurious feather pecking can lead to major welfare problems within the flock. A poultry advisor or your veterinarian can help to identify the causes and offer help and advice on managing the problem. But it is worth considering the following key areas if an outbreak occurs:

Feed

First of all, make sure your feed manufacturer is aware of any feather pecking problems. Ask if the formulation or type of the feed has changed at all recently. Although you may have been buying what you think is the same layer ration for weeks, the feed compounder may have changed the raw materials or the proportions of different ingredients.

Think about the form of the feed. There is some evidence to suggest that pelleted feeds are associated with higher levels of feather pecking than feed presented as meal. It is thought that there may be a boredom factor within this and birds that are able to express their full range of natural behaviours whilst ranging and foraging may not show this response. But be careful about suddenly changing from pellets to meal – it must be done gradually.

Check the salt levels in the ration: an increase from the normal 0.5% content up to 0.7% salt content can help alleviate pecking problems. Also, ask your feed compounder or nutritionist to



check the amino acid balance in the feed. Researchers have linked deficiencies in the essential amino acids methionine, lysine and threonine with injurious feather pecking and cannibalism. If deficiencies are suspected, consider using a mineral and vitamin supplement in feed or water to boost micro-nutrients to the birds.

It may seem obvious but check to make sure that all the birds have easy access to feed and water and that there are no blockages in feeders or drinkers.

House environment

Outbreaks of feather pecking can also occur from stress caused by the immediate environment, such as the house.

Strong shafts of light from open doors or large popholes can trigger feather pecking behaviour. Check the lighting in the house and consider ways of reducing any obvious light intensity issues. This may require covering gaps or windows where sunlight comes in. Similarly, avoid suddenly turning the lights up when going into the house to inspect the birds as this can cause additional stress.

It is important to ensure there is plenty of dry, friable litter material in the house so that the birds can peck and forage in and exhibit their natural behaviour. Providing distractions for birds to peck at can help to minimise problems. Try hanging cabbages or other greens, or even CD's or bunches of string for birds to peck.

Finally, check there is adequate ventilation in the house and birds and that are not stressed by draughty conditions or by being too hot or too cold. Monitor the house using a 'high-low' thermometer to identify the hottest and coldest periods in the house. If birds are too cold, for example, they may huddle together and create a situation where they are overcrowded – even if there is enough space in the house overall.

Bird treatment

In the event of an outbreak, euthanize badly affected birds to prevent continued suffering. For less badly affected birds use a treatment to make them unattractive and dissuade further aggression. Traditionally, pine tar was used but a variety of sprays and salves are now available to dissuade further aggression towards pecked birds. Speak to your vet or advisor about possible products.

How do I avoid injurious feather pecking occurring in the first place?

As always, prevention is far better than cure so consider the following issues:

Check your birds regularly

While it is important to regularly check for any signs of feather pecking to avoid it becoming a problem, it is equally important to keep a look out for problems that might cause stress to the birds. This could be stress caused by disease or from the environment, such as overcrowding or thermal stress (see above). Make sure that there are no underlying lice or mite infestations as these can promote feather pecking. Take all necessary steps to avoid parasite build up in the house – and treat any outbreaks promptly.

Consider removing any individual birds that are seen regularly pecking and bullying others. It is fair to say that happy healthy hens do not feather peck.

Pullet management

Ideally, rear your own pullets from chicks so that the birds are reared under your system of management from day one and make sure that pullets have access to a range area as soon as possible (see 'Range management' below). When pullets are reared on farm you can give them access to a small outdoor area from a few days of age onwards, weather permitting.

If you buy in pullets try to buy in birds that have been reared in the same type of house as they will lay in on your farm. If birds are used to the layout of a particular house they will be less stressed by the move. Find out what feed the pullets have been reared on (see 'Feed' below) and try to maintain continuity of feed type, as this further helps to minimise associated stress in the birds.

Range management

It is essential to ensure that as many birds as possible are using the range. Research by Nicol *et al* (2003) has shown that the risk of feather pecking is nine times less when at least 20% of the hens go out simultaneously. Encouraging early access to the range can help: Rodenburg *et al* (2004) found that the earlier birds go outside the better they range – and the lower the levels of feather pecking.

Make the range as interesting and attractive as possible for the birds by providing shelters and planting cover crops (see our technical paper on 'Range Management'). These can be simple wooden structures using pallets, for example, or an old trailer or old pig arcs – anything that the birds can get under and feel secure. Equally, always ensure that the range is safe by discouraging aerial predators by using decoys and preventing other land-based predators by using electrified perimeter fences.

Providing additional feed and water on the range can also help to encourage birds to go outside and venture further on the range. However, you should only feed on the range what your birds can clear up quickly – for example, by scattering mixed corn at a particular time of day rather than having 24 hour access to a feeder - to avoid encouraging wild birds to mix with your birds which can be a disease risk.

Feed

As mentioned above, researchers believe that nutrient imbalances and deficiencies may be key factors in some cases of feather pecking.

Speak to your feed supplier and ensure that the rations you use are properly balanced and provide the right levels of essential amino acids, such as methionine. If you mill and mix your own feed – or if you are unsure of the correct nutritional balance – contact a poultry nutritionist.

Minimise changes of feed: research carried out by Nicol *et al* (2003) revealed that if there are more than three changes of feed in the birds life the risk of injurious feather pecking is increased. If you have to change feeds do so gradually to allow the birds plenty of time to adjust.

Always make sure feed is palatable to the birds: the best, most balanced feed is of no use if the birds won't eat it. Hens should roughly eat about 4oz (125g) of feed per day, although they will eat less if they are ranging well and eating forage and insects on the range. Check for any reduction in overall intake.

Providing sufficient fibre in the diet can help to minimise the risk of feather pecking. Research by Steinfeldt *et al* (2007) has shown that providing silage or carrots as a supplement can help to reduce feather pecking behaviour – and may provide additional interest for the birds.

Finally, it may seem obvious but make sure that all birds have easy access to feed and water.

Assess other risk factors

Although it is clear that injurious feather pecking can occur in all sizes of flock, as a general rule, larger flocks will require a greater degree of stockmanship to ensure that bird health and welfare is maintained.

Breed can also have an effect on feather pecking and some strains appear more aggressive than others. However, it also appears that some birds will suit one farm system and not another. So is worth trying different breed types to see what suits your farm.

Some farmers also use homeopathic preparations that can be put into water to help prevent feather pecking and to minimise stress.

Summary

Prevention is better than cure when it comes to injurious feather pecking. An outbreak can be difficult to stop and can have horrific effects on the hens.

Researchers believe that injurious feather pecking can result from a number of different factors, as explained above. If an outbreak does occur in your flock it is

important to try to pinpoint the particular on-farm cause – or causes – as quickly as possible.

Nutrition is a key factor: if the bird is nutritionally deficient it will try to get what it needs to thrive from its environment. If its environment provides plenty of insects, worms and seeds this may be sufficient to meet its nutritional requirements; however, if it doesn't the bird may peck at other birds. Animal by-products are high in amino acids – and that includes the flesh from another chicken.

Feed effects on feather pecking: a case study

Vincent Gallagher started his layer flock in August 2005. He bought in 1,000 pullets and kept in ten 100-bird houses, managing them as two flocks of 500 birds.

Vince felt strongly that his birds should be given a special ration rather than a standard poultry feed. He asked his local mill to make a 100% vegetarian ration and to limit the inclusion of certain ingredients such as soya. But within the first week or two of establishing the new flocks, Vince noted outbreaks of feather pecking among the birds – with cannibalism occurring by week three.

Vince spent four months trying various things to mitigate the situation before he identified that the issue was low methionine in his ration. The birds ranged extremely well from day one but this meant that they stripped much of the range of vegetation quite quickly, limiting with the availability of insects or worms from the range. In the end, Vince identified that issue was due to low methionine in the ration and changed the ration formulation. Without any other intervention the problems stopped within a few weeks.

Rearing: a case study



Image: Stonegate

Stonegate is a major UK company in the egg sector. Stonegate's Columbian Blacktail (CBT) breed was developed by crossing a Rhode Island Red with a Light Sussex. Part of the aim was to cross back to a point where the bird laid around 10% less than standard commercial hybrids. Stonegate marketed this to the British supermarket, Waitrose, to give the retailer a unique marketing point for their eggs – their own breed.

Waitrose have now moved entirely to sourcing free range and organic egg. Even all the processed egg used in their own-brands is now free range. Waitrose required its suppliers to use a non-beak tipped bird from the start. Up until a few years ago this meant that up to 60% of flocks had problems with severe feather pecking, sometimes leading to cannibalism. This was obviously a problem and Stonegate explored a number of different ways to reduce this.

Something that has worked very well was a switch to organic pullet rearing. The birds come in at day old and stay in a brooding shed until they are eight weeks, before moving to a rearing shed where they have access to range. This rearing shed has the same configuration as the shed they will spend their laying life in.

Since the pullets have been reared in this way – matching the conditions they will be kept in once they begin to lay - only one flock has shown any sign of feather pecking. Nutritionists suspected that the organic laying hen rations may be deficient - or at least sub-optimal – in their methionine content, which can in itself be a trigger for feather pecking. But one thing that strikes you about Stonegate's organically reared pullets is their yellow shanks, which shows that they are not only out on the range but are also getting chlorophyll from eating grass and forage.

Stonegate's experience shows that when birds are encouraged to access to range from a very young age they range well throughout their lives and the nutrition they get from forage, insects and worms helps to mitigate potential deficiencies in their diet.

References

Bestman, M.W.P., Wagenaar, J.P. (2003). 'Farm level factors associated with feather pecking in organic laying hens'. *Livestock Production Science*. 80: 133-140.

Green, L.E., Lewis, K., Kimpton, A., Nicol, C. J. (2000). 'Cross-sectional study of the prevalence of feather pecking in laying hens in alternative systems and its associations with management and disease.' *The Veterinary Record*. 147: 233-238.

Nicol, C.J., Pöttsch, C., Lewis, K., Green, L.E. (2003). 'Matched concurrent case-control study of risk factors for feather pecking in hens on free-range commercial farms in the UK'. *British Poultry Science*. 44 (4): 515-523.

Rodenburg, T.B., Buitenhuis, A.J., Ask, B., Uitdehaag, K.A., Koene, P., van der Poel, J.J., van Arendonk, J.A.M., Bovenhuis, H. (2004). 'Genetic and phenotypic correlations between feather pecking and open-field response in laying hens at two different ages'. *Behaviour Genetics*. 34 (4): 407-415

Steenfeldt S, Kjaer JB, Engberg RM (2007) Effect of feeding silages or carrots as supplements to laying hens on production performance, nutrient digestibility, gut structure, gut microflora and feather pecking behaviour. *British Poultry Science* 48(4):454-68

The University of Bristol (2001). *The development of a predictive model of damaging pecking in laying hens*. Report to Defra: Project AW2014.

This fact sheet was produced using information from the Poultry Welfare Development Project, funded by the Tubney Charitable Trust and delivered by the Soil Association.



*Written by Anna Bassett (lead technical advisor, Animal Welfare Approved) 2009.
Reviewed by Andrew Gunther Program Director AWA.*

Injurious Feather Pecking in Laying Hens is one of a range Animal Welfare Approved technical papers designed to provide practical advice and support to farmers. For more information visit our website.