



Promoting good health and welfare in organic laying hens

Recommendations to ensure hen health and welfare in organic husbandry

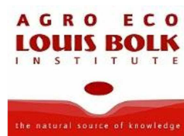
Introduction

Organic farming has the potential to achieve high levels of animal welfare. This is one of the main reasons consumers buy organic animal products. *HealthyHens*, a European research project, focussed on investigating the challenges in organic egg production, to identify management and husbandry conditions which contribute to good health and welfare.

On the following pages, you find recommendations how to keep or improve high levels of health and welfare in your laying hens. Main topics are

- ▶ The reduction of parasite burden
- ▶ Prevention of feather pecking and injurious pecking (cannibalism)
- ▶ Improvement of foot health
- ▶ Improvement of keel (breast) bone integrity
- ▶ Improvement of range use and a more even distribution of droppings in the outdoor range.

Further information about the research project can be found on the back side of this leaflet.



Reducing the worm burden

Endoparasitic worms are very common in free range systems, so the goal is keeping them at an acceptable level rather than complete eradication of the worms.

Identifying worm problems

Infection with worms can be monitored by taking faecal samples (droppings) for examination of the number of worm eggs. Contact your veterinarian for details on how to do this. Alternatively a few hens can be culled and their intestines examined for worms by a veterinarian. **For *Ascaridia galli*, the most prevalent worm species in European organic hen flocks, we found that the number of eggs per gram of faeces (EPG) is significantly correlated with the actual worm burden (number of worms in the intestines)¹.**

If there is a moderate to high worm burden in combination with one of the following symptoms, a veterinarian should be consulted:

- Pale combs
- Dull plumage
- Reduced (laying) activity
- Low body weight of hens
- Uneven distribution of body weight across the flock

For *A. galli*, a suggested threshold for a possible need of deworming is an EPG of 1000.

How to tackle worm problems

Destroy worm eggs before hen placement

The hen house provides optimal conditions for worm eggs to remain infective for at least a year. These worm eggs can become infective within two to three weeks after contact with (newly placed) hens. To break the cycle of reinfection, thorough cleaning and disinfection of the hen house between batches should be common practice. In case of worm problems make sure to use antimicrobial substances that inactivate worm eggs and embryonated larvae for disinfection.

In the outdoor run, range rotation as well as soil replacement or treatment with lime in the areas used most intensively, can reduce worm egg survival. The aim should be to limit the parasite burden in order to reduce the impact of the worm eggs on the hens.

Impede worm reproduction while hens are placed

Conditions inside the hen house are generally more favourable for parasite eggs than conditions outdoors, where parasite eggs are exposed to direct sunlight, low temperatures (< 15°C) or dry conditions. The worm eggs are also spread over a much larger surface outdoors, reducing the likelihood of reinfection. **Maximising pasture access time to reduce worm burden proved to be an effective tool.** Additionally to offering maximum pasture access time it is advisable to make the outdoor range as attractive to the hens as possible to spread birds over the available surface.

Further research is needed to clarify the impact of different disinfection procedures, litter properties and management as well as feeding regimes and different cycles of range rotation on the parasite burden.

¹ **bold text** represents results of the HealthyHens research project

Minimising the risk of feather pecking and injurious pecking

Although problems with feather and injurious pecking have decreased in organic hen farming over the last years, they are still present. If they occur, they can spread quickly throughout the flocks and severely impair welfare and production. Therefore, it is important to identify these behavioural problems at early onset and to know how to prevent and reduce them.



Identifying feather pecking and injurious pecking

Keep a close eye on your hens



Observe your hens at daily inspections, and look for agitation and other changes in the hens' behaviour. You can either directly observe pecking activity directed towards plumage and body (most commonly at the neck, back, tail and vent) of other hens, identify the sound the victim hen makes when pecked or see the result of these behavioural problems: When you walk through the flock, look for damage in the plumage, naked areas and wounds.

Wounded hens often seek shelter on elevated perches or in remote areas of the pen. You should pick out several hens (approx. 20 hens) at regular intervals (e.g. weekly) and take a close look at them: Can you find naked areas when stroking back the feathers on the back, neck or vent? Is the tail completely feathered? Are pecking wounds visible in naked areas? Also the lack of any feathers on the floor and hens eating or chasing after feathers are a warning signal concerning feather pecking.

How to tackle feather pecking and injurious pecking

Prevent stress

For hens, all different kinds of changes are stressful. This includes changes in the daily routine and in the feeding regime as well as transport and placement in new surroundings.

How to reduce stress²:

- Make accords between rearing and laying facility with regards to light and feeding regimes

² Recommendations based on results of the HealthyHens research project are marked with a check mark (✓), recommendations based on other publications are marked with a dot (•)

- ✓ The lower the stocking density, the lower the stress level. You can decrease the stocking density experienced by your hens by offering access to a covered veranda at all times and by maximising accessibility to the outdoor range
- ✓ Give “victim hens” the opportunity to draw back by offering elevated structures and maximising access to the veranda / outdoor run
- ✓ Avoid unnecessary changes, e.g. concerning the feed:
 - ✓ Thoroughly discuss the need and number of feed phases with your vet or feed consultant and reduce it to a minimal number
 - When changing the feed, mix the rations gradually to allow the hens to get used to the new composition
 - Observe, whether hens take up the new ration (e.g. measure feed consumption and weigh the hens in regular intervals)

! Weighing of birds can be combined with the examination of plumage condition and pecking wounds !

Occupation is the key

Foraging, exploration and dust bathing are natural behaviours in laying hens. Give your hens the opportunity to amply perform these behaviours and they are less likely to direct their pecking activity towards other hens.



Occupations for hens:

- Grain feeding
- ✓ **Good quality litter and roughage. Replace or top up new litter, regularly**



- ✓ Offer **daily access to an attractive free range**
- Make sure the young hens you buy had enough occupation in the rearing facility as well: chicks and young hens having started feather pecking will likely continue in the laying facility. So have a close look at plumage damage or injuries at placement.

Satisfy nutritional needs

- Provide the hens with fibres, e.g. hay or silage, as they need fibres for their digestion; if they do not find enough fibres, they may start eating feathers!
- ✓ **Avoid nutritional imbalances** - e.g. by optimising protein content, especially methionine content, and content of minerals, especially phosphorus and sodium



The challenge is to avoid changes in the feeding regiment of the hens (as they appear to be stressful or reduce feed intake) and at the same time provide minerals and amino acids in accordance with the hens' needs. One approach might be to provide feed supplements for free uptake by the hens additional to the main ration to satisfy varying nutritional needs, but further research is needed to derive clear recommendations.

Prevention of feather pecking - prevention of injurious pecking (cannibalism)

Feather pecking and the more detrimental injurious pecking are closely related: They have most risk factors in common. Additionally, feather pecking itself is a risk factor for injurious pecking. Lacking the feather cover, naked areas are less protected against injuries. Furthermore, pulling out feathers can result in blood filled follicles which seem to stimulate pecking activity of other hens towards them.

Keep parasite infestation at a low level!

On farms with high red mite infestation more hens had pecking wounds. Additionally, more feather damage was found with increasing number of dewormings, although it is unclear, whether high worm burden or the resulting anthelmintic treatments led to higher feather pecking activity. In any case it can therefore be recommended to

- ✓ Regularly monitor red mite populations and look out for possible hiding places in your system. Combat mites when cleaning and disinfecting the hen house between batches and if necessary also at other times, e.g. with silicates in liquid form
- ✓ Keep the number of dewormings low by reducing the worm burden

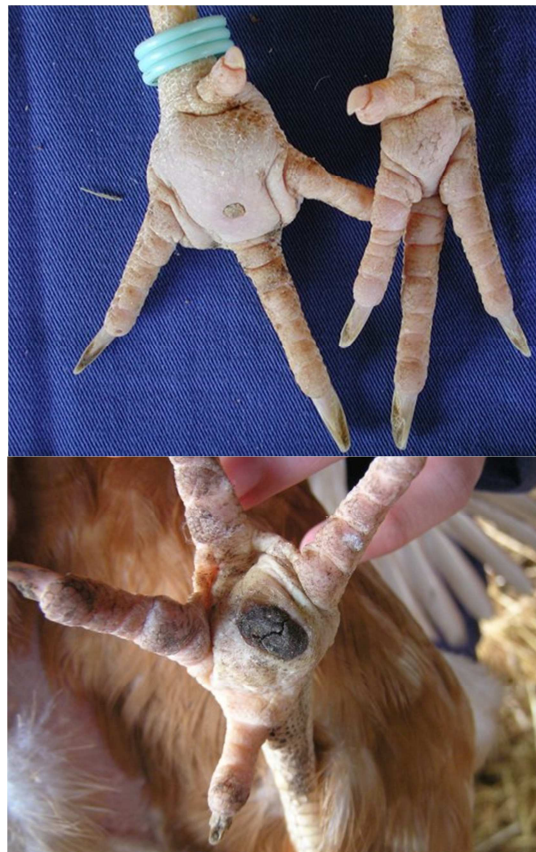
Prevention of foot pad lesions

In many flocks foot pad lesions are present at least in single animals, in some cases the majority of the flock is affected. As these lesions are painful for the hens, you should regularly scan your hens and take preventive measures if necessary.

Identify foot pad lesions

Foot pad lesions can easily be overlooked until they become highly severe and result in a “bumble foot”. The less severe stages are dark round areas on the bottom of the hens’ feet which start really small (smaller than a pinhead). They can only be detected by taking the hen and examining the foot pad.

Examination of the feet can be combined with weighing and assessment of the plumage and pecking wounds.



How to tackle foot pad lesions

Hygiene is important

- ✓ Keep perches clean
- Maintain the litter dry and free flowing
- Prevent wet areas in the outdoor run in front of the pop-holes (so that hens don't bring wet mud with them into the hen house)

In general, **foot lesions appear to be less frequent in hens housed in multi-tier systems.**

Keeping keel bones in a good shape

Deviations and fractures of the keel bone are a common finding in organic as well as conventional laying hens. Within the HealthyHens project on average 45 % of hens showed deviations or callus material, which are traces of old fractures. In contrast to foot pad lesions, **keel bone problems are especially frequent in multi-tier systems.**

Identifying keel bone deviations and fractures

Examine about 20 hens at regular intervals, e.g. every two weeks (the same you check for weight, plumage condition and lesions): Strong deformations and very severe fractures can easily be seen when holding the hen on its back. You can identify slighter deviations and healed fractures through palpation: start with your index finger on one and your thumb on the other side of the upper end of the keel bone and slowly slide down to the keel bone tip. A normal keel bone should feel like a straight line, without deviations or ridges.

How to tackle keel bone deviations and fractures

Combat calcium deficits

- ✓ **Avoid too early onset of laying activity.** As a rule of thumb, 50 % laying activity should not be reached before week 22
- ✓ **Improve calcium availability.** Additional calcium sources should be offered from the onset of lay.

Prevent collisions



Fractures can result from collisions of the hens with stall equipment. Keeping the flock calm can consequently prevent some of the fractures. Simple things like announcing yourself by knocking on the door before entering the hen house and avoiding hectic movements during your daily controls can help preventing panic in your hens. Also make sure to visit all compartments during your daily routine examinations so that all hens get used to you.

Make sure your young hens are used to the housing system of your laying facility: Hens living in an aviary have to get used to navigate when flying down from the block.

Maximising range use – an effective measure in many aspects

Time spent on the outdoor range is beneficial to hen welfare, and farms offering hens outdoor access are perceived positively by consumers. **In hens that spent more time on the outdoor range, we saw better plumage condition, less cannibalism and a lower worm burden (*A. galli*).** Hens which go outside regularly are less nervous, as they are used to more different stimuli. This may prevent keel bone damage caused by collisions of panic hens with housing equipment.

How to maximise range use

- ✓ Keep hens in smaller units to have a larger range surface directly accessible in front of the hen house
- Give hens daily access, with long access times
- Maximise the total width of the pop-holes that are open onto the outdoor range
- Give hens access to the outdoor range soon after they move to the laying facility (after about 1 or 2 days; if you fear misplaced eggs open the pop-holes a bit later in the morning)
- ✓ Make the range attractive to your hens:
- ✓ Provide cover in the form of trees, hedges and artificial shelters throughout the range rather than in one location. This will allow the hens to move further onto the range without having to spend much of the journey exposed to potential predators
- Make sure the area around the hen house is well drained and inviting to hens



More even use of the range leads to less nutrient accumulation in the vicinity of the hen house and to a lower density of worm eggs.



About Healthy Hens

HealthyHens was a three year research project investigating laying hen health and welfare in organic systems in eight European countries. 114 organic layer farms have been visited in Austria, Belgium, Denmark, Germany, Italy, The Netherlands, Sweden and the United Kingdom.

We'd like to thank all participating farmers for volunteering in this study and for their generous hospitality and support.

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