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LAYWEL

Welfare implications of changes in production systems for laying hens

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Deliverable 7.2
Manual that can be used to
audit the welfare of laying hens at a farm level
in whatever housing system they are held

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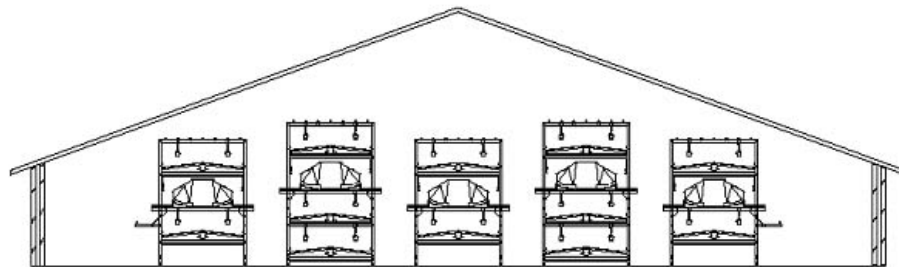
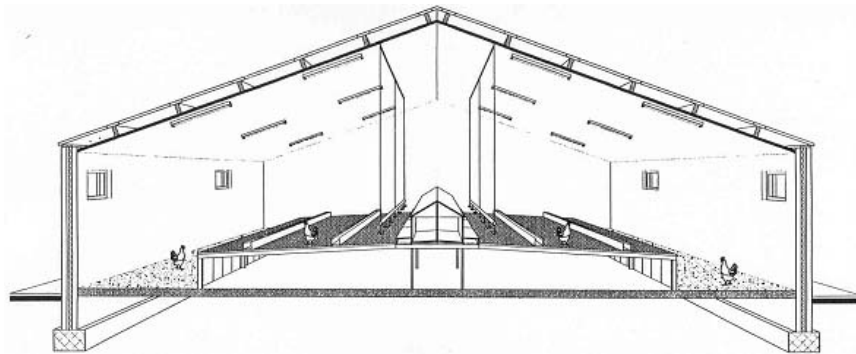
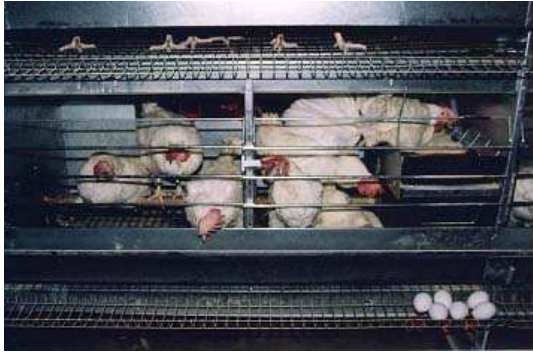
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Manual for self-assessment of the welfare of laying hens on farm



Section 1

Introduction to the welfare of laying hens

We shall first consider some basic questions about hen welfare and its assessment on farms and then describe the more popular systems of housing for laying hens. This section also looks at some of the strengths and weaknesses of conventional cage, furnished cage and non-cage systems in terms of bird welfare. This will help you to find out where the risks for bird welfare are in your system. Remember each flock and each farm is unique and welfare problems may also vary from day to day.

What is welfare?

In simple terms, welfare means well-being. In considering hen welfare we are asking ourselves how well is a hen coping in her environment? Is she healthy? Is she suffering?

The Treaty of Rome recognised all farm animals as being sentient and that means that we accept hens as being capable of feeling. Hens can process information in their brains and translate it into feelings. So they do not merely respond to hot and cold conditions like thermostats but actually *feel* hot or cold. They respond to other situations with feelings too. Scientists are still finding out more about how chickens' brains work and we already know that hens are a lot more sophisticated than we used to think they were.

In practical terms we now have pretty good evidence that hens can also feel pain and emotions such as fear. They appear to be able to show preferences and choices and to indicate what their priorities are. For example, carefully designed experiments have shown that hens really feel strongly about having access to an enclosed nest for laying their eggs in – and they will work hard to reach a nest - even pushing to open weighted doors.

Why should we measure hen welfare?

It is increasingly accepted across not only Europe but also in other parts of the world that we have a moral as well as legal duty to ensure the well being or welfare of animals in our care, or which we use. Thus consumers who eat meat or animal products such as eggs are also becoming more concerned that food-producing animals experience good welfare throughout their life. Consumer concern for animal welfare has led to farm assurance schemes and has driven legislation, including the Council Directive 1999/74/EC that is set to ban the conventional battery cage.

So, continually monitoring the welfare of your hens in a structured way, and keeping records, not only makes sure that you the farmers and stock keepers focus on the well being of the birds you look after, but also gives evidence to assure consumers that you are doing so.

How is welfare assessed?

There are all sorts of ways, including quite complicated techniques that can only be conducted in research facilities. The important thing is for an assessment to consider a **range** of factors and for these to be bird-based where possible. To give an example of what we mean by bird-based, rather than measuring air temperature it is more relevant to look at the birds and see whether they are panting (feeling hot) or huddling together (feeling cold). In this manual we suggest a range of simple checks of health, body condition and hen behaviour that can give a good idea of how well your hens are coping with the conditions on your farm. Many of these checks have been validated by extensive research in specialised facilities. Of course it is also important to make sure that the basic provisions such as balanced feed, clean water and fresh air are also reaching the hens as planned.

Where is welfare assessed?

It is important for welfare to be measured throughout life wherever the bird is. So welfare should be regularly monitored right from the chick hatchery to the point of slaughter. This manual considers only the laying period on farm.

Who should assess hen welfare?

The most important people are those in daily contact with hens, with direct responsibility for their care. It is well recognised that good stockmanship is the key to good animal welfare and often more important than facilities.

Frequently those who assess hen welfare on farms are visitors from agencies or retailers. They go away with only a snapshot view of the welfare of hens on that farm.

This manual is for you who look after hens all the time to help record all the things you do routinely as part of being a good caring stock person. It may also introduce some new ideas about hen welfare and things to observe that could make management easier and improve the health and productivity of your hens. Good welfare often pays in more ways than one.

When should welfare be assessed?

Clearly a good stockperson considers welfare almost sub-consciously whenever they have contact with the hens. In this manual we suggest recording some checks daily and some less often.

Housing systems and hens

We realise that there is a wide range of designs, so we merely give a broad overview of housing system categories. Indeed one of the main findings of our LayWel study was that differences within systems (as we defined them) were often greater than differences between systems. An important reason for some of these differences was the strain of bird. Just as there are 'horses for courses' it seems that there could be 'hens for housing systems'. Neither scientists nor the poultry industry can recommend particular strains just yet, but it is important to know that different hens can respond differently to the same conditions. In particular it is likely that hens with a reduced tendency to engage in damaging pecking (feather pecking and cannibalism) will need to be selected for non-cage and larger furnished cage systems especially where beak trimming is to be phased out or not permitted.

We give a very brief description of the main types of laying systems, with some of the advantages and disadvantages for hen welfare below. More detailed descriptions with illustrations of common types of housing are given in the CD that accompanies the manual (see Section 4 at the end).

New developments in housing systems sometimes make it difficult to distinguish between cage and non-cage systems. If the system is operated from outside, and carers do not enter the system, it is regarded here as a cage.

Cage systems

Conventional laying cages (CC) are usually small enclosures with welded wire mesh sloping floors. They provide equipment only for feeding, drinking, egg collection, manure removal, insertion and removal of hens, and claw shortening.

These cages fall into the category of the EU-Directive "unenriched cage systems"

Furnished cages (FC) provide all the equipment found in conventional cages and in addition provide equipment intended to enable hens to provide for some of their strong behavioural preferences. These extra elements may include perches, nest boxes, a litter area and extra height. These cages fall into the category of the EU-Directive "Enriched cages" if they are equipped with appropriate perches, suitable nest boxes and friable litter. The term furnished cages is used here because it gives a more accurate description. For example, adding a perch or a nest to a cage can be factually described as furnishing it whereas it is a matter of opinion whether or not it enriches it.

The number of hens in FCs varies. For the LayWel project we made an arbitrary decision to describe up to 15 birds as small group cages, 16 to 30 birds as medium size and 31-60 hens per cage to be large FC. Neither the maximum or optimum number of hens in furnished cages is yet known or defined.

Non-cage systems

These systems, which include those that fall into the category of the EU-Directive “Alternative systems”, are operated from inside and the keepers enter them. All current alternative systems provide the birds with nest boxes and litter as well as perforated platforms. Elevated perches may or may not be included.

Indoor systems may, or may not be combined with outdoor facilities.

Single level (tier) systems have a ground floor area that is fully or partially covered with litter and/or perforated floors in any combination. Birds have no access under the perforated floors. There is only one level for the birds at any one point, even if this level is stepped.

Multi-level systems (Aviaries) consist of the ground floor plus one or more levels of perforated platforms, from which manure cannot fall on birds below. At some point across the system there are at least two levels available for birds.

There are many differences in layout. Three major categories can be distinguished:

- *Aviaries with non-integrated nest boxes*: aviaries with several levels of perforated floors with manure belts under them and separately arranged nest boxes. Feeders and drinkers are distributed in such a way that they provide equal access for all hens.
- *Aviaries with integrated nest boxes*: aviaries as above but where nest boxes are integrated within the blocks of perforated floors.
- *Portal aviaries*: aviaries with elevated perforated floors, the top tier of which is a single level which links the lower stepped platforms. The keeper can walk under and upon the top tier. Nest boxes are integrated in the system. Typically the litter goes fully under all the platforms, providing 100% littered ground floor.

Free range

In combination with the above mentioned alternative systems some additional area is provided. This can be either one or both of the following possibilities:

- *Covered verandas*: a covered area outside, but connected to the hen house, is provided and can be available during daylight hours. This area has a concrete, or other suitable floor, usually covered with litter. The climate is similar to that outside except for rain or snow (because of protecting devices). In some countries this area is referred to as a Winter garden.
- *Free-range*: an outside unroofed area is provided, mainly covered with vegetation. Hens have access from fixed or mobile houses to this area via popholes in the wall of the henhouse and in the covered veranda, if present. Several pens may be used in rotation, or mobile houses may be moved, to control parasites and maintain good pasture quality. Areas near to the house may be covered with free draining material to maintain good hygiene both outside and within the house.

Risks to welfare in different housing systems

As a general guide, we have colour coded the risk to welfare for indicators relevant to on-farm welfare assessment in Table 1 for the main categories of housing system according to current knowledge. More indicators are shown in Table 7.7 in the CD for those interested.

Red shows where there is a high risk of poor welfare. Sometimes this is due to the system design (e.g. lack of nest boxes in conventional cages) but in many other cases it highlights areas where the odds are that something could easily go wrong. The red areas show where those caring for hens should focus particular attention to prevent welfare problems.

Orange areas indicate that the risk to welfare varies a lot between flocks and farms – or that the risk to welfare is moderate. While it is perfectly possible to achieve good welfare for these indicators, results from farms have shown that in real life this is not always achieved. Thus those caring for hens should be vigilant to prevent welfare problems.

Green areas indicate a low risk of poor welfare. These indicators should still be monitored and you cannot afford to be complacent, but on the whole the chances of something going wrong are less likely.

Table 1 Risk to welfare for key indicators in different categories of housing system

In most cases the orange areas indicate a variable risk

Indicator	Conventional cage	Furnished cage			Non-cage		Outdoor
		small	medium	large	single level	multi level	
Mortality (%)	Orange	Orange	Red	Red	Red	Red	Red
Mortality due to feather pecking and or cannibalism	Green	Orange	Orange	Orange	Orange	Orange	Orange
Red mite	Orange	Orange	Orange	Orange	Orange	Orange	Orange
Bumble foot	Green	Orange	Orange	Orange	Red	Red	Red
feather loss	Orange	Orange	Orange	Orange	Orange	Orange	Orange
Use of nest boxes	Red	Green	Green	Green	Green	Green	White
Use of perches	Red	Orange	Orange	Orange	Orange	Orange	Orange
Foraging behaviour	Red	Orange	Orange	Orange	Green	Green	Green
Dustbathing behaviour	Red	Orange	Orange	Orange	Orange	Orange	Orange
Air quality	Green	Orange	Orange	Orange	Red	Red	Green
Water intake	Green	Green	Green	Green	Green	Green	Orange

[Note, some very recent unpublished figures indicate low mortality is achievable in large furnished cages]

Section 2

This section contains forms, with some guidance, for frequent checks of laying hen welfare. You may well be performing many of these checks already but it may be worth starting a more detailed recording system. Farmers who do start keeping welfare-related records have told us that they can sometimes notice patterns or learn more about hen behaviour that then helps with management. They have found that taking a bit of time to observe behaviour can be instructive, particularly in distinguishing different types of bird pecking behaviour. Aggressive pecks are usually directed to the heads or combs of other birds. However, the most damaging forms of pecking – those that lead to marked feather loss, skin injury, vent pecking or even death – are not ‘aggressive’. These types of pecking are more related to foraging and eating behaviour. It is worth trying to distinguish different types of pecking and take action at the earliest signs of damaging pecking. In addition, some simple examinations of dead birds have given farmers useful information they can then use to improve the health and welfare of the other birds. Records are also useful for your veterinary surgeon and for quality assurance inspectors. You can make copies of these forms.

Section 2.1 is relevant for all housing systems and contains suggested daily checks, a range of welfare checks to be carried out on dead birds and finally some checks of egg quality that could be done approximately weekly.

This section is followed by Sections 2.2 to 2.6 which are each relevant to different types of housing system and contain forms to help you monitor hen behaviour and for most systems, litter quality. Friable litter means litter that is relatively dry and crumbly but not too dry and dusty – that the hens can work to forage and dustbathe in. Poor quality litter is wet or capped or greasy. If you have the facilities you can measure the dry matter of the litter by weighing the fresh sample and then drying it out slowly for about 2 days in a cool oven (approximately 80°C) and then re-weighing it until it reaches a constant dry weight. The dry matter % is the dry weight/fresh weight x 100. Good litter is generally around 65-70% dry matter.

(Note: do not put litter in a domestic oven that will be used for cooking food because of the contamination risk).

These behaviour and litter quality checks could be done weekly or slightly less often, but still on a regular basis, as they are really useful for identifying potential problems before they develop into major health, welfare or productivity issues.

You might also wish to observe dustbathing behaviour in the hens and this activity generally peaks in the early afternoon. You should not be concerned if you see gentle feather pecking associated with this activity. In some cases hens may remove parasites from each other whilst dustbathing. Foraging behaviour is also important for good hen welfare, and hens that forage are less likely to feather peck. There is more information in chapter 4 on the CD in Section 4.

The condition of a hen’s body surface (i.e. the skin and feathers – also called integument) is an important indicator of her health and welfare. Researchers have developed several different scoring systems to rate the condition of the feet, plumage and the severity of pecking wounds on different parts of the body. Scores for these traits may describe problems of feather pecking, perch design and litter condition and cannibalistic or aggressive behaviours respectively. The EU LayWel project developed a thorough but

relatively easy method of scoring all these body parts that can be done in 30 seconds per bird with experience and practice. This comprises 6 body parts for plumage condition (neck, breast, cloaca/vent, back, wings and tail), pecking damage to skin of rear body and comb, and bumble foot lesions - all at scores of 1-4. The *higher* the score is the *better* the status of the integument. The system can be used both for comparison of scores for individual body parts (scores 1, 2, 3 or 4) or pooled for the whole body.

This is fully described and illustrated in chapter 3 in the CD and also on the web at www.livsmedelssverige.org/hona/scoringsystem. Keeping records and comparing them frequently may help you to identify problems with system design or hen behaviour – and to take action to improve things before a severe welfare problem develops.

Individual scores of 1 or 2 indicate severe damage to the body surface and could include heavy feather pecking or wear, aggressive pecking to the head or vent/cloacal region or inflamed bumble foot lesions. By using the sum of the *individually scored* body parts it is possible to get a good general picture of the plumage condition of a bird. Thus, a total score of 12 or less indicates severe damage to the plumage on the whole body (e.g. 6 x 2 = 12) or on almost all parts (e.g. 2+2+2+2+1+3) or on a large majority of the body (4+3+2+1+1+1). It is actually very unusual for a hen to have such poor feather cover all over – more often you are looking for reasons why many hens may have damaged feathers in similar parts of the body. For satisfactory welfare you would be aiming for most hens in the flock to have scores of 3 or 4 for most parts of their body to give an overall score of at least 18 for the whole body (24 is obviously ideal!).

The same layout is used in Section 3 for less frequent (e.g. monthly) checks, where 3.1 is for all systems.

2.1 All housing systems

Daily checks

Feed, water and environment

Check intake records - compare with previous day

Check that all feeders and drinkers are functioning Yes =Y, no = N

Check that ventilation (fans) and house equipment including lights are all working Yes =Y, no = N

Are any birds panting (too hot) or huddled (too cold)? Yes =Y, no = N

Keep records as below:

Date:	House ID:			Name:		
Day	Feed intake	Water intake	Feeders Drinkers Working?	Fans lights	Are hens panting?	Are hens huddling?
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

Action point: if hens are panting, try to increase ventilation. If feed and water consumption vary, keep a close check on hen health. If any equipment is faulty then repair it without delay, especially drinkers.

Causes of Mortality in Hens

There are 5 pages to use for examining dead birds. Please ensure that you wear protective gloves and overalls when examining dead birds and wash your hands thoroughly afterwards. For some of the questions you will need to tick a box or make a comment. For others, you will be asked to compare the hen's appearance with the photos supplied. Some of these comparisons can be difficult, but please give it your 'Best Guess'. Note the examination is for features associated with reduced welfare - not a post-mortem that necessarily establishes the cause of death.

We suggest you record details for all dead birds, including culls, but if numbers are high and you do not have enough time, then do it for each house once per week. If more than 10 birds are dead, select them at random (e.g. every other or every third bird).

Action point: if more than 5 birds per thousand die each month or if mortality increases suddenly, then try to find out why and do something about it - such as calling in professional help (e.g. veterinary surgeon).

Example: FEATHER DAMAGE

The example below indicates one hen that had lost feathers slightly around the tail, moderately on the wings but not at all in other areas of the body, and a second hen that had lost feathers severely around the neck but not at all in other body areas (commonly seen in conventional cage systems).

Please inspect the hen. Assess damage to the feathers using Photos on the CD (or web <www.livsmedelssverige.org/hona/scoringsystem>) then record the feather damage score for each of the body areas in the table below.

4 = no damage; 3 = slight damage; 2 = moderate damage; 1 = severe damage.

	FEATHER damage score					
Hen	Neck	Breast	Vent / cloaca	Back	Wings	Tail
1	4	4	4	4	2	3
2	1	4	4	4	4	4

Your Name	
Date (dd/mm/yy)	
Which house & system	
Total number of dead/culled birds	

1. PHYSICAL DAMAGE

Please examine each bird, record its weight, then tick the correct box.

	Weight (grams)	Trapped	Broken wing	Caught by predator	Smothered	Other - For pecking damage go to Question 2	No physical trauma present
Hen							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Action point: if more than 3 birds per column are damaged, then try to find out why and do something to prevent that type of injury.

2. SKIN DAMAGE

Please inspect the hen then record the extent of damage to the skin for each of the body areas (photos on CD may help you).

4 = no damage; 3 = slight damage; 2 = moderate damage; 1 = severe damage.

	SKIN damage score					
Hen	Head	Neck	Back	Wings	Tail	Other (specify)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Action point: if more than 3 birds per 10 have scores of 1 or 2, then keep a close watch on the other live hens in the flock, try to find out why the damage is occurring and take action to prevent similar damage.

3. FEATHER DAMAGE

Please inspect the hen. Assess damage to the feathers using Photos on the CD (or web <www.livsmedelssverige.org/hona/scoringsystem>) then record the feather damage score for each of the body areas in the table below.

4 = no damage; 3 = slight damage; 2 = moderate damage; 1 = severe damage.

	FEATHER damage score					
Hen	Neck	Breast	Vent / cloaca	Back	Wings	Tail
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Action point: if more than 4 birds per 10 have one score of 1 or 2, or a total score of under 18 then try to find out why and do something about it - as well as poor welfare for birds, your feed costs may be higher than necessary.

4. VARIOUS

Please inspect each hen and record the score in the table below.

Assess damage to the vent (Photos of damage to rear on CD may help).

4 = no damage; 3 = slight damage; 2 = moderate damage; 1 = severe damage.

Assess external parasites (mites)

4 = no parasites

3 = 1-5 parasites/square cm

2 = 5-20 parasites/square cm

1 = more than 20 parasites/square cm

Signs of diarrhoea (scouring)

4 = none; 3 = slight; 2 = moderate; 1 = severe.

Hen	Vent Damage	Mites	Diarrhoea
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Action point: if more than 3 birds in 10 per column have scores of 1 or 2, then examine the live hens in the flock and if necessary take action to prevent other birds suffering.

5. KEEL BONE

Please examine the keel of the hen, assess the prominence using Photoset 3 and record the score in the table below.

4 = normal; 3 slightly prominent; 2 = moderately prominent; 1 = severely prominent

This indicates body condition - a high score is an underweight hen (poor welfare)

Please feel along the keel of the hen for any distortion or lumpiness, indicating old breaks. Record the score.

4 = normal 3 = slightly damaged 2 = moderately damaged 1 = severely

lumpy/distorted *Keel damage, particularly breaks, can be painful (poor welfare).*

Hen	Keel prominence	Keel damage
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Action point: if more than 3 birds in 10 show signs of old breaks, then try to find out why and do something about it - such as observing birds for collisions during flight, altering light levels, moving/redesigning furniture (perches etc) in the house or calling in professional help. Ensure that lights-on and lights-off do not occur too suddenly - use gradual 'dawn' and 'dusk' settings if possible. Check whether birds are perching on non-designed structures e.g. window ledges, cables high up in the house. Flight from such structures can often result in injury. It is important in alternative systems for pullets to experience nest boxes and perches before lay - so check rearing conditions with your supplier.

Weekly checks

Egg production and egg quality

Select 10 trays of second quality eggs and count how many of the eggs in each tray show evidence of calcium deposits, blood streaks, red spots etc.

Calcium deposits show as either a blue-violet tinge or a chalky white covering (see photo) and may indicate delayed lay (stress) as can mis-shapen eggs. Blood streaks may be associated with pecking damage to vent area and red spots may indicate the presence of red mites.

	N° with calcium deposits	N°with blood streaks	N° with red spots	Other (specify)
Tray 1				
Tray 2				
Tray 3				
Tray 4				
Tray 5				
Tray 6				
Tray 7				
Tray 8				
Tray 9				
Tray 10				

2.2 Conventional (battery) cages

Weekly checks of hen behaviour

In addition to the checks in 2.1, stand and watch birds for 10 minutes in the morning (record numbers, Y or N, or ticks and crosses as you wish)

Look at 1-3 cages in 3 different parts of house and top, middle and lowest rows. Try to stand away from the cages you are looking at so as not to disturb the hens' normal behaviour and choose different cages each week.

Are any hens damaging each other by severe or intense pecking of feathers or skin? Any cloacal/vent pecking?

Date:	House ID:	Name:
1-3 Cages:	Damaging pecking	Vent pecking
Top		
Middle		
Bottom		
Top		
Middle		
Bottom		
Top		
Middle		
Bottom		

Action point: if any damaging pecking is recorded, then try to find out why and do something about it - consider culling or moving the hens doing the pecking. Check water and feed quality and light levels.

2.3 Furnished cages

Weekly checks of hen behaviour

In addition to the checks in 2.1, stand and watch birds for 10 minutes in the morning (record numbers, Y or N, or ticks and crosses as you wish)

Look at 1-3 cages in 3 different parts of house. Try to stand away from the cages you are looking at so as not to disturb the hens' normal behaviour and choose different cages each week and remember to observe all levels.

Are any hens pecking each other damagingly (removing feathers or injuring skin)? Any cloacal/vent pecking? (Watch at peak laying time).

Are any hens laying on cage floor or any problems with nestboxes such as some being over-used and others not used?

Date:		House ID:		Name:	
1-3 Cages x 3 areas of house	Damaging pecking	Vent/cloacal pecking	No of nests with 2+ hens	Other	

Action point: if any damaging pecking recorded then try to find out why and do something about it - consider culling or moving the hens doing the pecking. Check water and feed quality and light levels.

2.4 Single level systems

Weekly checks of hen behaviour and litter

Stand and watch birds for 10- 20 minutes in the morning (record numbers, Y or N, or ticks and crosses as you wish)

Look within an imaginary square of about 3m x 3m and vary the position in the house from week to week

Date:	House ID:	Name:
Damaging pecking		
vent pecking		
feathers on floor*		
Access problems such as birds hitting furniture		
Are they 'working' the litter?		
Are any hens laying on floor?		
Number of nests with 2+ hens		
Number of unused nests		

(*no feathers indicate possible feather eating and pecking)

Action point: if any damaging pecking recorded then try to find out why and do something about it - consider culling or moving the hens doing the pecking. Check water and feed quality and light levels. If litter not friable then break it up and/or add fresh litter. Report or take appropriate management action for any other problems highlighted.

Litter quality

Proportion of litter that is friable (record % or fraction)

Over the floor as a whole	
under drinkers	
near pop-holes/at edges	
(dry matter)	

2.5 Multi-level systems

Weekly checks of hen behaviour and litter quality

Stand and watch birds for 10- 20 minutes in the morning (record numbers, Y or N, or ticks and crosses as you wish)

Look within an imaginary square of about 3m x 3m and vary the position in the house from week to week - remember to observe all levels

Date:	House ID:	Name:
Damaging pecking		
vent pecking		
feathers on floor*		
Access problems such as birds hitting furniture or difficulty moving between levels		
Are they 'working' the litter?		
Are any hens laying on floor?		
Number of nests with 2+ hens		
Number of unused nests		

(*no feathers indicate possible feather eating and pecking)

Action point: if any damaging pecking recorded, then try to find out why and do something about it - consider culling or moving the hens doing the pecking. Check water and feed quality and light levels. If litter not friable then break it up and/or add fresh litter. Report or take appropriate management action for any other problems highlighted.

Litter quality

Proportion of litter that is friable (record % or fraction)

Over the floor as a whole	
under drinkers	
near pop-holes/at edges	
(dry matter)	

2.6 Free range

Weekly checks of Range condition

If there are wet, muddy, and over-used areas, this is likely to increase risks of disease and parasitism as well as dirty eggs. Thus make sure to check this, especially just outside pop-holes, and think of ways to improve land condition such as putting down stones or straw near pop-holes, and encouraging birds to disperse further by providing cover. Also rotate the areas accessible to the birds using fencing.

Weekly checks of hen behaviour

As well as observations inside the house, stand and watch birds for 10-20 minutes in the morning (record numbers, Y or N, or ticks and crosses as you wish). There is a blank line for you to add anything else you wish to note. The main purpose is to formally look at the flock and think about the welfare of the hens. It may help to compare records from week to week because of the effect of weather.

Look at the outside area and the pop-holes

Date:	House ID:	Name:
Weather		
Range condition		
Number of birds in flock		
Number of birds outside		
Thus proportion outside:-		
Are hens using whole range area?		
Are any hens laying outside?		
Any pop-hole bullying?		

Action point: Report, get advice and take appropriate management action for any problems highlighted. Possibly consider making pop holes wider to reduce bullying and improve access, or adding cover to the range area if necessary to encourage hens to use it or putting down slats/gravel etc. near the house if muddy.

Photographs to aid scoring (see also the CD)

Keel prominence:



4

3

2

1

Egg quality:



Calcium spotting



Blood streaks

Section 3

We suggest these measures are made approximately monthly, during routine weighing sessions or whenever problems arise.

3.1 All housing systems

House checks

Check that House ventilation system is functioning and that birds are relatively evenly distributed in the house and not huddled (too cold) or panting (too hot); indications of ammonia and dust levels; test all alarms and fail-safe devices and red mite traps. Record below:

Your Name	
Date (dd/mm/yy)	
House & system	
Ventilation (check fans etc)	
Can you smell ammonia? (measure if possible)	
Can you see the end of the house?	
Test alarms & fail-safe*	
Check red mite traps	

* Note in some countries it is a legal requirement to test every week

Action: if you can smell ammonia (aim for < 10 ppm) and/or you cannot see clearly down the house, the air is too polluted and you should increase ventilation. Very dry, dusty litter may need damping down with a water spray.

Get fans, alarms and fail-safe devices repaired urgently if not functioning.

If red mites are present in traps, check birds for signs of infestation and treat if necessary under veterinary advice.

Bird physical condition

It is likely that you already routinely weigh some birds, so whilst doing this take the opportunity to examine at least 20 birds selected at random as suggested below. See photos in chapter 3 on the CD.

- Examine feet and score

- claw length and condition

4 = short, undamaged; 3 = slightly overgrown or minor damage; 2 = moderately long or damaged; 1 = very long or torn

- skin damage (e.g. bumble foot or dermatitis)

4 = undamaged; 3 = slight damage; 2 = moderately damaged; 1 = severe lesion

- feet cleanliness

4 = clean; 3 = slightly dirty; 2 = moderately dirty; 1 = very dirty - caked

- Plumage score including cleanliness

See CD or web for photos to help with scoring, score cleanliness as for feet (see just above)

Examine skin for damage to head, back/tail base and cloaca/vent and score:

4 = no damage; 3 = slight damage; 2 = moderate damage; 1 = severe damage

- Check for signs of diarrhoea (scour) and score:

4 = none; 3 = slight; 2 = moderate; 1 = severe

- Signs of parasites (e.g. red mite) - examine under wings

4 = no parasites 3 = 1-5 parasites/square cm
2 = 5-20 parasites/square cm 1 = more than 20 parasites/square cm

(With experience all these checks can be completed in about 30-60 seconds/bird)

Health and Physical Appearance

Date:	House ID:	Name:
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	Hen									
	1	2	3	4	5	6	7	8	9	10
Weight (g)										
Claw length and condition										
Bumble foot										
Feet cleanliness										
Plumage cleanliness										
Damage to feathers										
Neck										
Breast										
Vent/cloaca										
Back										
Wings										
Tail										
Damage to skin										
Head										
Back/tail base										
Vent/cloaca										
Diarrhoea										
Signs of mites										

Action point: Any bird scoring 1 or 2 should be treated (apart from feather loss) and if more than 3 birds in 10 score 1 or 2 then action should be taken to reduce the problems in the flock as a whole. For feather scores: if more than 3 birds per 10 have a score of 1 or 2, then try to find out why and do something about it - as well as poor welfare for birds, your feed costs may be higher than necessary.

Health and Physical Appearance:

Date:	House ID:	Name:
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	Hen									
	11	12	13	14	15	16	17	18	19	20
Weight (g)										
Claw length and condition										
Bumble foot										
Feet cleanliness										
Plumage cleanliness										
Damage to feathers										
Neck										
Breast										
Vent/cloaca										
Back										
Wings										
Tail										
Damage to skin										
Head										
Back/tail base										
Vent/cloaca										
Diarrhoea										
Signs of mites										

Action point: Any bird scoring 1 or 2 should be treated (apart from feather loss) and if more than 3 birds in 10 score 1 or 2 then action should be taken to reduce the problems in the flock as a whole. For feather scores: if more than 3 birds per 10 have a score of 1 or 2, then try to find out why and do something about it - as well as poor welfare for birds, your feed costs may be higher than necessary.

3.2 Conventional (battery) cages

In addition to the checks in 3.1, record the behavioural response to humans.

Fear: walk slowly and quietly past the cages and record the proportion of hens that:

move to the back of the cage	
withdraw their heads inside the cage	
stop feeding	
continue feeding	
Date:	House ID: Name:

Action: if birds are fearful (move back), they may be stressed and difficult to handle (e.g. at depopulation). Consider walking quietly past more often, talking to the birds or playing music/the radio for part of the day. Possibly light levels are too low so try to measure these with a light meter - about 20 lux is considered a reasonable level, (although currently around 10 lux may have to be used for some non-beak trimmed flocks). Aim for birds on all levels to have similar and even light levels.

3.3 Furnished cages

In addition to the checks in 3.1, record the behavioural response to humans.

Fear: walk slowly and quietly past the cages and record the proportion of hens that:

move to the back of the cage		
withdraw their heads inside the cage		
stop feeding		
continue feeding		
Date:	House ID:	Name:

Hen behaviour

During a dark period check the proportion of birds perching (use a hand held torch). During a peak feeding period (e.g. just after lights on in the morning) check for overcrowding at feeders - all birds should have access to feed.

Date:	House ID:	Name:
Proportion perching		
Feeder access		

Action: if birds are fearful (move back), they may be stressed and difficult to handle (e.g. at depopulation). Consider walking quietly past more often, talking to the birds or playing music/the radio for part of the day. Possibly light levels are too low so try to measure these with a light meter - about 20 lux is considered a reasonable level (although currently around 10 lux may have to be used for some non-beak trimmed flocks). Aim for all birds to have similar and even light levels. Hens like to perch, so 90% or more should be perching if you have not disturbed them. If under about 65% or two thirds are perching then redesign or re-siting of perches could be necessary. Ideally all birds should be able to access feed at once - check hens for signs of stress and bullying if this is not the case - and rectify if necessary.

3.4 Single level systems

Fear: walk slowly through the house, stopping and standing still for 3-5 minutes both on the slats and on the littered areas, and record the proportion of hens that:

Fly away (v. fearful)	
Walk away (fearful)	
Approach you	
Peck at your boots	
Date:	House ID: Name:

Hen behaviour

During a dark period check the proportion of birds perching (use a hand held torch). During a peak feeding period (e.g. just after lights on in the morning) check for overcrowding at feeders - all birds should have access to feed.

Date:	House ID:	Name:
Proportion perching		
Feeder access		

Action: If birds are fearful, they may be stressed and difficult to handle (e.g. at depopulation). Consider walking quietly past more often, talking to the birds or playing music/the radio for part of the day. Possibly light levels are too low so try to measure these with a light meter - about 20 lux is considered a reasonable level (although currently around 10 lux may have to be used for some non-beak trimmed flocks). Aim for all birds to have similar and even light levels.

Hens like to perch, so 90% or more should be perching if you have not disturbed them. If under about 65% or two thirds are perching then redesign or re-siting of perches could be necessary. Ideally all birds should be able to access feed at once - check hens for signs of stress and bullying if this is not the case - and rectify if necessary.

3.5 Multi-level systems

Fear: walk slowly through the house, if possible on all levels, stopping and stand still for 3-5 minutes in 2 or 3 places and record the proportion of hens that:

Fly away (v. fearful)	
Walk away (fearful)	
Approach you	
Peck at your boots	
Date:	House ID: Name:

Hen behaviour

During a dark period check the proportion of birds perching (use a hand held torch). During a peak feeding period (e.g. just after lights on in the morning) check for overcrowding at feeders - all birds should have access to feed.

Date:	House ID:	Name:
Proportion perching		
Feeder access		

Action: If birds are fearful, they may be stressed and difficult to handle (e.g. at depopulation). Consider walking quietly past more often, talking to the birds or playing music/the radio for part of the day. Possibly light levels are too low so try to measure these with a light meter - about 20 lux is considered a reasonable level (although currently around 10 lux may have to be used for some non-beak trimmed flocks). Aim for all birds to have similar and even light levels.

Hens like to perch, so 90% or more should be perching if you have not disturbed them. If under about 65% or two thirds are perching then redesign or re-siting of perches could be necessary. Ideally all birds should be able to access feed at once - check hens for signs of stress and bullying if this is not the case - and rectify if necessary.

3.6 Free range

Fear: walk slowly through the flock outside, stopping and standing still for 5 minutes at least twice and record the proportion of hens that:

Fly away (v. fearful)	
Walk away (fearful)	
Approach you	
Peck at your boots	
Date:	House ID: Name:

Action: if birds are fearful, they may be stressed and this may affect their handling and productivity. There should be cover from tall plants or small roofed areas for birds all over the range area, so they can hide from flying birds, aeroplanes etc.

Section 4

Please refer to the attached CD for help and information about laying hen welfare and for photographs (in chapter 3) to help with scoring.

Specific country information could be included here by relevant Agriculture Ministries or other bodies.

Some examples for the UK include:

Welfare of Farmed Animals (England)(Amendment) Regulations 2002 [WOFAR 2002].
(and similar ones for N Ireland, Scotland & Wales).

Defra Laying Hens codes

RSPCA Freedom Food Welfare Standards for Laying Hens

BEIC Lion Code welfare standards.

For Sweden: The Swedish Animal Welfare Agency and Swedish University of Agricultural Sciences, Uppsala

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