

# THE WAY FORWARD FOR EUROPE'S EGG INDUSTRY: KEEPING THE BAN ON BATTERY CAGES IN 2012



**Compassion in World Farming Trust is an educational charity working internationally to advance the welfare of farm animals. We carry out detailed research using academic literature and publish educational resources for use by schools, universities and the general public on farm animal welfare and associated environmental, social and ethical issues. Our publications include reports, books, videos, factsheets and teaching materials.**

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# THE WAY FORWARD FOR EUROPE'S EGG INDUSTRY: KEEPING THE BAN ON BATTERY CAGES IN 2012

## **A report for Compassion in World Farming Trust**

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# Contents

	page
Executive summary	5
1. Introduction	8
2. The natural behaviour and cognitive abilities of hens	9
3. Behavioural restriction in the battery cage	9
3.1 Nesting	9
3.2 Foraging and dust-bathing	10
3.3 Perching	11
3.4 Spatial restriction	11
4. Health problems and injuries in the battery cage	12
4.1 Osteoporosis	12
4.2 Foot and claw problems	13
5. Alternatives to the barren battery cage	14
6. Economics of the EU ban on battery cages	14
6.1 The cost of changing to non-cage systems	15
6.2 Willingness of consumers to pay more for non-cage eggs	16
6.3 Placing a value on non-market benefits	17
6.4 Imports	18
6.5 Positive policies of certain supermarkets and food service operators	18
6.6 Strategy for adhering to the ban on battery cages and also safeguarding EU egg producers	18
7. Conclusions and recommendations	21
References	24

## Executive summary

**There are over 400 million laying hens in the European Union (EU), around 88% of whom are currently housed in battery cages. The highly restrictive and barren nature of the battery cage prevents hens from exhibiting most normal patterns of behaviour including foraging, perching, dust-bathing and laying their eggs in a nest. This results in severe frustration.**

Compassion in World Farming Trust (CIWF Trust) believes it is totally unacceptable to keep hens in an environment where they suffer because they are prevented from carrying out most of their natural behaviours. This position is supported by the European Commission's Scientific Panel on Animal Health and Welfare (AHAW). They recommend that "Housing systems should provide the possibility for hens to carry out activities which are behavioural priorities".

In the battery cage, each hen has just 550 sq cm of floor space, an area less than this A4 page. They are unable to move about properly, stretch, flap their wings, or even turn around without difficulty. The lack of opportunity to exercise, coupled with the constant demands of a high rate of egg production, causes battery hens to develop such brittle bones that many suffer from broken bones by the time they come to be slaughtered after around a year of laying.

CIWF Trust believes it is totally unacceptable to keep hens in an environment where their movement is so restricted that they develop brittle bones and are likely to suffer broken bones as a result. This position is supported by AHAW. They recommend that "In order to minimise bone weakness, all systems for housing hens should provide sufficient space for walking, wing-flapping, and other activities necessary to maintain bone-strength and minimise risks of fracture".

The 1999 Laying Hens Directive prohibits the barren battery cage from 1st January 2012. The Directive represents a historic victory for animal welfare. But the enormous welfare benefits of this vital piece of legislation are now under threat because the industry is calling for the ban to be delayed. Official sources suggest this could be by up to 10 years. This would condemn around 3.5 billion more laying hens to a life of confinement, deprivation and suffering.

In 1997, the EU adopted a Protocol annexed to the Treaty of Amsterdam, which recognises animals as sentient beings. The Protocol requires the EU and its Member States, in formulating and implementing EU policies on agriculture, to "pay full regard to the welfare requirements of animals". In light of this, CIWF Trust believes the ban on barren battery cages must not be delayed.







CIWF Trust believes that only non-cage systems should be permitted for the housing of laying hens because these are the only systems with high welfare potential. CIWF Trust is opposed to the use of so-called “enriched” cages. These cages incorporate a nest, perches and loose litter material but fail to overcome many of the welfare problems inherent in the battery cage system. CIWF Trust believes that when the ban on barren battery cages comes into force, farmers should turn not to “enriched” cages but instead to more humane free-range and barn systems where hens have the freedom to express natural behaviour.

The EU egg industry is concerned that the prohibition of barren battery cages in 2012 will lead to a substantial increase in production costs and that this, coupled with a reduction in import tariffs that is likely to be agreed as part of World Trade Organisation (WTO) negotiations, will lead to an increase in imports of cheap eggs that do not meet EU welfare standards. This report shows that:

- Changing to more humane non-cage systems will entail a cost. However, CIWF Trust believes that farmers should not be left to bear the higher production costs themselves. The increased costs can be met by a combination of government support and consumers paying a little more for eggs. For individual consumers the extra cost of eggs should amount to just a few eurocents per week.
- The higher costs involved in the production of barn and free-range eggs are more than compensated for by the higher prices received by producers for these eggs. As a result, barn and free-range producers receive better margins than cage producers.
- The estimated non-market benefits, in terms of the value placed by citizens on the improvements in hen welfare resulting from the prohibition of barren battery cages, outweigh the costs arising from the prohibition.
- The increase in imports is likely to be less than that usually anticipated. The increase in costs if all producers moved to free-range could lead to an increase in imports of up to 3-4%. However, the impact of this is likely to be minor because the rise in imports is from a very low base.

## Recommendations

CIWF Trust believes the European Commission and the EU egg industry should develop a strategy that will enable the prohibition of barren battery cages to come into force on 1 January 2012 and which also safeguards EU egg producers. This strategy should comprise the following elements:

- Consumers should be encouraged to only buy eggs from non-cage systems.
- Supermarkets should be encouraged to only sell non-cage eggs; this policy should apply not just to shell eggs, but also to eggs used in processed foods such as ready-made meals.
- Food manufacturers and food service operators should be encouraged to fulfil their corporate social responsibility in this area by only sourcing eggs and egg products produced to EU welfare standards. This does not mean that they cannot import, but imported eggs and egg products should be produced to equivalent welfare standards.
- Public sector bodies should be encouraged to only source and provide eggs and egg products that have been produced to EU welfare standards.
- Retailers and government subsidies were instrumental in ensuring the success of the Swiss move to non-cage production. EU Member States should help farmers with part of the costs of moving to non-cage systems under the Common Agricultural Policy's Rural Development Regulation.
- The EU should re-energise its efforts at the WTO negotiations to obtain outcomes that will help safeguard EU egg producers from imports of eggs from hens kept in barren battery cages. In particular the EU should (i) work hard to secure inclusion of animal welfare payments in the Green Box and (ii) classify egg product lines as 'sensitive'.
- The EU should extend the regulation requiring EU eggs and egg packs to be labelled with the farming method to imported eggs; there are sound legal arguments for believing that this could be done in a manner that is compatible with the WTO Agreement on Technical Barriers to Trade.

CIWF Trust recommends implementing the strategy outlined in this report to ensure that the ban on barren battery cages can be successfully brought into force in 2012 without harming the livelihoods of EU egg producers.

**The evidence that hens suffer in barren battery cages is overwhelming and is supported by both public opinion and the conclusions of the European Commission's Scientific Panel on Animal Health and Welfare. Compassion in World Farming Trust calls on the European Union to ensure that the ban on battery cages is implemented without delay in 2012.**

## 1. Introduction

There are over 400 million laying hens in the European Union (EU), around 88% of whom are currently housed in battery cages.<sup>1</sup> The highly restrictive and barren nature of the battery cage prevents hens from exhibiting most normal patterns of behaviour including foraging, perching, dust-bathing and laying their eggs in a nest. This results in severe frustration. Each hen has just 550 sq cm of floor space, an area less than this A4 page. They are unable to move about properly, stretch, flap their wings, or even turn around without difficulty. The lack of opportunity to exercise, coupled with the constant demands of a high rate of egg production, causes battery hens to develop such brittle bones that many suffer from broken bones by the time they come to be slaughtered after around a year of laying.



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The 1999 Laying Hens Directive prohibits conventional barren battery cages from 1st January 2012.<sup>2</sup> The Directive represents a historic victory for animal welfare, but the enormous welfare benefits of this vital piece of legislation are now under threat because the industry is calling for the ban to be delayed. Official sources suggest this could be by up to 10 years. This would condemn around 3.5 billion more laying hens to a life of confinement, deprivation and suffering. The EU egg industry is concerned that the battery cage ban will lead to a rise in production costs that would leave them vulnerable to imports of cheap eggs that do not meet EU welfare standards. However, this report will show that the ban can be successfully implemented in 2012 without harming the livelihoods of EU egg producers.

In 1997, the EU adopted a Protocol annexed to the Treaty of Amsterdam, which recognises animals as sentient beings. The Protocol requires the EU and its Member States, in formulating and implementing EU policies on agriculture, to “pay full regard to the welfare requirements of animals”.<sup>3</sup> In light of this, Compassion in World Farming Trust (CIWF Trust) believes the EU cannot ignore the huge body of evidence for the suffering of hens in barren battery cages, which is supported by both public opinion and the conclusions of the Scientific Panel on Animal Health and Welfare (AHAW).<sup>4, 5</sup> CIWF Trust believes the ban on battery cages must be implemented without delay in 2012.



## 2. The natural behaviour and cognitive abilities of hens

Hens are descended from the red jungle fowl of Southern Asia. Neither thousands of years of domestication nor selective breeding for high productivity have fundamentally altered their behaviour. In a natural environment, hens spend much of their time foraging for food. This means that their exploratory pecking and scratching behaviours are highly motivated. Hens will walk considerable distances searching for food and are also able to fly short distances.



Jungle fowl hen foraging with her chicks.

Hens congregate in small groups that have a complex social organisation based on a pecking order or hierarchy. Trees are used for roosting at night and escaping from predators. Prior to laying, hens will seek out a secluded spot and build a nest to lay their eggs in. They also carry out regular maintenance behaviours including preening, dust-bathing and wing flapping.

Hens are capable of recognising other birds and their relative status within the flock hierarchy. They appear to have preferred flockmates and choose to be close to familiar birds and avoid unfamiliar ones.<sup>6, 7</sup> They are also capable of telling individual humans apart<sup>8</sup> and can learn from watching other hens perform a task.<sup>9</sup> Hens can anticipate future events and the consequences of their actions. For example, experiments have shown that they can show self-control by choosing to wait longer for a larger food reward rather than taking a small reward sooner.<sup>10</sup>

## 3. Behavioural restriction in the battery cage

The lack of space and barren environment in the battery cage prevent hens from carrying out most of their natural behaviours, including nesting, foraging, dust-bathing, perching, and many basic comfort behaviours such as stretching and wing flapping.

Experiments have shown that hens will make a great deal of effort to gain access to nest boxes, litter for pecking, scratching and dust-bathing, perches (particularly prior to nightfall) and additional space.<sup>11</sup> These experiments demonstrate that such resources are important to the hen. Stereotyped pacing, displacement preening and a specific vocalisation, the gavel-call, are associated with thwarting of feeding, nesting and dust-bathing behaviour.<sup>12</sup> This indicates that hens are frustrated when they are prevented from carrying out these behaviours.

### 3.1 Nesting

When nesting facilities are provided, domestic hens display the full repertoire of egg-laying behaviour seen in the jungle fowl. This includes nest site investigation and selection, pre-laying behaviour such as scraping, crouching and sitting, egg laying and post-lay sitting. In cages without a nest, the investigative phase is often replaced with a prolonged period of pre-laying pacing and any post-lay sitting is almost entirely absent.<sup>13</sup>

Hen in motivational experiment working to reach a nest box.

Hens have a strong preference for laying their eggs in a nest and are highly motivated to perform nesting behaviour.<sup>14</sup> If hens are deprived of a suitable nest site they will display abnormal behaviours, which indicate frustration, such as increased pacing and restlessness or abnormal behaviour in the form of vacuum nesting.<sup>15</sup> Appleby *et al* (1992) state, "It is widely accepted that frustration of nesting is the most severe behavioural problem of hens in battery cages".<sup>16</sup> Broom (1992) comments, "The evidence that welfare is poor at this time [prior to egg laying] if no nest site is available is clear".<sup>17</sup>

Scientific studies have shown that hens place a high value on access to discrete enclosed nest sites. For example, they will overcome high costs (e.g. squeezing through narrow gaps or opening doors) to gain access to nest boxes prior to laying.<sup>18, 19</sup> Research has revealed that hens will work significantly harder to gain access to a nest box prior to laying than they will work to gain access to food after several hours' food deprivation.<sup>18, 19</sup>

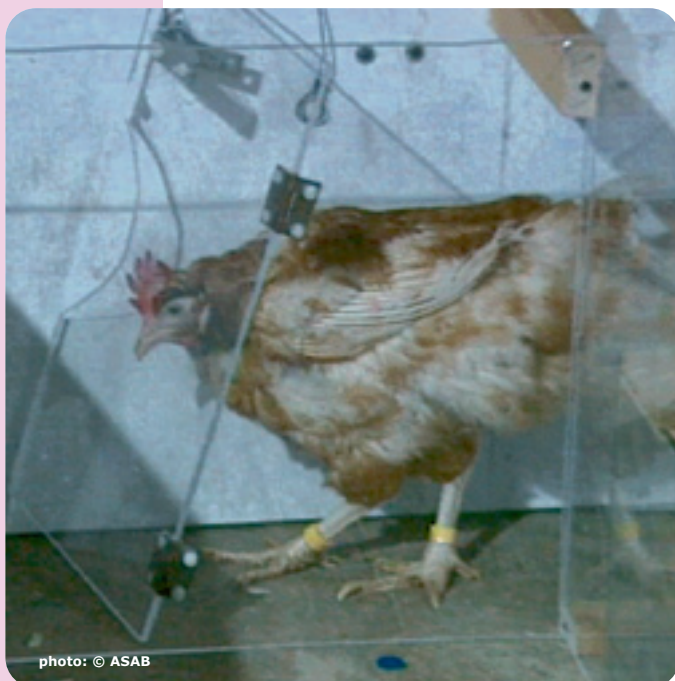


photo: © ASAB

The Scientific Panel on Animal Health and Welfare (AHAW) was requested by the European Commission to conduct a detailed review of laying hen welfare in various housing systems. In their Opinion, published in 2005, they state that, "Suitable nests, adequately distributed, should be provided in housing systems for laying hens".<sup>5</sup> **CIWF Trust believes that hens suffer when they are prevented from laying their eggs in a nest and that all laying hens should therefore have access to a suitable nest site.**

### 3.2 Foraging and dust-bathing

Foraging behaviour involves searching and scratching at the ground to reveal potential food items, followed by pecking. In natural conditions, hens spend between 50 and 90% of their waking time foraging, making up to 15,000 pecks a day.<sup>7, 20</sup> Hens are still motivated to forage even when provided with adequate food.<sup>11</sup>

Dust-bathing involves lying down, tossing earth or loose litter material onto the back and wings, rubbing it into the feathers and then shaking it out. Dust-bathing removes grease and parasites and, in combination with preening, helps to keep the plumage in good condition. Hens are highly motivated to perform dust-bathing behaviour<sup>21</sup> and have a strong preference for a littered floor on which to carry out the behaviour.<sup>14</sup> Under unrestricted conditions, hens will dust-bathe about every second day, with each dust-bathing bout lasting on average nearly half an hour.<sup>22</sup>



photo: © C.Seddon

Hen dust-bathing in free-range system.



On the barren floor of the battery cage, hens are denied access to litter for foraging and dust-bathing. The lack of opportunity to express foraging behaviour can result in hens redirecting their pecking behaviour towards other birds in the form of harmful feather pecking.<sup>23</sup> Without access to litter, hens develop sham dust-bathing behaviour in which they go through the motions of dust-bathing but become frustrated by its ineffectiveness.<sup>24</sup>

AHAW (2005) states, "Litter appropriate for foraging and dust-bathing should be provided in all systems and should be managed in such a way that it is friable and is readily accessible to all birds".<sup>5</sup> **CIWF Trust believes that hens suffer when they are prevented from foraging and dust-bathing and that all laying hens should therefore have access to loose litter material in which to carry out these behaviours.**

### 3.3 Perching

In natural conditions, hens roost at night as a means of protection from ground predators. They are therefore highly motivated to perch. When perching space is limited, hens will struggle vigorously to secure a perching space for the night.<sup>16</sup> Hens that are denied access to a perch show signs of agitation and increased movement around dusk.<sup>25</sup> In the barren battery cage there is no opportunity to perch and hens are forced to spend their entire adult life standing on a bare wire floor.

AHAW (2005) concludes, "Resting and perching are important aspects of birds' welfare. Roosting at night on an elevated perch is a behavioural priority".<sup>5</sup> **CIWF Trust believes that hens suffer when they are denied the opportunity to roost and that all laying hens should therefore be provided with elevated perches.**



Hens perching in non-cage system.

### 3.4 Spatial restriction

Research has revealed the amount of space used by hens to perform a range of basic behaviours. Table 3.1 shows the results of one such study. The average space used by hens performing the behaviours shown ranged from 475 sq cm to 1876 sq cm, although the top end of the range was 2606 sq cm. All the behaviours with the exception of standing require more space than the standard allowance of 550 sq cm per bird in conventional battery cages within the EU.

**CIWF Trust believes that all laying hens should be provided with sufficient space to allow them to carry out their natural behaviours.**



This picture of a hen with its wings outstretched illustrates just how cramped conditions are in the battery cage.

**Table 3.1: Area used by medium hybrid hens housed singly in small litter-floored pens.**

This compares to standard space allowance in conventional battery cages within the EU of 550 sq cm per hen. Source: Dawkins and Hardie (1989).<sup>26</sup>

Behaviour	Area (sq cm)	
	Mean	Range
Standing	475	428 – 592
Ground scratching	856	655 – 1217
Turning	1272	978 – 1626
Wing stretching	893	660 – 1476
Wing flapping	1876	1085 – 2606
Feather ruffling	873	609 – 1362
Preening	1151	800 – 1977

The restrictive environment of the battery cage also causes hens to suffer from chronic stress because they are unable to form normal social relationships with other hens. Forcing hens into such close proximity disrupts normal social interaction and they will continually strive to get further apart. The continuous awareness of other hens and constant attempts to regulate social spacing provide evidence of social conflict and indicate that hens are stressed by being housed so close together.<sup>27</sup> **CIWF Trust believes that all laying hens should be provided with sufficient space to allow them to engage in normal social interaction and to withdraw from other hens.**

The conclusions of the European Commission's Scientific Panel on Animal Health and Welfare (AHAW, 2005) effectively rule out barren battery cages as an acceptable housing system for laying hens on the basis of the behavioural restriction imposed by the battery cage. They state that one of the most severe threats to bird welfare in conventional battery cages is "the inability to perform some high priority behaviours including nesting, perching, foraging and dust-bathing" and that "if hens can not perform such high priority behaviours, this may result in significant frustration, or deprivation or injury, which is detrimental to their welfare". They therefore recommend that "Housing systems should provide the possibility for hens to carry out activities which are behavioural priorities".<sup>5</sup> **CIWF Trust believes there is overwhelming evidence that hens suffer in battery cages because they are prevented from carrying out most of their natural behaviours. The use of barren battery cages for the housing of laying hens should therefore be ended as a matter of urgency.**

## 4. Health problems and injuries in the battery cage

### 4.1 Osteoporosis

The high rate of egg production in modern laying hens puts enormous demands on the birds' calcium reserves. With no opportunity for exercise to maintain bone strength, caged hens develop brittle bones, a condition known as caged layer osteoporosis or caged layer fatigue. This is a direct result of the restriction of movement imposed by the battery cage.

Evidence suggests that osteoporosis is widespread and severe in caged birds. Osteoporosis accounts for 30 to 35% of deaths in caged laying hens and many of these deaths will be

lingering and likely to involve emaciation and pain.<sup>28, 29</sup> The affected bird becomes paralysed and if the condition goes unnoticed the hen often dies a slow death at the back of the cage from dehydration and starvation because they are unable to reach water and food.<sup>30</sup>

By the time they come to be slaughtered after around a year of laying, the birds' bones have become so weak that around 30% of hens from battery cages suffer broken bones during handling, transport and slaughter.<sup>31</sup>

AHAW (2005) concludes that one of the most severe threats to bird welfare in conventional battery cages is "low bone strength and fractures sustained during depopulation".<sup>5</sup> They recommend that "In order to minimise bone weakness, all systems for housing hens should provide sufficient space for walking, wing-flapping, and other activities necessary to maintain bone-strength and minimise risks of fracture".<sup>5</sup> **CIWF Trust believes it is totally unacceptable to keep hens in an environment where their movement is so restricted that they develop brittle bones and are likely to suffer broken bones as a result. All laying hens should have the freedom to exercise properly.**

## 4.2 Foot and claw problems

By the time they come to be slaughtered, hens in battery cages often have injured and deformed feet as a result of damage caused by constantly standing on a sloping wire floor.<sup>32</sup> In natural conditions, the claws of hens are continually worn down as they forage for food. In the battery cage, claws can become overgrown, twisted and broken.<sup>32</sup> The claws can also be very sharp and can cause considerable damage to other birds and themselves. When birds are injured by claws there is a potential for cannibalism to develop. Several birds may join in pecking at the injury; in the battery cage there is no means of escape and death of the pecked bird usually results.<sup>33</sup>

Battery cages within the EU must now be fitted with abrasive strips to shorten the claws. However, this will only tackle the symptoms instead of addressing the underlying cause of the problem: the lack of opportunity for hens to exercise and exhibit normal behaviour which wears down the claws naturally. **CIWF Trust believes that all hens should be kept in an environment where they can move around freely and forage to keep their claws in good condition.**



This ex-battery hen has clearly suffered a broken limb



## 5.

## Alternatives to the barren battery cage

When the ban on barren battery cages comes into force, CIWF Trust is concerned that many cage producers will convert to using so-called “enriched” cages. These cages incorporate a nest, perches and loose litter material but fail to overcome many of the welfare problems inherent in the battery cage system. We believe that farmers should instead turn to more humane free-range and barn systems where hens have the freedom to express natural behaviour.



CIWF Trust believes the potential of systems to provide good welfare should be the key determinant of which housing systems are considered acceptable. Many of the welfare problems of hens housed in cages are inherent in the system. Therefore even if management is good, the welfare potential in cages is low. Welfare may be poor for certain individuals or at certain times in non-cage systems but if housing design and management are good, the welfare potential in non-cage systems is high. ***CIWF Trust believes that only non-cage systems should be permitted for the housing of laying hens because these are the only systems with high welfare potential.***

A socio-economic study commissioned by the European Commission states that the evidence suggests “enriched” cages will not operate at a significant cost disadvantage to conventional battery cages.<sup>1</sup> Changing to more humane non-cage systems will entail a greater cost but this report will show how this cost can be met without harming the livelihoods of EU egg producers.

## 6.

## Economics of the EU ban on battery cages

The EU egg industry is concerned that the prohibition of barren battery cages in 2012 will lead to a substantial increase in production costs and that this, coupled with a reduction in import tariffs that is likely to be agreed as part of World Trade Organisation (WTO) negotiations, will lead to an increase in imports of cheap eggs that do not meet EU welfare standards. This report will show that this need not be the case, and will outline a strategy to ensure that the ban can be successfully implemented in 2012 whilst also safeguarding the livelihoods of EU egg producers.

## 6.1 The cost of changing to non-cage systems

Based on data in the European Commission's socio-economic report,<sup>1</sup> it costs €0.66 to produce 12 battery eggs, €0.82 to produce 12 barn eggs and €0.98 to produce 12 free-range eggs. So 12 free-range eggs cost €0.32 more to produce than 12 battery eggs, and 12 barn eggs cost €0.16 more to produce than 12 battery eggs. This means that one free-range egg costs 2.6 eurocents more to produce than a battery egg, and a barn egg costs 1.3 eurocents more to produce than a battery egg. Table 6.1 sets out the costs of producing eggs in various systems.

**Table 6.1: Egg production costs in various systems based on the European Commission's socio-economic report.<sup>1</sup>**

	12 eggs* (eurocents)	1 egg** (eurocents)
<b>Cost of producing conventional battery eggs</b>	66	5.5
<b>Cost of producing barn eggs</b>	82	6.8
<b>Cost of producing free-range eggs</b>	98	8.1
<b>Extra cost of producing free-range eggs rather than battery eggs</b>	32	2.6
<b>Extra cost of producing barn eggs rather than battery eggs</b>	16	1.3

\* Figures for producing 12 eggs obtained by taking three quarters of the figures for producing 1 kg of eggs (16 eggs) given in the Commission's report.<sup>1</sup>

\*\* Figures for producing 1 egg obtained by dividing by 16 the figures for producing 1 kg of eggs (16 eggs) given in the Commission's report.<sup>1</sup>

CIWF Trust believes that farmers should not be left to bear the higher production costs themselves. The increased costs can be met by a combination of government support and consumers paying a little more for eggs. For individual consumers the extra price of eggs should amount to just a few eurocents per week.

The average per capita consumption in the EU-25 is around 220 eggs per year (including processed eggs).<sup>1</sup> This means that EU consumers could change from battery to barn eggs for just 5.5 eurocents each per week and from battery to free-range eggs for only 11 eurocents each per week, provided that the retailers charged no more extra for barn and free-range eggs than is needed to cover the additional cost of producing them.

The above production cost figures include building and equipment costs. The capital costs involved in changing to new systems are eased by the fact that the Laying Hens Directive gives farmers a very generous phase-out period of 12 years.<sup>2</sup> During that time, most battery cages will come to the end of their working life and will in any event need to be replaced. Moreover, farmers can be helped with the capital costs of change under the "Investment in Agricultural Holdings" measure of the Common Agricultural Policy's Rural Development Regulation.<sup>34, 35</sup>

The Commission's report concludes that if costs were to increase by 20%, which it says is the type of percentage increase in terms of variable costs that producers are likely to face as a result of switching to free-range, the industry will potentially suffer a loss of producer surplus of €354 million (EU-25).<sup>1</sup> This appears to be a substantial sum. If, however, this increased cost were borne not by farmers but by consumers paying a little extra for eggs, each EU citizen would only have to pay less than €1 extra per year, as the human population of the EU-25 is around 460 million.

Although the industry makes much of the fact that changing to barn and free-range systems will increase production costs, it fails to point out that those increased costs are more than compensated for by the higher prices that producers obtain for barn and free-range eggs.

As a result, the margins achieved by producers for barn and free-range eggs are appreciably higher than those available for battery eggs. The Commission’s socio-economic report shows that margins for free-range eggs are around twice as high as those for battery eggs.<sup>1</sup> Table 6.2 shows the gross margins for battery, barn and free-range eggs.

**Table 6.2: Gross margins for battery, barn and free-range eggs shown by the European Commission’s socio-economic report.<sup>1</sup>**

	Battery eggs	Barn eggs	Free-range eggs
Gross margin per 1 kg eggs (i.e. 16 eggs) (eurocents)	19.5	25.0	38.0

It may be that, if barn and free-range production were to increase, the premium prices – and hence the better margins – for these eggs would be to some degree reduced. However, skilful marketing should help to preserve better margins for producers of non-cage eggs because many consumers are willing to pay more for eggs produced in humane systems.

**6.2 Willingness of consumers to pay more for non-cage eggs**

The presumption that the prohibition of barren battery cages will be costly for farmers is based on the assumption that consumers will not be willing to pay extra for eggs from non-cage systems and therefore that (i) farmers will have to bear the additional costs alone and (ii) consumers will turn to imported eggs produced in barren battery cages.

In fact this assumption is not correct; there is strong evidence that an increasing proportion of consumers are willing to pay extra for non-cage eggs. This is demonstrated by the fact that over the last decade there has been a substantial increase in the proportion of the EU laying hen flock kept in non-cage systems.<sup>1</sup> The share of the EU laying hen flock kept in non-cage systems has risen between 1993 and 2003 from 3.56% to 11.93%.<sup>1</sup>

Moreover, the recent Eurobarometer survey on the welfare of farmed animals found that a majority of EU-25 citizens state that they are willing to pay more for eggs sourced from an animal welfare friendly production system.<sup>4</sup> 25% of respondents state that they can accept a 5% price increase, 21% an increase of 10%, and 11% are prepared to accept an increase of 25% or more.<sup>4</sup> These figures reflect the fact that, in answer to another question in the survey, 58% of respondents rated the welfare of laying hens as very or fairly bad.<sup>4</sup>

The fact that consumers are willing to buy eggs from non-cage systems despite the higher price of such eggs is seen from the Commission’s socio-economic report, which states that in the Netherlands, Sweden, Denmark and the UK close to 50% of eggs sold at the retail level are sourced from non-cage systems and that in Germany and Austria the percentage is around 25%.<sup>1</sup>

In the UK, surveys carried out in 2003 and again in 2005 reveal a significant fall in the proportion of battery eggs sold by several major supermarkets, with many reporting that over 50% of their shell egg sales are now from barn or free-range systems.<sup>36, 37</sup> The detailed figures are shown in Table 6.3.

**Table 6.3: Proportion of shell eggs (both own label and branded) from cage, barn and free-range systems sold by certain UK supermarkets.** Source: Data supplied by supermarkets in response to CIWF Trust surveys.<sup>36, 37</sup>

Supermarket	2003 survey			2005 survey		
	Cage	Barn	Free-range	Cage	Barn	Free-range
Asda	66%	5%	28%	43%	0%	57%
Co-op	59%	0%	41%	34%	0%	66%
Marks & Spencer	0%	0%	100%	0%	0%	100%
Tesco	40%	36%	24%	43%	16%	41%
Waitrose	0%	10%	90%	0%	18%	82%

### 6.3 Placing a value on non-market benefits

The Commission's report stresses that the likely increase in production costs arising from the ban on conventional battery cages needs to be considered in relation to the potential non-market benefits from the changes in animal welfare legislation.<sup>1</sup> The report states that estimates to date suggest the non-market benefits may be substantial.

The report refers to a 2003 study by Bennett and Blaney,<sup>38</sup> which assessed UK consumers' willingness to pay to support legislation to phase out the use of barren battery cages for egg production in the EU. They report that the estimated benefit to UK consumers of the legislation, in terms of the value placed by citizens on the improvements in hen welfare, would be approximately £161 million per annum. The authors add that even if the most extreme assumptions were made about their data, the estimated benefit of the legislation to UK consumers would still be just over £48 million per annum.

They compare this to the estimated cost of the legislation given by the UK Ministry of Agriculture, Fisheries and Food (MAFF, now called the Department for Environment, Food and Rural Affairs, DEFRA) in 2001. This estimate considers a 12-year adjustment period and includes both adjustment costs for the industry (capital costs of equipment and buildings replacement, etc.) and ongoing production costs due to the different production systems used. The estimate gives a total cost over 12 years of £466 million; this amounts to an average annual cost of around £39 million over the 12 year period. Therefore, the benefits of the legislation (around £161 million per annum) far outweigh the costs.

The Commission's report points out that the annual benefits of around £161 million (around €240 million) estimated by Bennett and Blaney are for the UK alone "and if we assume similar estimates were to be derived across the EU-15 or EU-25 then we can see that the non-market benefits of improvements in animal welfare are significantly (magnitudes) larger than the estimates [of costs] presented here. On this basis, even where the modelling above projects a decrease in market surplus, the net impact bearing in mind the non-market aspects could well be positive."<sup>1</sup>

## 6.4 Imports

The EU-15 has for many years been self-sufficient in eggs with a small exportable surplus.<sup>1</sup> The ten new Member States have also been self-sufficient in eggs for many years.<sup>1</sup>

It has, however, generally been assumed that the increase in production costs arising from the prohibition of barren battery cages will lead to an increase in imports. The fear is that there will be an increase, not in the import of shell eggs, but in the import of egg products (especially dried egg products) used in processed foods. However, the Commission's report indicates that the increase in imports is likely to be smaller than anticipated. The report states that a 20% increase in costs (the type of percentage increase in terms of variable costs that producers are likely to face as a result of switching to free-range) will lead to an increase in imports of up to 3-4%.<sup>2</sup> The report stresses, "This does not, however, significantly affect the overall scenario results because the rise in imports is from a very low base or, to put this differently, because the quantity of eggs currently traded is very small in relation to the size of the overall egg market".<sup>1</sup>

Supermarkets, food manufacturers and food service operators have an important role to play in limiting the quantity of imports produced in systems that do not meet EU welfare standards by pledging to use and supply only non-cage eggs.

## 6.5 Positive policies of certain supermarkets and food service operators

A number of major supermarkets already have an express policy of only selling free-range eggs or of not selling battery eggs. Some supermarkets apply this policy not just to shell eggs but also to eggs used in processed products such as ready-made meals, quiches and ice cream.

In the UK, Marks & Spencer only sells free-range shell eggs and only uses free-range eggs in their processed products. Waitrose only sells barn and free-range shell eggs and only uses free-range eggs in their processed products. Another supermarket, the Co-op, has set a target date of 2007 to stop selling caged shell eggs.

In Austria, Spar and Billa only sell eggs produced in non-cage systems, as does Albert Heijn in the Netherlands and Belgium.<sup>1</sup>

The Commission's report states that Sweden's move away from conventional battery cages has been aided by the decision by the four largest retailers (who between them account for 98-99% of the Swedish retail market) to stop stocking conventional battery eggs.<sup>1</sup>

Some major operators in the food service sector also have a policy of using free-range eggs. In the UK, Germany, Austria and Switzerland, McDonald's, Europe's largest food service operator, only uses free-range eggs in their breakfast menu and sauces. In addition, Pizza Express and Pret a Manger, two of the UK's largest food service operators, use only free-range eggs in all their products.

## 6.6 Strategy for adhering to the ban on battery cages and also safeguarding EU egg producers

CIWF Trust believes it is essential that the European Commission and the EU egg industry develop a strategy that will enable the prohibition of barren battery cages to come into force on 1 January 2012 (the date set by the Laying Hens Directive<sup>2</sup>) and which also safeguards EU egg producers. This strategy will need to be composed of a number of interlocking components, including the following elements:



## Consumers, supermarkets, food manufacturers and the food service sector

The Commission should take the lead in bringing together all the key players – the industry, consumer bodies, supermarkets, food manufacturers and the food service sector – and persuade them of the desirability of supporting the EU ban on barren battery cages.

An EU-wide public information campaign should be implemented well in advance of the battery cage ban in order to encourage consumers to support this important welfare reform by buying non-cage eggs; the Eurobarometer survey shows that the majority of EU consumers are willing to do this.<sup>4</sup>

Supermarkets should be encouraged to adopt a policy of only selling non-cage eggs and of only using such eggs in processed products. As indicated on page 18, a number of supermarkets already have such a policy.

The key role that can be played by supermarkets is stressed by the Commission's socio-economic report.<sup>1</sup> It states that "change will be very much market driven" and that in particular "the attitude of retailers and consumers could be highly important in that (potentially consumer led) moves away from caged eggs by retailers with a substantial market share would have a significant impact on the sector".<sup>1</sup>

The Commission's report points out that retailers were instrumental in ensuring that the Swiss transition to a system with no cage production progressed as planned.<sup>1</sup> The report states that Switzerland's move to only using non-cage systems "was greatly enhanced by the fact that from the early 1990s onwards the two dominant supermarket chains in Switzerland (Co-op and Migros) saw it as a major means of enhancing their marketing strategy and image to provide consumers with eggs from alternative systems. They thus invested heavily in the promotion of eggs produced in alternative systems and thereby contributed to a change in consumer demand patterns."<sup>1</sup>

It is essential that the food processing and food service sectors are urged to play their part in making a success of the ban on barren battery cages. Around 24% of EU eggs are used in food processing and 20% go to the food service sector; whilst 56% are sold through the retail sector.<sup>1</sup> EU egg producers do not in general believe that shell eggs will be imported in large quantities once the ban on barren battery cages comes into force. They are, however, particularly concerned that food manufacturers and food service operators will, after the ban comes into force, import egg products (particularly dried egg products) from hens kept in barren battery cages.

Food manufacturers, food service operators and supermarkets should be encouraged to fulfil their corporate social responsibility in this field by committing themselves to only sourcing eggs and egg products produced to EU welfare standards. To do otherwise would be to undermine a welfare reform enacted by EU legislators and wanted by the majority of EU citizens. This does not mean that food manufacturers and food service operators cannot import, but imported eggs and egg products must be produced to equivalent welfare standards.

Many large companies have already adopted corporate social responsibility (CSR) policies. A European Commission Communication on CSR defines it as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis".<sup>39</sup> The Commission Communication stresses that CSR practices can contribute to the objectives of EU policies and in particular to sustainable development. "Triple bottom line" reporting – in which not only economic, but also environmental and social performance are featured – is increasingly recognised as good practice.

Key food manufacturers and food service operators have already adopted CSR policies; these primarily focus on social and environmental issues. They should now be encouraged to follow the example of those companies that have extended their CSR policies to include animal welfare. CIWF Trust believes there is both an ethical case and a business case for so doing. In particular, they should be persuaded that playing their part in making a success of the EU ban on barren battery cages is in their long-term interest as it will have a favourable impact on their business. It will enhance their reputation and, if skilfully marketed, help win new customers.

## **Public Procurement**

The public sector provides meals and food in hospitals, schools, prisons, staff canteens and to the armed forces. The public sector should be encouraged to only source and provide eggs and egg products that have been produced to EU welfare standards. It would be inappropriate, given that the EU legislature has prohibited barren battery cages on welfare grounds, for the EU (and Member States') public sector to undermine that ban and the EU farmers who are obliged to comply with it, by sourcing imported eggs and egg products produced in a way that is unlawful in the EU.

## **Support under the Common Agricultural Policy (CAP) Rural Development Regulation**

The Commission's socio-economic report stresses that government support was instrumental in ensuring Switzerland's smooth transition to a system with no cage production.<sup>1</sup> Government-funded programmes provided substantial investment subsidies for the transition to alternative production systems.<sup>1</sup>

The Rural Development Regulation (RDR) enables Member States to help egg producers with the costs of moving to alternative systems.<sup>34, 35</sup> Support with part of the capital costs of change can be given under the RDR's "Investment in Agricultural Holdings" measure. Moreover, a partial contribution can be made for up to five years to the additional running costs incurred under the RDR's "Meeting Standards" measure.

## **World Trade Organisation (WTO)**

The EU should seek to make progress on animal welfare at the WTO negotiations and in particular should try to ensure that it is in a position to safeguard EU egg producers from being undermined by cheap imports of eggs from hens kept in barren battery cages. The EU should in particular seek positive outcomes in the following areas:

**Green Box:** The EU should re-energise its efforts to secure inclusion in the Green Box of payments made by WTO members to contribute to the additional costs incurred by farmers in meeting good animal welfare standards. Such payments would be non-, or at most minimally, trade-distorting provided that the additional costs stem directly from the higher standards in question.

**Sensitive products:** The Doha Round agreement on market access will include some flexibility for 'sensitive' products. The EU should commit itself to including egg product lines in its list of sensitive products. Sensitivity classification will enable the EU to apply a lower tariff reduction than would otherwise be the case. The EU egg industry believes that classification of egg product lines as sensitive would be helpful in safeguarding them from imports of eggs from hens kept in barren battery cages.

**Labelling:** EU law requires eggs and egg packs produced in the EU to be labelled with the farming method.<sup>40</sup> A much weaker labelling regime is, however, applied to imported eggs. This is because the EU feared that applying the same mandatory labelling scheme to imported eggs as to EU eggs would not be consistent with the WTO Agreement on Technical Barriers to Trade (TBT).

CIWF Trust believes that there are sound legal grounds for the view that the application of the same mandatory labelling regime to imported eggs as to EU eggs would not in itself constitute discrimination and would be compatible with the TBT provided that the EU takes a number of steps to ensure that it is acting in accordance with the TBT. Such steps include acting in accordance with the principles of transparency and good faith. The Commission should now give fresh consideration to the question of whether the existing requirement to label eggs and egg packs with the farming method could be fully extended to imported eggs in a manner that is compatible with the TBT.

***CIWF Trust believes that the strategy outlined above will allow the successful implementation of the ban on barren battery cages in 2012 without harming the livelihoods of EU egg producers.***

## 7. Conclusions and recommendations

The highly restrictive and barren nature of the battery cage prevents hens from exhibiting most normal patterns of behaviour including foraging, perching, dust-bathing and laying their eggs in a nest. This results in severe frustration.

CIWF Trust believes it is totally unacceptable to keep hens in an environment where they suffer because they are prevented from carrying out most of their natural behaviours. This position is supported by the European Commission's Scientific Panel on Animal Health and Welfare (AHAW). They recommend that "Housing systems should provide the possibility for hens to carry out activities which are behavioural priorities".<sup>5</sup>

The lack of opportunity to exercise in the battery cage, coupled with the constant demands of a high rate of egg production, causes battery hens to develop such brittle bones that many suffer from broken bones by the time they come to be slaughtered after around a year of laying.

CIWF Trust believes it is totally unacceptable to keep hens in an environment where their movement is so restricted that they develop brittle bones and are likely to suffer broken bones as a result. This position is supported by AHAW. They recommend that "In order to minimise bone weakness, all systems for housing hens should provide sufficient space for walking, wing-flapping, and other activities necessary to maintain bone-strength and minimise risks of fracture".<sup>5</sup>

In light of the status of farm animals as sentient beings and the obligation under EU law to pay full regard to the welfare requirements of animals, CIWF Trust believes the ban on barren battery cages must not be delayed.

CIWF Trust believes that only non-cage systems should be permitted for the housing of laying hens because these are the only systems with high welfare potential. CIWF Trust is opposed to the use of so-called "enriched" cages. We believe that when the ban on barren battery cages comes into force, farmers should turn not to "enriched" cages but instead to more humane free-range and barn systems where hens have the freedom to express natural behaviour.

The EU egg industry is concerned that the prohibition of barren battery cages in 2012 will lead to a substantial increase in production costs and that this, coupled with a reduction in import tariffs that is likely to be agreed as part of World Trade Organisation (WTO) negotiations, will lead to an increase in imports of cheap eggs that do not meet EU welfare standards. This report shows that:

- Changing to more humane non-cage systems will entail a cost. However, CIWF Trust believes that farmers should not be left to bear the higher production costs themselves. The increased costs can be met by a combination of government support and consumers paying a little more for eggs. For individual consumers the extra cost of eggs should amount to just a few eurocents per week.
- The higher costs involved in the production of barn and free-range eggs are more than compensated for by the higher prices received by producers for these eggs. As a result, barn and free-range producers receive better margins than cage producers.
- The estimated non-market benefits, in terms of the value placed by citizens on the improvements in hen welfare resulting from the prohibition of barren battery cages, far outweigh the costs arising from the prohibition.
- The increase in imports is likely to be less than that usually anticipated. The increase in costs if all producers moved to free-range could lead to an increase in imports of up to 3-4%.<sup>1</sup> However, the impact of this is likely to be minor because the rise in imports is from a very low base.

## Recommendations

CIWF Trust believes the European Commission and the EU egg industry should develop a strategy that will enable the prohibition of barren battery cages to come into force on 1 January 2012 (the date set by the Laying Hens Directive) and which also safeguards EU egg producers. This strategy should comprise the following elements:

- Consumers should be encouraged to only buy non-cage eggs.
- Supermarkets should be encouraged to only sell non-cage eggs; this policy should apply not just to shell eggs, but also to eggs used in processed foods such as ready-made meals.
- Food manufacturers and food service operators should be encouraged to fulfil their corporate social responsibility in this area by only sourcing eggs and egg products produced to EU welfare standards. This does not mean that they cannot import, but imported eggs and egg products should be produced to equivalent welfare standards.
- Public sector bodies should be encouraged to only source and provide eggs and egg products that have been produced to EU welfare standards.
- Retailers and government subsidies were instrumental in ensuring the success of the Swiss move to non-cage production. EU Member States should help farmers with part of the costs of moving to non-cage systems under the Common Agricultural Policy's Rural Development Regulation.
- The EU should re-energise its efforts at the WTO negotiations to obtain outcomes that will help safeguard EU egg producers from imports of eggs from hens kept in barren battery cages. In particular, the EU should (i) work hard to secure inclusion of animal welfare payments in the Green Box and (ii) classify egg product lines as 'sensitive'.
- The EU should extend the regulation requiring EU eggs and egg packs to be labelled with the farming method to imported eggs; there are sound legal arguments for believing that this could be done in a manner that is compatible with the WTO Agreement on Technical Barriers to Trade.

CIWF Trust recommends implementing the strategy outlined in this report to ensure that the ban on barren battery cages can be successfully brought into force in 2012 without harming the livelihoods of EU egg producers.



The evidence that hens suffer in barren battery cages is overwhelming and is supported by both public opinion and the conclusions of the European Commission's Scientific Panel on Animal Health and Welfare. Compassion in World Farming Trust calls on the European Union to ensure that the ban on battery cages is implemented without delay in 2012.





## References

1. European Commission (2004) *Study on the socio-economic implications of the various systems to keep laying hens*. Final Report for The European Commission, submitted by Agra CEAS Consulting Ltd., 2120/CC/December 2004.
2. Council Directive 1999/74/EC of 19 July 1999 laying down the minimum standards for the protection of laying hens. *Official Journal L* 203, 03/08/1999 P. 0053-0057.
3. Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts – Protocol annexed to the Treaty of the European Community – Protocol on protection and welfare of animals. *Official Journal C* 340, 10/11/1997 P. 0110.
4. European Commission (2005) *Attitudes of consumers towards the welfare of farmed animals*. Special Eurobarometer 229/Wave 63.2 – TNS Opinion and Social, June 2005.
5. AHAW (2005) Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to welfare aspects of various systems of keeping laying hens (Question EFSA-Q-2003-092), adopted by the AHAW Panel on 10<sup>th</sup> and 11<sup>th</sup> November 2004. *The EFSA Journal*, 197: 1-23.
6. Mench, J. and Keeling, L. (2001) The social behaviour of domestic birds. In L. J. Keeling and H. W. Gonyou (eds.), *Social Behaviour in Farm Animals*. CABI Publishing.
7. Webster, A. B. (2002) Behaviour of chickens. In D. D. Bell and W. D. Weaver (eds.), *Commercial Chicken Meat and Egg Production*. Kluwer Academic Publishing.
8. Davis, H. and Taylor, A. (2001) Discrimination between individual humans by domestic fowl. *British Poultry Science*, 42: 276-279.
9. Nicol, C. J. and Pope, S. J. (1999) The effects of demonstrator social status and prior foraging success on social learning in laying hens. *Animal Behaviour* 57: 163-171.
10. Abeyesinghe, S. M., Nicol, C. J., Hartnell, S. J. and Wathes, C. M. (2005) Can domestic fowl, *Gallus gallus domesticus*, show self control? *Animal Behaviour*, 70: 1-11.
11. Cooper, J. J. and Albentosa, M. J. (2003) Behavioural priorities of laying hens. *Avian and Poultry Biology Reviews*, 14: 127-149.
12. Zimmerman, P. H., Koene, P. and van Hooff, J. A. R. A. M. (2000) Thwarting of behaviour in different contexts and the gakel-call in the laying hen. *Applied Animal Behaviour Science*, 69: 255-264.
13. Gorman, I. (2002) Research Directions Workshop for Enhanced Welfare Cages, held at the Stamford Sydney Airport Hotel, 19 October 2001. A report on the workshop hosted by the Rural Industries Research and Development Corporation, September 2002. RIRDC Web Publication No. W02/024.
14. SVC (1996) *Report of the Scientific Veterinary Committee, Animal Welfare Section on the Welfare of laying Hens*, VI/8660/96, 30 October 1996.
15. Mills, A. D. and Wood-Gush, D. G. M. (1985) Pre-laying behaviour in battery cages. *British Poultry Science* 26: 247-252
16. Appleby, M. C., Hughes, B. O. and Elson, H. A. (1992) *Poultry Production Systems – Behaviour, Management and Welfare*. CAB International, Wallingford.
17. Broom, D. M. (1992) The needs of laying hens and some indicators of poor welfare. In V. Carter and H. Carter (eds.), *The Laying Hen*, Proceedings of a seminar organised by the European Conference Group on the Protection of Farm animals, 24-25 March 1992, Brussels.
18. Cooper, J. J. and Appleby, M. C. (1996) Demand for nest boxes in laying hens. *Behavioural Processes* 36: 171-182.

19. Cooper, J. J. and Appeby, M. C. (2003) The value of environmental resources to domestic hens: a comparison of the work-rate for food and for nests as a function of time. *Animal Welfare*, 12: 39-52.
20. Picard et al (2002) Visual and tactile cues perceived by chickens. In J. M. McNab and K. N. Boorman (eds.), *Poultry Feedstuffs: Supply, Composition and Nutritive Value*. CAB International.
21. Lindberg, A. C. and Nicol, C. J. (1997) Dust-bathing in modified battery cages: Is sham dust-bathing an adequate substitute? *Applied Animal Behaviour Science*, 55: 113-128.
22. Vestergaard, K. (1982) Dust-bathing in the domestic fowl – diurnal rhythm and dust deprivation. *Applied Animal Ethology*, 8: 487-495.
23. Keeling, L. (2002) Behaviour of fowl and other domesticated birds. In P. Jensen (ed.), *The Ethology of Domestic Animals: An Introductory Text*. CABI Publishing.
24. van Lier, D. W. (1992) The significance of fowls bathing in dust. *Animal Welfare* 1:187-202.
25. Olsson, I. A. S. and Keeling, L. J. (2000) Night-time roosting in laying hens and the effect of thwarting access to perches. *Applied Animal Behaviour Science*, 68: 243-256.
26. Dawkins, M. S. and Hardie, S. (1989) Space needs of laying hens. *British Poultry Science*, 30: 413-416.
27. Baxter, M. R. (1994) The welfare problems of laying hens in battery cages. *Veterinary Record*, 134: 614-619.
28. McCoy, M. A., Reilly, G. A. C. and Kilpatrick, D. J. (1996) Density and breaking strength of bones of mortalities among caged layers. *Research in Veterinary Science*, 60: 185-186.
29. Webster, A. B. (2004) Welfare implications of avian osteoporosis. *Poultry Science* 83:184-192.
30. Abdul-Aziz, T. A. (1998) Cage layer fatigue is a complicated problem. *World Poultry* 14: 56-58.
31. Gregory, N. G. and Wilkins, L. J. (1989) Broken bones in domestic fowl: handling and processing damage in end-of-lay battery hens. *British Poultry Science*, 30: 555-562.
32. Tauson, R. (1980) Cages: how could they be improved? In R. Moss (ed.), *The Laying Hen and its Environment*. Martinus Nijhoff.
33. Glatz, P. C. (2000) Beak trimming methods – review. *Asian-Australasian Journal of Animal Sciences*, 13 (11): 1619-1737.
34. Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations. *Official Journal L* 160, 26/06/1999 P. 0080-0102.
35. Council Regulation (EC) No 1783/2003 of 29 September 2003 amending Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF). *Official Journal L* 270, 21/10/2003 P. 0070-0077.
36. Pickett, H. and Burgess, K. (2004) *Raising the Standard – Compassion in World Farming Trust Survey of Supermarket Farm Animal Welfare Standards, 2003-2004*. CIWF Trust.
37. Pickett, H. (in preparation) *Raising the Standard – Compassion in World Farming Trust Survey of Supermarket Farm Animal Welfare Standards, 2005-2006*. CIWF Trust.
38. Bennett R. M. and Blaney R. J. P. (2003) Estimating the benefits of farm animal welfare legislation using the contingent valuation method. *Agricultural Economics* 29: 85-98.
39. European Commission (2002) *Communication from the Commission concerning Corporate Social Responsibility: A business contribution to Sustainable Development*, COM(2002) 347 final, 2 July 2002.
40. Council Regulation (EC) No 5/2001 of 19 December 2000 amending Regulation (EEC) No 1907/90 on certain marketing standards for eggs. *Official Journal L* 002, 05/01/2001 P. 0001-0003.





# THE WAY FORWARD FOR EUROPE'S EGG INDUSTRY: KEEPING THE BAN ON BATTERY CAGES IN 2012

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