Title:	Impact Assessment (IA)
Impact assessment of an amendment to The Mutilations (Permitted Procedures) (England) 2007 Regulations on the beak trimming of laying hens and meat chickens	**IA No:** DEFRA1030
Lead department or agency: Defra	**Date:** 25/06/2010
Other departments or agencies:	**Stage:** Final
	Source of intervention: Domestic
	Type of measure: Secondary legislation
	Contact for enquiries: Emma Jones 020 7238 3106

Summary: Intervention and Options

What is the problem under consideration? Why is government intervention necessary?

There is a high risk of poor welfare of laying hens if the Government does not amend The Mutilations (Permitted Procedures) (England) Regulations 2007 to allow routine beak trimming beyond 31st December 2010. Beak trimming removes the tip of a bird's beak to minimise the prevalence of injurious feather pecking and cannibalism, which is a common behaviour in laying hen flocks. This behaviour does not occur in flocks of meat chickens and therefore these birds are not routinely beak trimmed. However, the amendment relating to conventionally reared meat chickens is intended to transpose the requirement in the EU Council Directive 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production, which bans all mutilations but permits beak trimming in certain circumstances.

What are the policy objectives and the intended effects?

The objective of this amendment is to ensure that the welfare of laying hens and meat chickens is maintained. In particular, this amendment will ensure that the welfare of laying hen welfare is maintained beyond 31st December 2010 by allowing routine beak trimming. As The Mutilations (Permitted Procedures) (England) Regulations 2007 stand, beak trimming of laying hens using any method will be banned from 1st January 2011. These Regulations need to be amended to continue to allow for the routine beak trimming of laying hens using a method that minimises the effect on welfare.

What policy options have been considered? Please justify preferred option (further details in Evidence Base)

We have consulted on three policy options for laying hens: Option 1 Do nothing - which would result in the ban on routine beak trimming of laying hens on 1st January 2011. Option 2 - allow routine beak trimming using any currently defined suitable method, for example hot blade or infra-red technology - this is the current position. Option 3 Allow routine beak trimming using only infra-red technology. Following a public consultation our preferred option is Option 3. Current evidence shows that infra-red beak trimming is unlikely to cause chronic pain, unlike other methods. This option maximises laying hen welfare whilst minimising the cost to industry of injurious pecking.

We have consulted on two policy options for meat chickens: Option 1 Do nothing - which would continue to allow beak trimming . Option 2 - adopting the provisions of Council Directive 2007/43/EC which would continue to allow beak trimming with additional requirements. Our preferred option is Option 2.

When will the policy be reviewed to establish its impact and the extent to which the policy objectives have been achieved?	It will be reviewed 2015
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	Yes

SELECT SIGNATORY Sign-off For final proposal stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) the benefits justify the costs.

Signed by the responsible Minister: Jim Paice..... Date: 28th October 2010.....

Summary: Analysis and Evidence Policy Option 1

Description: **Allow routine beak trimming using infra-red technology only (this table refers to Option 3 relative to Option 1**

Price Base Year 2009	PV Base Year 2009	Time Period Years 5	Net Benefit (Present Value (PV)) (£m)		
			Low: 15.5	**High:** 45.0	**Best Estimate: 30.3**

COSTS (£m)	Total Transition (Constant Price)	Yea	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low		1		
High				
Best Estimate	0.0033		0.560	**2.45**

Description and scale of key monetised costs by 'main affected groups'

The costs are compared to a ban on routine beak trimming of laying hens using any method coming into force. Egg producers - a) cost of beak trimming procedure (annual £0.554m); b) cost of training staff who carry out emergency beak trimming (transition £32,700; annual £6,500).
There are no costs associated with the proposed amendments on beak trimming of meat chicken as this procedure is not carried out in England.

Other key non-monetised costs by 'main affected groups'

Potential acute pain of laying hens during the beak trimming procedure, which may cause a worsening of laying hen welfare (which is seen as a decrease in a public good). Increased monopoly position of beak trimming technology manufacturer

BENEFITS (£m)	Total Transition (Constant Price)	Yea	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low		1	4.13	**18.0**
High			10.9	**47.5**
Best Estimate	0		7.50	**32.7**

Description and scale of key monetised benefits by 'main affected groups'

The benefits are compared to a ban on routine beak trimming of laying hens using any method coming into force. Egg producers - a) increased egg production (annual £3.37m - 10.1m); b) decreased labour costs (annual £0.76m).
There are no benefits associated with the proposed amendments on beak trimming of meat chicken as this procedure is not carried out in England.

Other key non-monetised benefits by 'main affected groups'

Decreased injurious feather pecking and decreased laying hen deaths compared to a ban on routine beak trimming using any method coming into force, leading to improved welfare of laying hens (which is seen as an increase in a public good)

Key assumptions/sensitivities/risks **Discount rate (%)** 3.50

Decreased incidence of injurious feather pecking is between 20 and 80 percentage points. Reduced mortality due to decreased cannibalism is between 0 and 20 percentage points (a midpoint 10 percentage points estimate used for increased egg production; time period of 5 years to match the review period; wide range of benefits reflects uncertainty about the prevalence of outbreaks.

Meat chickens are not beak trimmed either routinely or in an emergency in England and we have assumed that this situation will continue.

Impact on admin burden (AB) (£m):			Impact on policy cost savings (£m):	In scope
New AB: 0	**AB savings:** 0	**Net:** 0	**Policy cost savings:** -0.00	Yes

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?			England		
From what date will the policy be implemented?			01/01/2011		
Which organisation(s) will enforce the policy?			Animal Health		
What is the annual change in enforcement cost (£m)?			0		
Does enforcement comply with Hampton principles?			Yes		
Does implementation go beyond minimum EU requirements?			No		
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** n/a	**Non-traded:** n/a	
Does the proposal have an impact on competition?			Yes		
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?			**Costs:** n/a	**Benefits:** n/a	
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	**Micro**	**< 20**	**Small**	**Medium**	**Large**
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.
Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on…?	**Impact**	**Page ref within IA**
Statutory equality duties[1] Statutory Equality Duties Impact Test guidance	No	23
Economic impacts		
Competition Competition Assessment Impact Test guidance	Yes	22
Small firms Small Firms Impact Test guidance	Yes	22
Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	No	22
Wider environmental issues Wider Environmental Issues Impact Test guidance	No	23
Social impacts		
Health and well-being Health and Well-being Impact Test guidance	No	23
Human rights Human Rights Impact Test guidance	No	23
Justice system Justice Impact Test guidance	No	23
Rural proofing Rural Proofing Impact Test guidance	No	23
Sustainable development Sustainable Development Impact Test guidance	No	22

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

[1] Race, disability and gender Impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded 2011, once the Equality Bill comes into force. Statutory equality duties part of the Equality Bill apply to GB only. The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

References

Include the links to relevant legislation and publications, such as public impact assessment of earlier stages (e.g. Consultation, Final, Enactment).

No.	Legislation or publication
1	Consultation version of the Impact Assessment http://www.defra.gov.uk/corporate/consult/mutilations-regs/
2	The Mutilations (Permitted Procedures) (England) Regulations 2007 (S.I. 2007/1100).
3	Council Directive 1999/74/EC of 19 July 1999 laying down minimum standards for the protection of laying hens.
4	Farm Animal Welfare Council (2007), Opinion on Beak Trimming of Laying hens.
5	Research study on the Chronic neurophysiological and anatomical changes associated with infra-red beak treatment (2009)
6	Farm Animal Welfare Council's further advice to Ministers on beak trimming of laying hens, 8 September 2009.
7	Defra's 'A guide to the practical management of feather pecking and cannibalism in free range hens' (2005).
8	Council Directive 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).
The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9
Transition costs			0.0033							
Annual recurring cost			0.560	0.560	0.560	0.560	0.560			
Total annual costs			0.593	0.560	0.560	0.560	0.560			
Transition benefits										
Annual recurring benefits			7.50	7.50	7.50	7.50	7.50			
Total annual benefits			7.50	7.50	7.50	7.50	7.50			

* For non-monetised benefits please see summary pages and main evidence base section

Microsoft Office Excel Worksheet

N.B. Y_0 = 2009 (which is taken as base year for NPV calculations)

Evidence Base (for summary sheets)

1. Summary

1.1 Background

1.1.1 All procedures that interfere with the sensitive tissues or bone structure of a protected animal are prohibited except for those listed in The Mutilations (Permitted Procedures) (England) Regulations 2007. Permitted procedures are allowed if they are considered necessary for the overall welfare or good management of the protected animal. Schedule 4 of these Regulations permits the beak trimming of all poultry under certain circumstances and within certain limitations. The amendments to The Mutilations (Permitted Procedures) (England) Regulations 2007 relate to conventionally reared meat chickens and laying hens. However, the focus of this final Impact Assessment is on laying hens as the amendment relating to conventionally reared meat chickens has no associated costs or benefits as industry do not routinely, or in an emergency, beak trim birds.

1.1.2 Feather pecking and cannibalism are serious welfare concerns for laying hens, but not for conventionally reared meat chickens, in all production systems. Feather pecking and cannibalism usually occurs sometime after the birds reach sexual maturity and as chickens reared for meat consumption do not reach this age before being slaughtered, this behaviour does not occur in these flocks. To prevent this behaviour in flocks of laying hens, chicks are routinely beak trimmed which leads to a reduction in the impact of feather pecking and cannibalism. Routine beak trimming of laying hens is currently only permitted until the 31st December 2010 after which this procedure will be banned. But, the complexity of predicting and preventing feather pecking and cannibalism in flocks of laying hens and the resultant welfare impact has led the Government to accept the advice of the independent advisory body, the Farm Animal Welfare Council (FAWC), and to allow routine beak trimming of hens after 2010.

1.2 Consultation

1.2.1 A 12 week consultation was carried out between January and April 2010 on a draft amendment to the Mutilations (Permitted Procedures) (England) Regulations 2007 to canvass opinions on beak trimming of laying hens. A similar consultation was carried out between January and April 2009 on a draft amendment to The Mutilations (Permitted Procedures) (England) Regulations 2007 to prohibit all mutilations for conventionally reared meat chicken, but with a derogation to permit beak trimming in certain circumstances. No responses were received in relation to beak trimming of conventionally reared meat chickens. The Government response to both consultations have been agreed and published.

1.2.2 The laying hen consultation Impact Assessment contained three options. Option 1, to allow a ban on the beak trimming of birds intended to become laying hens to come into force; Option 2, to maintain the current legislative situation which allows beak trimming of birds intended to become laying hens using a suitable instrument and Option 3, to allow beak trimming of birds intended to become laying hens but only using infra-red technology. Table 1 sets out the summary costs and benefits of these options. Option 1, allowing the ban on beak trimming to come into place, was set as the baseline. Our preferred option was Option 3.

1.2.3 There was general agreement during the consultation process with Option 3 being the preferred Option and this is the approach that is being assessed in this final Impact Assessment. As a result of the majority of responses to the consultation, we have set a review date of 2015 to assess the policy of laying hen beak trimming with a view to banning this procedure in 2016. In addition, we have extended the training provisions already in place for routine beak trimming to emergency beak trimming. Emergency beak trimming may be carried out on birds that are older than 10 days, unlike routine beak trimming, to control an outbreak of feather pecking and cannibalism. The method used for this procedure must be suitable, as defined in these Regulations, but is not restricted to infra-red technology. During the consultation process a few queries were raised about our calculations used in the consultation Impact Assessment. These are indicated in the relevant section of this final Impact Assessment and the costs and benefits have been updated where appropriate.

Table 1: Summary costs and benefits of options included in consultation Impact Assessment

Costs and benefits	Option 2 – Infra-red and hot blading beak trimming Changes compared to Option 1, a ban on beak trimming coming into effect	Option 3 – Infra-red beak trimming only Changes compared to Option 1
Annual monetised costs:		
Cost of beak trimming procedure	£0.579m	£0.579m
Total PV Cost (5 years)	**£2.52m**	**£2.52m**
Non-monetised costs:		
Possible worsening hen welfare	Potential acute pain during beak trimming procedure Possible chronic pain thereafter in birds trimmed by hot-blading technology (1.93m birds)	Potential acute pain during beak trimming procedure
Monopoly in beak trimming technology	no change	Monopoly position strengthened
Annual monetised benefits:		
Increased egg production **Decreased labour costs**	£3.75m - £11.2m £1.66m	£3.75m - £11.2m £1.66m
Total PV Benefits (5 years)	**£23.6m - £56.2m**	**£23.6m - £56.2m**
Non-monetised benefits:		
Improved hen welfare	Decreased injurious feather pecking and decreased hen deaths	Decreased injurious feather pecking and decreased hen deaths

1.3 Preferred option

1.3.1 Our preferred option in the consultation Impact Assessment was Option 3, to allow routine beak trimming using only infra-red technology as there is evidence that other methods may be more detrimental to the welfare of laying hens in the long-term. The

machinery to undertake this procedure is made by one manufacturer, which has patented the equipment until the patent expires in 2015[2]. For this option to continue to be the preferred option, compared with allowing beak trimming by any appropriate method, the reduction in chronic pain of infra-red beak trimming must outweigh the costs of a monopoly being created. During the consultation, industry representatives requested that the policy on beak trimming not be reviewed for a minimum of 10 years, in part, to encourage other manufacturers to invest in bringing a competitive machine to market. However, industry agreed with the preferred option.

1.3.2 At the present time, we understand from industry that the manufacturer of the machine used to carry out infra-red beak trimming has the same pricing policy for all of their customers outside of the USA. In this international context, the proposed option will have a much smaller impact on the manufacturer's monopoly position. Nonetheless, it may be the case that the manufacturer reviews its pricing policy following this amendment to the legislation, which could lead to an increase in the price charged. However, the cost of beak trimming by either infra-red or hot blade methods is 3p per bird, which is a very small proportion of total production costs. So the existence of such monopoly power may not be seen as having a significant impact on pullet rearers, and in turn egg producers.

1.3.3 A study at the University of Glasgow[3] was funded by Defra and industry to assess the nerve structure of laying hens that had undergone the infra-red beak trimming procedure. The authors of the study concluded that infra-red beak trimming does not cause changes in beak nerve structure indicative of chronic pain. This conclusion was based on assessment of nerve structure using both histophathology and neuro-physiology techniques. A second study, carried out in Australia by Glatz and Hinch[4] used histopathology assessment methods and identified nerve structures that may indicate chronic pain in the beaks of laying hens that had undergone infra-red beak trimming. However, the use of both histophathology and neuro-physiology assessment techniques, as used in the Univeristy of Glasgow study, is a more robust way of identifying if the nerve structures that are indicative of chronic pain are both present *and* functional. Therefore on balance, current evidence indicates that infra-red beak trimming is unlikely to cause chronic pain. This is a benefit to the 0.98m birds (see section 10.3) that at present, i.e. under Option 2, would have been beak trimmed using the hot blade technique. Using infra-red technology therefore reduces the risk of causing chronic pain compared with the hot blade technique.

1.3.4 On balance, the welfare benefit gained from allowing beak trimming using infra-red technology, rather than with hot blading, outweighs the potential monopoly that would be created through this amendment. This trade-off between reduced chronic pain and the possible monopoly position will be monitored once the policy is implemented. As stated earlier and in light of the current evidence and consultation responses, it was decided that Option 3 remains the preferred option.

1.3.5 The detailed breakdown of costs and benefits of the preferred Option are summarised in Table 2. The difference in the costs and benefits in the consultation Impact Assessment (summarised in Table 1) and those quoted here in the final Impact Assessment (summarised in Table 2) are due to using a different figure for the number of caged units in the calculations in response to an industry response to the consultation and the removal of organic laying hens from the cost and benefit calculations. During the consultation period, we investigated further the organic standards set by the certification bodies in England. These bodies preclude the routine beak trimming of organic laying

[2] United States Patent no. 5,651,731 Method and apparatus for debeaking poultry, applied for on 23rd June 1995
[3] McKeegan (2009) Defra final report: Chronic neurophysiological and anatomical changes associated with infra-red beak treatment http://randd.defra.gov.uk/Document.aspx?Document=AW1139_7989_FRP.pdf
[4] Glatz and Hinch (2009) Effect of hot blade and infrared beak trimming on beak condition, production and mortality of laying hens. Proceedings of Poultry Welfare Symposium Cervia, Italy, 18-22 May 2009

hens and therefore we have removed them from the cost and benefit calculations described in the final Impact Assessment.

1.3.6 **Table 2: Detailed costs and benefits of the preferred Option (Option 3)**

Costs and Benefits		**Preferred Option – Infra-red only allowed** **Changes compared to allowing a ban on beak trimming to come into effect**	**Location in final Impact Assessment (Paragraphs)**
Costs			
Acute pain for birds (during beak trimming procedure)		Risk increased for 18.6m birds per annum	13.5.1
Chronic pain (from hot blading beak trimming procedure)		No change in risk (compared with a ban on beak trimming coming into place)	13.5.2
Cost of beak trimming chicks		£0.554m per annum	13.5.3
Monopoly in beak-trimming technology		Monopoly created	16.1
Training costs		£32,700 transition costs £6,500 per annum	13.5.4
Total Costs	**Transition Costs**	**£0.033m**	
	Annual Costs	**£0.560m**	
Benefits			
Injurious feather pecking of laying hens		Risk reduced for 3.69m – 14.8m birds per annum	13.6.1
Mortality of laying hens		Reduction in 0 – 3.69m bird deaths per annum	13.6.2
Egg production		Increase in £3.37m - £10.1m per annum	13.6.3
Labour costs		Decrease by £0.76m per annum	13.6.4
Total Benefits	**Transition Benefits**	**n/a**	
	Annual Benefits	**£4.13m - £10.9m**	

1.3.7 The cost and benefit calculations result in a present value net benefit best estimate (over 5 years) of £30.3m. This is in addition to the non-monetised benefits described in the table above.

1.4 Post Implementation Review plan

1.4.1 In response to the consultation, a review date of 2015 with a view to banning routine beak trimming of laying hens in 2016 has been set which will allow industry to complete and report on study tours of other countries that have successfully banned beak trimming. It will also allow the Government to assess the outputs of currently on-going research. The findings of this research could provide useful experience of how to reduce the risk of an outbreak of feather pecking and cannibalism which may lead to a reduced need to beak trim birds. The issue of beak trimming fits into a wider context where the use of conventional cages to keep laying hens will be banned from 1st January 2012. As the risk to the welfare of laying hens from injurious pecking is likely to increase after the ban on conventional cages comes into force, a review in 2015 with a view to banning routine beak trimming of laying hens in 2016 will allow producers time to increase their experience of managing flocks in alternative systems.

1.4.2 Between 2011 and 2015 the Beak Trimming Action Group will reconvene and will be tasked with establishing an action plan to work towards a ban of routine beak trimming of laying hens in 2016.

2. Introduction

2.1. All procedures that interfere with the sensitive tissues or bone structure of a protected animal are prohibited except for those listed in The Mutilations (Permitted Procedures) (England) Regulations 2007. Permitted procedures are allowed if they are considered necessary for the overall welfare or good management of the protected animal. Schedule 4 of these Regulations permits the beak trimming of all poultry under certain circumstances and within certain limitations. The amendments to The Mutilations (Permitted Procedures) (England) Regulations 2007 relate to conventionally reared meat chickens and laying hens. However, the focus of this final Impact Assessment is on laying hens as the amendment relating to conventionally reared meat chickens has no associated costs or benefits as industry do not routinely, or in an emergency, beak trim birds. The amendment relating to conventionally reared meat chickens is intended to transpose the requirement in the EU Council Directive 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production, which bans all mutilations but permits beak trimming in certain circumstances. The amendment ensures that if beak trimming of these birds were to be carried out, it should be done by a trained person, be restricted to birds that are less than 10 days of age, be after consultation and on the advice of a veterinarian and only be carried out to prevent feather pecking and cannibalism.

2.2. Feather pecking and cannibalism are serious welfare concerns for laying hens, but not for conventionally reared meat chickens, in all production systems. Feather pecking and cannibalism usually occurs sometime after the birds reach sexual maturity and as chickens reared for meat consumption do not reach this age before being slaughtered, this behaviour does not occur in these flocks. To reduce the impact of this behaviour in flocks of laying hens, birds are currently routinely beak trimmed. The tip of the beak of chicks is removed which leads to a reduction in the impact of feather pecking and cannibalism. Adult birds with untreated beaks can cause significant damage to other hens which can lead to high mortality and morbidity rates from infection of wounds with possible septicaemia (infection of the blood), salpingitis (inflammation of part of the female reproductive system) and peritonitis (inflammation of the membrane lining the walls of the abdominal and pelvic cavities).

2.3. The Government has a long term goal of reducing the number of permitted mutilations of animals and beak trimming of laying hens is currently only permitted until the 31st December 2010. But, the complexity of predicting and preventing feather pecking and cannibalism in flocks of laying hens and the resultant welfare impact has led the Government to accept the advice of the independent advisory body, the Farm Animal Welfare Council (FAWC), and to allow routine beak trimming of hens after 2010. However, the Government will place more stringent controls on the methods adopted to ensure that the highest standards of welfare are maintained for chicks and laying hens.

3. Definitions

Protected animal means a vertebrate that is normally domesticated in the British Isles, either permanently or temporarily under a person's control, or is not living in a wild state.

Conventionally reared meat chicken means an animal of the species *Gallus gallus* that is kept for meat production, other than one that is on a holding with fewer than 500 such animals; breeding stocks, or is marketed under the terms "Extensive indoor (barn

reared)", "Free range", "Traditional free range", "Free range – total freedom" or is organically reared.

Laying hen means hens of the species *Gallus gallus* which have reached laying maturity and are kept for production of eggs not intended for hatching.

Mutilation means a procedure which involves interference with the sensitive tissues or bone structure of the animal, otherwise than for the purpose of medical treatment.

Feather pecking and cannibalism means the non-aggressive behaviour of a bird that can lead to feather loss and injury.

Beak trimming means the removal of the tip of a bird's beak.

Infra-red beak trimming technology means focusing a high intensity infra-red beam at the tip of the beak, which penetrates the hard outer horn, damaging a clearly demarcated zone of the underlying dermis and sub-dermal tissues.

Hot blade beak trimming technology means the use of a sharp instrument which mechanically removes the tip of a chick's beak and cauterises the wound to prevent haemorrhage.

4. The Objective

4.1 The objective of the amendment to the Mutilations (Permitted Procedures) (England) Regulations 2007 is to maintain the welfare of conventionally reared meat chickens and laying hens. In particular this amendment will ensure the welfare of laying hens is maintained beyond 31st December 2010 by allowing routine beak trimming to continue under specified conditions. This is in line with the Government's commitment to high standards of animal welfare.

5. Application and Scope

5.1 The amendment applies to conventionally reared meat chickens and birds intended to become laying hens, which are housed on establishments with more than 350 birds, in England. Beak trimming of all other poultry, including layer hen breeders and broiler breeders, will continue to be permitted using any suitable instrument. **This final Impact Assessment focuses on the amendment to the beak trimming of laying hens as there are no costs or benefits associated with the amendment to the provisions for conventionally reared meat chickens**.

6. Rationale for government intervention

6.1. England currently makes use of a derogation in the laying hens directive 1999/74/EC which, in order to prevent feather pecking and cannibalism, allows Member States to authorise beak trimming provided it is carried out by qualified staff on birds that are less than 10 days old and intended for laying. The Mutilations (Permitted Procedures) (England) Regulations 2007 implements this derogation (Regulation 3 and Schedule 4.5).

6.2. There is a high risk of worsening animal welfare through increased injurious feather pecking and cannibalism if the ban on routine beak trimming of laying hens is allowed to come into force on the 1st January 2011.

6.3. To minimise this risk, the Government has decided that routine beak trimming of laying hens is allowed beyond 2010, however this policy will be reviewed in 2015 with a view to banning this procedure in 2016. In the meantime, only infra-red technology will be permitted to be used to carry out this procedure. Infra-red technology, on current evidence, has advantages over other known methods (see sections 13.5 and 13.6 for cost and benefits).

6.4. The Devolved Administrations have been consulted and it is expected they will be making similar amendments to their legislation.

7. The industry structure

7.1. There are approximately 1,323 holdings housing more than 350 laying hens in England, and the number of hens in England in 2008 in laying hen units was 26.5 million (not including parent stock). Of this 6.93 million hens were growing pullets and the remaining 19.6 million were the laying flock.

7.2. The industry is split into a number of sectors based on housing. The majority of laying hens are housed in either cages or free range; however some laying hens are housed in other systems including barn and organic. Following advice from the industry during the consultation period, the estimated number of caged holdings has been decreased and we have increased the average flock size for caged holdings.

7.3. Table 3 shows the structure of the laying hen industry by housing type.

Table 3: Structure of the laying hen industry

Housing system	Number of laying hens	Proportion of laying hens	Number of holdings	Average flock size
Growing Pullets	6.93m	-	-	-
Laying Flock, of which:	19.6 m	-	-	-
Caged	11.2m	57.2%	32	352k
Free range[(a)]	6.30m	32.2%	525	12.0k
Barn	0.971m	5.0%	32	30.0k
Organic	1.11m	5.7%	139	8.0k
Total Layers	**26.5 million**	-	-	-

Source: Defra, June 2008 Agricultural Survey:

(a) Free range hens in June Agricultural Survey included hens housed in organic systems; the total number of these hens was 7.41 million. This has been divided into free range and organic hens on the assumption that 5.7% of laying hens are organic which is based on the proportion of eggs produced adjusted for the estimated number of eggs produced per hen per laying cycle.

7.4. In 2008, 740.4 million dozen eggs were produced for human consumption in the UK. The value of this market was £524 million in 2008. The majority of eggs are produced from birds housed in cages (58.3%) or free range (32.4 %), however some eggs are produced from other systems including barn (3.8%) and organic (5.5%).

8. The nature of the problem

8.1. Beak trimming is a technique to remove the tip of a bird's beak which prevents overt damage when birds peck at each other. When birds are not beak trimmed the risk of injurious feather pecking and cannibalism increases in flocks of birds, which can cause severe welfare problems, high mortality rates and financial costs for egg producers.

8.2. Injurious feather pecking and cannibalism outbreaks are unpredictable. This means that whilst some flocks will not be affected, once the behaviour begins, the associated welfare and financial costs can be very high.

8.3. A key conclusion from an EU funded project which brought together the results of many different studies (LayWel[5]) concluded that feather pecking is still a very predominant welfare problem in non cage systems. In surveys covering 340 commercial flocks the number of flocks suffering from feather pecking is between 40% and almost 80%. The prevalence of cannibalism is lower but there were still up to 20% of flocks affected in one survey and up to 40% in another.

8.4. A series of studies found that the mortality rates of non beak trimmed birds were significantly higher than mortality rates of beak trimmed birds. The findings of these studies are set out in Table 8 in Appendix 1.

8.5. Non beak trimmed hens may need to undergo emergency beak trimming later on in life, to reduce the impact of an outbreak of injurious feather pecking and cannibalism during the production cycle. A recent study by Sandilands[6] (2009) found that 23% of untrimmed birds housed in enriched cages had to be beak trimmed later in the production cycle. Experimental studies have found that emergency beak trimming later on in life, rather than as chicks, can result in the formation of neuromas in the beak which are indicative of chronic pain. This has a significant welfare cost for laying hens.

8.6. England's laying hen industry would incur a significant impact to manage flocks at a lower risk of injurious pecking. At this stage, and after consultations with industry representatives, it is not clear which mitigation techniques would be viable for English laying hen flocks. The following strategies referred to in sections 8.7 to 8.11 are theortecially possible.

8.7. Reducing stocking density may reduce the incidence of injurious feather pecking and cannibalism. However, this strategy is unlikely to be economically viable. As a result, in the event of a ban on beak trimming, egg producers are not likely to reduce their stocking density in an attempt to mitigate the effects of a potential increase in mortality.

8.8. Switching to white strains of hens could be beneficial in the event of a ban on beak trimming, as these lines of hens may be less prone to feather pecking and cannibalism. From a database of 35 flocks of various breeds kept in enriched cages in Sweden (LayWel), no effect of breed on gentle or severe feather pecking was identified. Although, an earlier small scale study found that mortality rates of non beak trimmed hens were lower for white strains of hens compared to brown strains of hens.[7] Furthermore Sandilands (2009) found that white untrimmed birds housed in enriched cages had better feather coverage compared with brown untrimmed strains. Increased feather cover may increase feeding efficiency, hence reducing feed costs and improving profitability.

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[5] http://www.laywel.eu/web/pdf/deliverables%2031-33%20health.pdf

[6] Sandilands (2009) Defra final report: A study to compare the health and welfare of laying hens in different types of enriched cage

[7] Abrahamsson and Tauson, 1995: De Kalb White non beak trimmed hens had a mortality rate of 2.2%, and 0.2% of hens had wounds; whereas Lohmann Brown hens had 14% and 9% respectively.

8.9. There is mixed evidence on the relative productivity of white and brown strains. Singh[8] et al (2009) found improved productivity in one white strain when compared with other strains including brown hens. Sandilands (2009) found that brown hens in enriched cages produced heavier eggs, with a thicker shell. White hens were more fearful, however, mortality was slightly higher in brown birds compared with white birds.

8.10. White birds may be an option to help the Government to deliver its long term goal of reducing the number of mutilations. However, white hens produce white eggs which are more prone to showing marks and as the washing of eggs is prohibited in the EU, this is a significant constraint to adopting new strains of birds.

8.11. An EFSA report[9] on the welfare aspects of laying hens (2005) suggests that using group selection methodology to prevent against injurious pecking strains is not commercially viable and conflicts with other commercially viable traits. But, ultimately it is a possible method to reduce the incidence of cannibalism.

8.12. In consultation with industry and for the purposes of quantifying the costs and benefits of the policy options in this final Impact Assessment, we have assumed that the strategies described above to reduce the risk and severity of an outbreak of feather pecking and cannibalism are currently not practicable for the egg industry. Therefore we have assumed that if a ban on routine beak trimming came into force on 1st January 2011 (Option 1) there would need to be an increase in labour devoted to inspecting flocks of laying hens to identify an outbreak of feather packing and cannibalism and to take appropriate action.

9. Wider context of beak trimming

9.1. The vast majority of the EU utilise the derogation in EU Council Directive 2007/43/EC to allow beak trimming. However, three EU countries do not beak trim: Sweden, Finland and Austria. The Netherlands plan to ban beak trimming from 2012. In addition, Norway and Switzerland do not beak trim laying hens.

9.2. The issue of beak trimming fits into a wider context where the use of conventional cages to keep laying hens will be banned from 1st January 2012. Therefore the risk to the welfare of laying hens from injurious pecking is likely to increase after the ban on conventional cages comes into force, as injurious pecking is greatest in systems of management which do not house birds in cages.

9.3. Scientific evidence has provided us with information on the welfare costs of beak trimming by both hot blade and infra-red techniques. On balance, the potential welfare consequences of not beak trimming outweigh the welfare consequences of allowing beak trimming. However, it is important to minimise the welfare costs associated with beak trimming and therefore a small number of studies have been carried out to assess the welfare impact of the procedure.

9.4. FAWC recently reviewed the most up to date evidence, including results of research by Glasgow University[10] which examined the neuro-physiological effects of infra-red beak treatment and concluded that infra-red technology posed the least welfare consequences of the techniques available. The evidence suggests that acute pain is probable in all

[8] Singh et al (2009) Production performance and egg quality of four strains of laying hens kept in conventional cages and floor pens. Poultry Science 88(7): 1346 – 1351

[9] The EFSA Journal (2005) 197, 1-23; The welfare aspects of various systems of keeping laying hens

techniques but that the risk of chronic adverse consequences for nerve function in beaks trimmed using infra-red technology is lower compared with when the hot blade technique is used. Observations of infra-red beak trimming by FAWC showed other advantages over manual hot trimming methods. These included the absence of an open wound with potential reduction in secondary bacterial infection, whilst achieving precise and consistent removal of the tip of the beak.

10. Current Industry position on Beak Trimming

10.1. As the costs and benefits of this final Impact Assessment are calculated on an annual basis, growing pullets have been excluded from the estimates of the total number of birds beak trimmed each year. This is becuase it has been assumed that the growing pullet stock replenishes the laying flock, so excluding them from estimates of the annual number of beak trimmed birds avoids double counting these birds in two consecutive years (once as a growing pullets, and then as part of the laying flock). So we have used 19.6m birds per year for our calculations.

10.2. The current situation is that all hens housed in caged, free range and barn systems are routinely beak trimmed at present. These account for around 18.6m birds per year (approximately 94% of all layers, i.e. all laying hens except for those marketed as organic which are not beak trimmed). Of these 18.6m birds, 95% are obtained from the 4 main pullet hatcheries, which all currently use infra-red technology to beak trim chicks. Infra-red systems produce a high intensity heat that penetrates through the corneum layer down to the corneum growing basal tissue to burn the tip of the beak and to stop germ layer growth. The end of the beak is shed approximately 2 weeks post treatment. This represents around 17.5m hens each year which are beak trimmed using infra-red technology.

10.3. The remaining 5% of hens housed in caged, free range and barn systems are beak trimmed using a hot blade; this is around 0.978m birds per year. The ‘hot blading’ technique utilises a heated blade which simultaneously cuts and cauterises the beak tip.

10.4. Approximately 6% of all laying hens are currently reared to organic standards. This equates to 1.1m birds. The organic standards set by the certification bodies in England preclude the routine beak trimming of organic laying hens. In some organic schemes, a flock can be beak trimmed in an emergency to control an outbreak of feather pecking and cannibalism under derogation from the certification body based on a veterinarian’s advice as being necessary for good welfare. These derogations would be classified as an emergency in The Mutilations (Permitted Procedures) (England) Regulations 2007 and are therefore unaffected by the majority of the amendments being made. The organic sector has been excluded from calculations in the majority of the final Impact Assessment, although this sector was included in the consultation Impact Assessment. The impact of the amendment to the training provision for those individuals who carry out emergency beak trimming will impact the organic sector and have been included in the costs in the relevant section.

10.5. This means that across all housing systems, 18.6m birds are beak trimmed per year. Of these, 17.5m are beak trimmed using infra-red technology and 0.978m birds are beak trimmed using hot blading technology. In percentage terms, 95% of beak trimmed birds are treated with infra-red technology and 5% are beak trimmed with hot blading technology.

10.6. Most birds will not be trimmed again but in an emergency, birds can be beak trimmed after 10 days of age to mitigate welfare problems caused by feather pecking and

cannibalism. The method used to carry out emergency beak trimming must be suitable, as defined in The Mutilations (Permitted Procedures) (England) 2007, and the method adopted by the laying hen industry is 'hot blading'.

11. Description of options considered at consultation

11.1. We considered three policy options during a public consultation:

- **Option 1:** Do nothing (which would mean a ban on all methods of routine beak trimming from 1st January 2011)
- **Option 2**: Allow routine beak trimming using any method as long as it is carried out with a suitable instrument and any subsequent haemmorrhage is cauterised (i.e. the current situation)
- **Option 3**: Allow routine beak trimming using only infra-red technology.

11.2. Our preferred option in the consultation Impact Assessment was Option 3, to allow beak trimming using only infra-red technology as there is evidence that other methods may be more detrimental to the welfare of laying hens in the long-term. Current evidence has indicated that infra-red beak trimming does not cause changes in beak nerve structure indicative of chronic pain (see section 13.5.2 for further details).

11.3. **Option 1 is set as the baseline. Unusually, the 'do nothing' option is not the same as the current situation. At the moment routine beak trimming is permitted; however, without Government intervention, a ban will come into force by 2011.**

12. Outcome of consultation

12.1. A 12 week consultation between January and April 2010 was run to canvass opinions on the options outlined in a consultation Imapct Assessment and associated documentation. There were 22 repsonses to the consultation representing a wide range of organisations including industry bodies, animal welfare oganistaitons, veterinary groups and scientific and agriculutal institutions. We posed five questions during the consultation. Four of these questions are relevant to the final Impact Assessment and are summarised below. Of the 22 responses received who commented on the questions:

12.2. 15 agreed that the welfare of laying hens would be maintained by Option 3 and the Government should postpone the ban on beak trimming and permit routine beak trimming using infra-red technology only. The remaining 7 were not in agreement with this approach.

12.3. 7 agreed with the Government's proposal outlined in the consultation that no specific date for a review of the deferment of the ban on beak trimming for laying hens should be set. 12 respondents were against the Government not setting a date for a review. Of these, 5 were in favour of upholding the 2011 ban, 5 respondents sugessted a date for review should be set for 2015 or earlier and 2 respondents were in favour of review date of 2013. As a result of the comments in the consultation and in line with the recommendation by the FAWC, we have decided to set a review date of 2015, with a view to banning routine beak trimming of laying hens in 2016, to allow the ban on conventional cages to become established. In addition, the timing of the review will allow us to wait for the industry to complete study tours of other Member States who have banned beak trimming and await the findings of an on-going research project.

12.4. 5 respondents agreed with the costs and benefits outlined in the consultation Impact Assessment. A further 2 respondents were also in broad agreement and 6 provided various observations on the costs and benefits. Relevant amendments to the costs and benefits of the preferred Option (Option 3) have been updated in this final Impact Assessment and specific details can be found in section 13.

12.5. 5 were in general support of the amendement in the draft Statuatory Instrument but suggested changes to the emergency provisions to ensure that this procedure was carried out by a trained individual. This approach has been accepted and the costs and benefits in section 13 have been amended to reflect this approach.

12.6. As a result of the consultation our preferred option remains Option 3 with the addition of a review date of 2015, with a view to banning routine beak trimming of laying hens in 2016, and inclusion of a training provision for those that carry out emergency beak trimming. These changes, along with the removal of organic laying hens from the majority of calculations (see section 10.4) and changes in the figures used for flock sizes are reflected in the costs and benefits of the preferred Option (Option 3) throughout the final Impact Assessment. Information on the change in figures has been provided in the relevant sections where they differ in the consultation and final Impact Assessments.

12.7. In addition to the consultation on the amendment to The Mutilations (Permitted Procedures) (England) 2007 relating to the beak trimming of laying hens, a consultation was carried out, amongst other issues, on the amendment of The Mutilations (Permitted Procedures) (England) 2007 to amend the mutilations provisions for conventionally reared meat chickens, including beak trimming. The changes are minimal and transpose the EU Council Directive 2007/43/EC. The amendment will ensure that if beak trimming of conventionally reared meat chickens is carried out, it should be done by a trained person, be restricted to birds that are less than 10 days of age, be after consultation and on the advice of a veterinarian and only be carried out to prevent feather pecking and cannibalism. The consultation closed on the 20th April 2009 and no responses were received in relation to the changes to the beak trimming provisions. No costs or benefits were identified in the consultation documents, including the Impact Assessment, as this procedure is not carried out on meat chickens, as they do not reach sexual maturity and therefore do not exhibit feather pecking or cannibalism behaviours

13. Detailed costs and benefits of the preferred Option: infra-red beak trimming only

13.1. The preferred option is to allow beak trimming using only infra-red technology. The costs and benefits of this option are calculated below. These have been estimated in comparison to a ban on beak trimming coming into effect. Unusually, the 'do nothing' option is not the same as the current situation. At the moment routine beak trimming is permitted; however, without Government intervention, a ban will come into force by 2011.

13.2. Under this option, the 5% of beak trimmed birds, 0.978m birds per year, currently beak trimmed using hot blading technology will be required to switch to infra-red technology. It has been assumed that these birds would in future all be beak trimmed using the infra-red technology.

13.3. The costs and benefits of this option set out below are similar to those presented in the consultation Impact Assessment. There have been a few minor changes to the costs and benefits, following a few queries raised during the consultation period about our estimates. These are described below in the relevant sections. The inclusion of training requirements for those that perform emergency beak trimming have been added to the costs and benefits estimations and can be found in section 13.5.4.

13.4. FAWC identified in their consultation response that some costs and benefits were not included in the consultation Impact Assessment, but stated that there would be little net effect. FAWC stated that additional costs could include installation of infrastructure, for example a hydraulic air supply, telephone connection and electrical power supply which would not be covered by lease agreements. FAWC suggested that these additional costs though would be offset by a potential reduction in secondary bacterial infections and greater consistency of application resulting in reduced mortality and morbidity. As FAWC stated in their consultation response, it is not currently possible to quantify these benefits and it is likely that the net financial impact of the change in technology would be negligible. Due to the limited net impact we have not added these in the following sections.

13.5. **Costs of the preferred Option**

13.5.1. Potential acute pain during the beak trimming procedure

All laying hens that are beak trimmed, approximately 18.6m birds per year, may experience some short term acute pain during the beak trimming procedure. It has been assumed that beak trimming using infra-red and hot blading cause the same levels of possible short term acute pain during the beak trimming procedure, so the 5% of beak trimmed birds, 0.978m birds per year, currently beak trimmed using hot blading technology will face the same potential acute pain levels following the switch to infra-red technology.

13.5.2. Possible chronic pain from the beak trimming procedure

Under the preferred option, all laying hens that are beak trimmed will be trimmed using infra-red technology. The potential pain that these birds may experience is acute and seems, on current evidence, not to develop into chronic pain. The results of the Glasgow study investigating whether laying hens that had undergone beak trimming using infra-red technology caused chronic pain concluded that the technique does not cause changes in beak nerve structure indicative of chronic pain[10]. This conclusion was based on assessment of nerve structure using both histophathology and neuro-physiology techniques. In a separate study and using only histopathology assessment methods, Glatz and Hinch[11] identified nerve structures that may indicate chronic pain in the beaks of laying hens that had undergone infra-red beak trimming. The use of both histophathology and neuro-physiology assessment techniques is a more robust way of identifying if the nerve structures that are indicative of chronic pain are both present *and* functional. Therefore on balance, current evidence indicates that infra-red beak trimming is unlikely to cause chronic pain.

As hot blading will not be permitted under the preferred option, for birds switching from being beak trimmed by hot blade to infra-red technology, there will be a reduced risk of these laying hens developing chronic pain.

13.5.3. Cost of beak trimming procedure

13.5.3.1. The cost of beak trimming birds is 3p per bird. This cost is passed on to pullet rearers through an increase in the price of birds from hatcheries, compared to non-beak trimmed birds. We assume that this cost is further passed on to egg producers through an increase in the price of beak trimmed hens.

[10] McKeegan (2009) Defra final report: Chronic neurophysiological and anatomical changes associated with infra-red beak treatment http://randd.defra.gov.uk/Document.aspx?Document=AW1139_7989_FRP.pdf

[11] Glatz and Hinch (2009) Effect of hot blade and infrared beak trimming on beak condition, production and mortality of laying hens. Proceedings of Poultry Welfare Symposium Cervia, Italy, 18-22 May 2009

13.5.3.2. Table 4 sets out the annual costs per egg producers. This translates to an annual cost of £0.554m per year.

13.5.3.3. The costs of beak trimming using infra-red technology or hot-blading technology are the same, which means that there will be no additional cost for producers that are currently using hot blading technology to switch to using infra-red technology. There is no cost to the hatchery to buy infra-red beak trimmers as they are leased from the manufacturers and the cost is ultimately passed onto the egg producer at a cost of 3p per bird. As stated earlier, we acknowedge that additional infrastructure costs may be payable. These costs may be passed onto producers but they should be offset by improvements in morbidity and mortality (see section 13.1).

13.5.3.4. The preferred option will not restrict maunfacturers of hot blade equipment from supplying such equipment to laying hen producers for use on farm in an emergency in an identical way to Option 1, the ban on beak trimming coming into force. There is a risk of costs associated with strengthening the infra-red equipment manufacturer's monopoly. (See Competition assessment in section 16.1).

Table 4: Annual cost of the routine beak trimming procedure

Housing System	Number of birds beak trimmed per holding p.a.	Cost per producer p.a.	Number of holdings	Total cost p.a.
Column no.	1	2 = col.1 * £0.03	3	4 = col. 2 * col. 3
Caged	352k	£10,560	32	£0.336m
Free Range	12.0k	£360	525	£0.189m
Barn	30.0k	£900	32	£0.029m
Total cost				£0.554m

13.5.4. Cost of training staff who carry out emergency beak trimming

13.5.4.1. In light of the Consultation responses, it was decided that producers will still be able to carry out emergency beak trimming on their flocks if required. This amendment to the Mutilations (Permitted Procedures) (England) 2007 Regulations has introduced a requirement that staff who carry out this procedure are appropriately trained. 75% of all holdings, 546 holdings, would undertake emergency beak trimming themselves and the remaining 25% of holdings, 182 holdings, will contract out emergency beak trimming. It is reasonable to assume that emergency beak trimming contractors will be sufficiently trained to undertake this procedure.

13.5.4.2. For the holdings that undertake emergency beak trimming themselves, we expect that 50% of staff will need additional training, this is 546 staff (based on 2 staff per holding carrying out emergency beak trimming * 546 holdings * 50% need training). We anticipate that this training will be done in-house by a more experienced member of staff, so the cost of this training will be the staff time for stockmen being trained and those doing the training. We estimate that it will cost £60 per person being trained, assuming 3 hours per training session, average trainee wage of £7 per hour and average trainer wage of £13 per hour. So there will be a total transition cost of £32,700 to train staff to carry out emergency beak trimming.

13.5.4.3. On an ongoing basis, the costs to industry are dependent on the number of new stockmen expected to join the industry, estimated to be around 110 per year (based

on 10% annual staff turnover). The annual costs reflect the costs training these staff, £60 per stockmen as before. So the annual cost of training will be £6,500.

13.5.5. Government costs

13.5.5.1. There will be no change to government costs if beak trimming is allowed to continue. This is because there will be no changes to enforcement costs, as hatcheries, pullet rearers and egg producers are already checked regularly by competent authorities.

13.6. **Benefits of the preferred Option**

13.6.1. Decreased injurious feather pecking of laying hens

13.6.1.1. Allowing routine beak trimming will decrease the incidence of injurious feather pecking amongst laying hens compared to a ban on beak trimming. This is because beak trimming reduces feather pecking behaviour causing injuries to laying hens.

13.6.1.2. It has been assumed that injurious feather pecking affects between 40% and 80% of non beak trimmed hens, and that beak trimming hens decreases the incidence of injurious feather pecking to between 0% and 20%. This reduces the number of hens affected by injurious feather pecking by between 20 percentage points (from 40% in non beak trimmed hens to 20% in beak trimmed hens) and 80 percentage points (from 80% in non beak trimmed hens to 0% in beak trimmed hens).

13.6.1.3. Table 5 sets out the decreased number of hens affected by injurious feather pecking per annum across holding systems. In total, between 3.69m and 14.8m fewer hens will be affected by injurious feather pecking per annum compared with if a ban on beak trimming was allowed.

Table 5: Reduced number of hens affected by injurious feather pecking per annum if beak trimming is permitted.

Housing system	Average flock size	Decrease in injurious feather pecking per holding p.a.	Number of holdings	Total decrease in injurious feather pecking p.a.
Column No.	1	2 = (column 1 x 20% to col.1 x 80%)	3	4 = (column 2 x col.3)
Caged	352k	70k – 282k	32	2.24m – 8.95m
Free Range	12k	2.4k – 9.6k	525	1.26m – 5.04m
Barn	30k	6k – 24k	32	0.194m – 0.776m
Total Benefit				3.69m – 14.8m

13.6.2. Decreased mortality of laying hens

13.6.2.1. Allowing routine beak trimming will decrease the mortality rates of laying hens, compared to a ban on beak trimming (Option 1), due to a decreased incidence of cannibalism. This has both welfare and financial benefits, through a decrease in mortality and an increase in egg production.

13.6.2.2. Given the known variation in mortality rates due to cannibalism, a range has been estimated to calculate the scale of the potential decreased hen mortality. It has been assumed that non-beak trimmed hens have a mortality rate, due to cannibalism, of between 0% and 20%. 0% is likely to be an underestimate, but reflects the possible use of emergency beak trimming should an outbreak occur, mitigation efforts made by egg producers to reduce mortality, and the uncertainty about how frequently outbreaks of cannibalism occur. In contrast, 20% has been set a maximum, as whilst very high mortality rates may occur in individual flocks, it is unlikely that all flocks will experience outbreaks of cannibalism.

13.6.2.3. It has further been assumed that beak trimmed hens have a mortality rate, due to cannibalism, of between 0% and 2%. However, as a lower bound on the difference between the mortality rates of beak trimmed and non beak trimmed hens, it has been assumed that beak trimming does not affect the mortality rates of laying hens. So, as a minimum, beak trimmed hens and non beak trimmed hens will have the same mortality rates.

13.6.2.4. If beak trimmed hens and non beak trimmed hens have the same mortality rate, allowing beak trimming will not change the mortality rates of laying hens, this represents a 0 percentage point decrease. However, if non beak trimmed hens have a mortality rate due to cannibalism of 20% whilst beak trimmed hens experience a rate of 0%, allowing beak trimming will decrease mortality rates due to cannibalism of laying hens by 20 percentage points, from 20% to 0%. This means that allowing beak trimming is expected to decrease cannibalism related mortality rates in laying hens by between 0 percentage points and 20 percentage points.

13.6.2.5. Table 6 sets out the decreased number of hen deaths per annum across holding systems. The total decrease in hen deaths is between 0 and 3.69m hens per annum.

Table 6: Decreased hen deaths per annum as a result of cannibalism

Housing system	Average flock size	Decrease in hen deaths per holding p.a.	Number of holdings	Total decrease in hen deaths p.a.
Column No.	**1**	**2 = (col. 1 x 0% to col. 1 x 20%)**	**3**	**4 = (col. 2 x col. 3)**
Caged	352k	0 – 70.5k	32	0 – 2.24m
Free range	12k	0 – 2.4k	525	0 – 1.26m
Barn	30k	0 – 6.0k	32	0 – 0.194m
Total benefit				**0 – 3.69m**

13.6.3. <u>Increased egg production</u>

13.6.3.1. Fewer hens deaths during the laying period will increase egg production. For the purposes of the calculation, the midpoint reduction in mortality rates, of 10 percentage points, has been assumed.

13.6.3.2. The size of increase in egg production will depend upon when an outbreak of injurious feather pecking and cannibalism would have occurred during the laying period. This is difficult to assess, and is likely to vary across flocks. As a result, it has been estimated that the outbreak would have occurred with between 25% and 75% of the laying period remaining. When beak trimming is allowed, there would be higher egg production in the remaining period, as there are more hens compared to the scenario under a ban on beak trimming (Option 1).

13.6.3.3. The increased revenue for egg producers from the additional egg production is offset against the increased feed costs that result from keeping more hens. It has been assumed that all other production costs will remain constant, as they are fixed costs which are planned at the beginning of the laying cycle.

13.6.3.4. This benefit calculation varies across housing systems and is set out in detail in Table 9 (Appendix 1). A summary of these benefits is shown in Table 7. The total benefit for the egg industry is between £3.37m and £10.1m per annum.

13.6.4. Decreased labour costs

13.6.4.1. Allowing routine beak trimming is anticipated to decrease labour costs for egg producers compared with a ban on beak trimming. This is because the length of flock inspections is expected to decrease, by around 0.5 hours per day. Assuming an egg producers' staff time is worth £7 an hour, this translates to an average annual benefit of £1.29k per egg producer.As mentioned above (see section 7.2), following industry responses during the Impact Assessment consultation, we have reduced the number of producers that have caged holdings, from 627 to 32. As the reduction in labour costs has assumed to be a given benefit per producer, this reduction in the number of producers has reduced the overall cost saving. Therefore, the total industry benefit is £757k per annum.

Table 7: Total monetary costs and benefits per annum

Cost and benefit type	Costs and benefits per producer	Total industry costs and benefits
Transition Costs		
Training staff to emergency beak trim	£120	£32,700
Annual Costs		
Beak trimming procedure	£10,600 (Caged) £360 (Free range) £900 (Barn)	£0.554m
Training costs for staff who beak trim	-	£6,500
	Total Transition Costs Total Annual Costs	£0.033m £0.560m

Annual Benefits		
Egg production	£46.3k - £139k (Caged) £3.30k - £9.89k (Free range) £5.40k - £16.2k (Barn)	£3.37m - £10.1m
Labour costs	£1.29k	£0.757m
	Total Annual Benefits	£4.13m - £10.9m

13.6.4.2. The non-monetary benefit is 3.69m-14.8m fewer hens affected by injurious feather pecking per annum as well as a decrease in hen deaths by 0 - 3.69m per annum leading to an improvement in the welfare of laying hens.

14. Risks and assumptions

14.1. There is a risk that the industry do not comply with the amendment to the Mutilations (Permitted Procedures) (England) Regulations 2007 and continue to beak trim the 5% of birds currently trimmed per year using a hot blade. This would reduce the expected benefits to the welfare of laying hens as they will experience a greater risk of chronic pain compared with those that are beak trimmed using infra-red technology. This has been mitigated by the discussions that the British Egg Industry Council has had with those rearers who currently routinely carry out this procedure using a hot blade.

14.2. There is a risk that industry are not aware there that staff who perform emergency beak trimming must be qualified to carry out this procedure. This has been mitigated by the discussions that the British Egg Industry Council has had with the industry.

14.3. There is a risk that more than a third of the beak is removed during routine or emergency beak trimming of birds intended to become laying hens or laying hens. This could reduce the welfare of birds that are beak trimmed. This risk is mitigated through risk based and random inspections of hatcheries, rearing units and laying hen units.

14.4. There is a risk to the welfare of laying hens from injurious pecking as it is likely to increase after the ban on conventional cages comes into force in 2012. The preferred option will mitigate this risk compared with the do nothing option.

14.5. Meat chickens are not beak trimmed either routinely or in an emergency in England at the present time and we have assumed this situation will continue.

15. Administrative burden and policy savings calculations

15.1. There are no additional administrative burdens to industry.

15.2. Policy savings to businesses need to be calculated from changes to the current industry practice of beak trimming using both hot-blading and infra-red technology. Note that this is different to the baseline, of a ban on beak trimming coming into place, used to calculate the costs and benefits of the preferred option. Compared to current industry practice, the preferred option does not introduce any policy savings and instead imposes a small additional cost from the requirements to have staff trained to carry out emergency beak trimming. As detailed above, this will represents a total annual cost of £6,500.

16. Wider impacts

16.1. Competition assessment

In assessing the competition aspects of these proposed options, four key questions need to be addressed:

i) Whether the proposals directly limit the number or range of suppliers?
ii) Whether they indirectly limit the number or range of suppliers?
iii) Whether they limit the ability of suppliers to compete?
iv) Whether they limit suppliers' incentives to compete vigorously?

16.1.1. Monopoly in beak trimming technology

Under current practice, of the birds that are beak trimmed routinely, about 95% of birds are beak-trimmed using infra-red technology and 5% are trimmed using hot-blading technology. Option 3 allows beak trimming by infra-red technology only. The machinery to undertake this procedure is made by one manufacturer, which has patented the equipment until the patent expires in 2015.[12] This will therefore increase the manufacturer's already strong monopoly position in the UK. At the present time, we understand from industry that this manufacturer has the same pricing policy for all of their customers outside of the USA. In this international context, the proposed option will have a much smaller impact on the manufacturer's monopoly position. Nonetheless, it may be the case that the manufacturer reviews its pricing policy following this amendment to the legislation, which could lead to an increase in the price charged.

However, the cost of beak trimming by either method is 3p per bird, which is a very small proportion of total production costs. So the existence of such monopoly power may not be seen as having a significant impact on pullet rearers, and in turn egg producers.

16.1.2. Directly limits the number or range of suppliers

Restricting the permitted technology used to beak trim laying hens to infra-red technology only, will directly limit the range of suppliers of beak trimming technology, as alternative beak trimming technologies are no longer permitted. However, under this option, producers will still be permitted to use hot blade equipment on farm in an emergency in an identical way to Option 1.

16.1.3. Indirectly limits the number or range of suppliers

As the manufacturer has patented the equipment rather than the infra-red technology, it might be possible for other manufacturers to develop different equipment that also uses infra-red technology. Therefore, this option will not directly limit manufacturers from developing alternative infra-red equipment. However, this cost is likely to be significantly higher than the costs to the current manufacturer, so Option 3 may indirectly limit the number of suppliers of infra-red beak trimming technology.

16.1.4. Limits the ability of suppliers to compete; or limits suppliers' incentives to compete vigorously

Restricting the permitted technology used to beak trim laying hens to infra-red technology only, may limit the ability of suppliers of beak trimming technology to compete. This is because it is likely to limit the scope for innovation by suppliers to introduce alternative beak trimming technology that meet the required animal welfare standards to the English beak trimming market.

16.1.5. Competition assessment of egg producers

It is not felt that this proposed amendment will reduce the number or range of suppliers of layer flocks nor limit the ability of these suppliers to compete with each other for any of the

[12] United States Patent no. 5,651,731 Method and apparatus for debeaking poultry, applied for on 23rd June 1995

options proposed. Compliance with the amendment to the statutory instrument will not limit firms' ability to choose the price, range, quality and location of their products. The measures will not impose additional costs on new entrants compared to incumbent firms.

The layer sector is dominated by a small number of large suppliers. However, it is not thought that the amendment would affect the ability of other firms to compete with them – all farms would have to comply with the legislation.

16.2. Small Firms Impact Test
Almost all egg producers would be classified as a small firm, as they employ fewer than 20 full-time equivalent employees. Under the preferred Option there is a net benefit to egg producers, as described above. Establishments with less than 350 laying hens are excluded from the provision of the Regulations.

16.3. Sustainable Development
The proposed amendment is in accordance with the shared UK principles of sustainable development.

16.4. Carbon Impact Assessment
The proposed amendment will have no significant effect on carbon emissions, as in the main the nature and scale of conventional layer production and marketing is likely to remain the same.

16.5. Other Environmental Issues
As the nature of conventional layer production is likely to remain the same, the proposed amendment has no implications in relation to climate change, waste management, landscapes, water and floods, habitat and wildlife or noise pollution.

16.6. Health Impact Assessment
The proposed amendment will not directly impact on health or well being and will not result in health inequalities.

16.7. Race/Disability/Gender
A screening of the proposal against a checklist of questions as part of the Equality Impact Assessment has revealed that there is no impact on equality issues.

16.8. Human Rights
The amendment is consistent with the Human Rights Act 1998.

16.9. Rural Proofing
Although the majority of producers and many suppliers are based in rural areas, the proposed amendment will not have a negative effect on the rural community.

16.10. Justice system
The draft Regulations do not create any new criminal sanctions or civil penalties.

Appendix 1

Table 8: Mortality results of studies of beak trimmed and non beak trimmed birds

Author	Description	Mortality rate of non beak trimmed birds	Mortality rate of beak trimmed birds
ADAS, 2004 UK[13]	Hyline brown hens housed in caged systems	9.9%	1.9%
Hadorn et al., 2000 Switzerland[14]	ISA brown hens housed in aviary systems	12.3% (Cannibalism related mortality – 7.4%)	2.2% (Cannibalism related mortality – 0.3%)
Guémené et al., 2004 France[15]	ISA brown hens housed in caged conditions	36% - 52%	3% - 7%

Table 9: Increased egg production per annum – calculation table

Housing system	Number of holdings	Reduced hen deaths per holding (10 percentage point reduction in mortality rates assumed)	Annualised hen yield (dozen eggs)	Laying period remaining when outbreak avoided	Increased egg production per holding p.a. (dozen eggs)	Packer to producer price (£/dozen eggs)	Increased feed costs (£/dozen eggs)	Increased net revenue (£/dozen eggs)	Increased net revenue per holding p.a.	Total industry benefit
Column no.	1	2 = (col. 1 x 10%)	3	4	5 = (col. 2 x col.3 x col.4)	6	7	8 = (col. 6 - col. 7)	9 = (col. 5 x col. 8)	10 = (col. 9 x col. 1)
Caged	32	35,230	24.6	25% 75%	216,801 650,403	£0.54	0.33	£0.21	£46,252 £138,756	£1,469,186 £4,407,557
Free Range	525	1,200	22.3	25% 75%	6,692 20,077	£0.90	0.41	£0.49	£3,295 £9,886	£1,730,014 £5,190,043
Barn	32	3,000	23.1	25% 75%	17,308 51,923	£0.72	0.41	£0.31	£5,404 £16,213	£174,846 £524,537
									Total annual benefit - 25% laying period remaining	**£3,374,046**
									Total annual benefit - 75% laying period remaining	**£10,122,137**

[13] http://www.efsa.europa.eu/en/scdocs/doc/lh_scirep_final1,0.pdf
[14] Hadorn et al. (2000) Effect of beak trimming on brown growing pullets and laying hens, Agrarforschung
[15] Guémené et al. (2004)

Annexes

Annex 1 should be used to set out the Post Implementation Review Plan as detailed below.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

Basis of the review: [The basis of the review could be statutory (forming part of the legislation), it could be to review existing policy or there could be a political commitment to review];

Ministers have accepted the Farm Animal Welfare Council's recommendation to review the policy on laying hen beak trimming in 2015. The outputs of the review will be assessed with a view to banning routine beak trimming of laying hens in 2016.

Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]

Government has a commitment to reduce the number of mutilations carried out on farm animals. The objective of the review will be to explore the policy approach taken and assess the feasibility of banning the routine beak trimming of laying hens in 2016.

Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]

It is anticipated that between 2011 and 2015 there will be a number of developments, including research outputs and industry study tours of other Member States who have banned beak trimming, that will be reviewed to assess the relevance of the current policy position. In the meantime, the Beak Trimming Action Group, which consisits of key stakeholders, is being reconvened todevelop an action plan with a view to banning routine beak trimming of laying hens in 2016.

Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]

As the amendment being introduced is to maintain the current situation, unusually it will not be possible to assess the impact due to the policy change against the baseline. However, Government are committed to reduce the number of mutilations carried out on farm animals and therefore the post implementation review will focus on the feasibility of banning beak trimming in 2016.

Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]

Success of the policy objective will be no increase in the number of mutilations that are carried out and no change or a reduction in the number of on-farm Animal Health inspections that identify mutilations of laying hens as being non-compliant with the legislation or code and guidance.

Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review]

As stated above, Animal Health inspect the welfare of laying hens on-farm. During an inspection compliance of keepers with legislation, codes and guidance are recorded. These data can be interogated to assess compliance. Close engagement with industry, welfare groups and experts through the Beak Trimming Action Group will allow informal monitoring for future policy review. The competitive implications of restricting beak trimming to the use of infra-red technology only will also be monitored and reviewed between 2011 and 2015 and will feed into the post implementation review.

Reasons for not planning a PIR: [If there is no plan to do a PIR please provide reasons here]

There is no plan to review specifically the policy on beak trimming of conventionally reared meat chickens as this procedure is not carried out in England. However, a review of the implementation of all of the provisions in Council Directive 2007/43/EC will be carried out in 2013.