



STUDY ON THE APPLICATION OF THE BROILERS DIRECTIVE (DIR 2007/43/EC) AND DEVELOPMENT OF WELFARE INDICATORS

Final Report



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(DIR 2007/43/EC) AND
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INDICATORS**

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Directorate-General for Health and Food Safety

European Union Strategy for the Protection and Welfare of Animals 2012-2015

2017

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S1. EXECUTIVE SUMMARY

According to Article 6(3) of Directive 2007/43/EC¹ (the "Directive"), the Commission shall submit to the European Parliament and to the Council a report concerning the application of the Directive and its influence on the welfare of chickens, as well as the development of welfare indicators. This study, carried out by the Food Chain Evaluation Consortium, and led by Agra CEAS Consulting, provides an overview of broiler production in the EU. It also sets out the implementation of the Directive and the use made of animal-based welfare indicators used in slaughterhouses to provide information on animal welfare on-farm.

The study was based on a literature review, which drew on the European Food Safety Authority's (EFSA's) research into animal-based indicators and DG Health and Food Safety audit reports concerning implementation in various Member States. This was supplemented by an online survey of Member State competent authorities and a separate survey of national AVEC members representing the poultry industry. Full case studies were carried out in the seven main poultry producing Member States (France, Germany, Netherlands, Italy, Poland, Spain and the UK). Partial case studies, focusing on the use of animal welfare indicators, were carried out in Denmark and Sweden. Interviews were carried out with EU level stakeholder organisations.

S1.1. Implementation of the Directive

The national legislation implementing the Directive is usually a direct transposition. However, national legislation goes beyond the provisions of the Directive in Austria, Denmark, Finland, Germany, Netherlands, Sweden and the UK.

Article 3: Requirements for the keeping of chickens. Germany is the only Member State where housing requirements go beyond those set out in the Directive. Basic maximum stocking densities in Austria and Sweden are below 33 kg/m². Stocking density derogations are not taken up at all in Austria. The maximum permitted stocking density in Denmark is 40 kg/m² and in Sweden 36 kg/m². The derogation to allowing stocking densities up to 42 kg/m² is not taken up in Germany or the UK (it is taken up, but not used in Northern Ireland).

Article 4: Training and guidance for persons dealing with chickens. Only three Member States appear not to offer appropriate training courses. This is an improvement on the situation pre-implementation. Training courses offered generally follow the subjects set out in Annex IV of the Directive, but sometimes go beyond these requirements. Case study Member States have all established systems to control and approve training courses. Two-thirds of certificates awarded follow training courses and one-third have been awarded in respect of experience gained prior to 30 June, 2010.

Article 7: Inspection. Inspection regimes are in place in all 28 Member States. Some of these cover a proportion of all growers; others take a risk-based approach.

Article 8: Guides to good management practice. Guides have been produced in several Member States, sometimes by competent authorities and sometimes by industry bodies. Guides are also produced by integrators and retailers, and sometimes by animal

¹ Council Directive 2007/43/EC of 28 June 2007 laying down minimum rules for the protection of chickens kept for meat production.

welfare NGOs. There are some Member States where no guides appear to have been produced.

Article 9: Penalties. The use of penalties is low as these are considered to be a last resort and Member States have systems in place for corrective action where necessary. An escalating scale of penalties is normal. Penalty systems are generally considered to be effective by industry and competent authorities; animal welfare NGOs felt that sometimes trigger levels are not sufficiently strict.

Impacts of the implementation of the Directive. Practices changed little as a result of implementation in a number of Member States. Most impacts mentioned were positive, with the most widely mentioned being training provision, guides to good practice and animal welfare. The main negative impacts reported were administrative burden and time requirements for slaughterhouse staff and Official Veterinarians.

Costs of the implementation of the Directive. The largest estimated cost of implementation was in the UK. However, a large proportion of this related to the national decision not to take up the stocking density derogation to 42 kg/m². Even the large cost calculated was offset by estimates of consumer willingness to pay for the higher animal welfare delivered. Estimated costs in other Member States varied widely. Where little change resulted from implementation, costs were negligible. In other cases, annual costs to the industry ranged from around €1 million per year to up to €6 million. Additional, but lower, additional costs applied to competent authorities.

S1.2. Use of animal welfare indicators

Potential welfare indicators

Indicators need to be fit for purpose. This means that they must be both sensitive and specific so that they clearly identify causal factors which can be addressed on-farm. They should also be repeatable and reliable so that results are robust. Indicators should not impose an unreasonable burden on operators.

Certain indicators do not reliably inform about conditions on-farm because these injuries usually occur in catching, transport or the process of slaughter. Only indicators of hock burn and Foot Pad Dermatitis (FPD) have specific links through animal welfare consequences to environment/management factors. These links were also judged to be reasonably sensitive. "Iceberg" indicators² can also be useful as part of a screening process and when used in conjunction with other indicators and/or investigations.

Indicators currently in use

Several indicators of animal welfare are used, generally in line with the requirements associated with higher stocking densities in the Directive. However, not all the specified indicators are used in all Member States. Specific concerns were raised with mortality indicators in terms of the burden that data collection imposed on growers and the fact that these do not take account of birds culled for animal welfare reasons. In many cases, industry operators are unsure whether the indicators that they use are mandatory by law or are part of industry standards and/or voluntary higher welfare schemes. The use of voluntary indicators is driven by perceptions of consumer demand; these are more

² Those which indicate that there is an animal welfare problem, but which are not specific and therefore do not help in identifying the cause.

common in northern Member States, where stocking densities tend to be higher, than in southern Member States.

Indicators of the incidence of FPD are recorded in 18 Member States. These are based on the original Swedish approach in terms of the collection of data. However, calculations of values and associated trigger points differ in some Member States, as do consequences for breaching levels and subsequent follow-up activities. There is though a reasonable degree of conformity. Data are almost always collected manually, but automated camera systems are in use in a relatively small number of slaughterhouses.

Data recording of animal-based indicators is carried out by the Official Veterinarian or trained slaughterhouse staff under the supervision of the Official Veterinarian. Data recording and transmission is generally electronic. In some Member States, data are transmitted back to growers within hours, but in some the process can take a few days. There is also variety in the nature of data transmitted. Growers in some countries receive comprehensive data straight from the slaughterhouse, but some only receive data for some indicators unless trigger levels are exceeded. As a general rule, data transmission tends to be quicker and more comprehensive where the supply chain is integrated.

The exact structure of data transmission differs by Member State according to what is recorded; it also often differs within Member State by slaughterhouse. Some systems allow growers to benchmark their performance over time and also against the wider industry. The EFSA has produced a proposed data model which could serve as the basis for a harmonised approach. This would also be compatible with their Data Collection Framework and would thus allow analysis of data at the EU level.

Many growers will use indicator data to make any adjustments to management and environmental conditions that they feel are necessary, irrespective of whether any specific trigger levels have been exceeded. In many cases, issues will already have been identified whilst the flock was on the farm and necessary action taken. Action is usually required to be taken when trigger levels are exceeded. This can be automatic, but usually results from agreement between the grower and the farm veterinarian.

The use of indicators has resulted in a decline in the incidence of animal welfare consequences. There is quantitative evidence for decreases in the incidence and severity of FPD in Denmark and Sweden and qualitative evidence for similar improvements elsewhere. The use of bonus/malus systems by slaughterhouses has provided an economic incentive for growers to improve performance. Indicator data are also used in the breeding and feed industries.

Suitability of animal welfare indicators

The industry and competent authorities find FPD indicators the most suitable for identifying problems on-farm which can be addressed through management and/or environmental changes. Cumulative Daily Mortality Rate was also considered a useful "iceberg" indicator, although it is important to consider the impact of culling on the figures. Although EFSA concluded that hock burn can be related to management/environmental factors, it is considered likely that the FPD indicator would reveal the same problems and is more reliable.

S1.3. Findings on animal welfare indicators to be recorded at slaughterhouses

Following a study published by EFSA (2012b), only indicators of FPD and hock burn provide a relatively strong indication of problems linked to specific management/environmental factors. Indications of FPD are widely used across the European Union (EU) (18 Member States). This indicator is widely considered by both industry and competent authorities to be suitable in revealing animal welfare problems on-farm at a reasonable burden. The use of this animal-based indicator, alongside the indicators mandated in the Directive, is therefore considered to be proportionate and practical. Quantitative and qualitative evidence on the use of this indicator over time suggests that it is also effective in reducing the incidence and severity of FPD. Hock burn indicators are infrequently used. The use of this indicator was discontinued in the Netherlands where it was felt to be redundant given the use of the FPD indicator; stakeholders agreed with this conclusion.

There is a reasonable degree of coherence in terms of the way in which the FPD indicator is scored and data produced. However, there are differences in the trigger levels used and the action taken as a result. This means that growers in different Member States can operate with different "accepted" levels of FPD in their flocks and therefore different animal welfare consequences. Stakeholders found this inevitable, but noted that animal welfare outcomes should converge over time if similar indicator systems and follow-up are used.

The recording and transmission of indicator data is generally electronic. It is important that data arrive with the grower in time to make any necessary adjustments before the next flock is placed. The recording/transmission systems used differs by Member State. Some allow growers to benchmark their performance over time and against the wider industry which is useful. The exact design of the system does not seem to be an important factor, but it is noted that EFSA has produced a proposed data model which is compatible with their Data Collection Framework. This model could provide a harmonised approach which would also allow data to be uploaded to EFSA and analysed at the EU level.

In considering the use of animal-based indicators consistently across the EU it is useful to note the following points:

- FPD indicators are already widely used for commercial reasons related to markets for feet as well as for animal welfare reasons.
- Indicators used should add information, i.e. there is no need for indicators which are "redundant" in terms of what they add. The cost of additional indicators should be proportionate in terms of the additional information they provide. The use of an FPD indicator, supported by the array of "iceberg" indicators specified in the Directive, would seem appropriate and sufficient.
- The potential role of automated systems in providing consistent and comparable data, subject to existing limitations.
- The use of enforced stocking density reductions as a sanction for exceeding indicator trigger levels disrupts operators in the supply chain which are not responsible for animal welfare on-farm.
- The importance of ensuring that the use of indicators leads to improvements in animal welfare on-farm over time. This means that the feedback process and actions taken as a result are important. Setting a trigger level with reference to national industry averages could be helpful here as long as there is general improvement over time.

- There are limited examples of “slaughterhouse tourism” where growers send birds for slaughter in other Member States where feedback on indicators to the competent authority in the originator Member State may not take place. This could be stopped if information were always passed between Member States (as currently takes place between Belgian slaughterhouses and the Netherlands competent authority).
- When setting trigger levels, a balance needs to be found between resources available for controlling the system and the need to correctly uncover cases of poor animal welfare on-farm.
- Adequate and ongoing recalibration of manual (or automated) scoring systems should be undertaken to ensure that there is consistency between slaughterhouses and over time.

Given the above, it would appear that it is appropriate, effective and proportionate for the FPD indicator to be used throughout the EU as an animal-based measure of welfare to be recorded at slaughterhouses. Harmonised guidance could be produced on the use of this indicator covering best practice. This guidance could cover the approach to sampling in the slaughterhouse, the scoring of indicators and ongoing training to ensure consistency and the approach to setting trigger levels. However, trigger levels themselves should be determined by Member States with reference to the current incidence of FPD. Trigger levels could be set such that they will lead to improvements in the incidence of FPD over time. The guidance could also cover feedback to growers (form and timing), practical ways to reduce the incidence, etc. The possibility to use automated systems could be foreseen in any guidance produced.

Guidelines could be based on the revised definitions of FPD produced by EFSA and could follow the system developed in Sweden as this is already widely used. Guidelines could be supported by regular meetings between competent authorities and industry within Member States and in meetings at the EU level, for example through working groups or the existing Better Training for Safer Food (BTSF) programme.

ACRONYMS

Member States

AT:	Austria	IT:	Italy
BE:	Belgium	LV:	Latvia
BG:	Bulgaria	LT:	Lithuania
CY:	Cyprus	LU:	Luxembourg
CZ:	Czech Republic	NL:	Netherlands
DE:	Germany	SI:	Slovenia
DK:	Denmark	PL:	Poland
EE:	Estonia	PT:	Portugal
EL:	Greece	ES:	Spain
FI:	Finland	RO:	Romania
FR:	France	SK:	Slovakia
HR:	Croatia	MT:	Malta
HU:	Hungary	SE:	Sweden
IE:	Ireland	UK:	United Kingdom

ABBREVIATIONS

ACs:	Autonomous Communities
APHA:	(UK) Animal and Plant Health Agency
AHVLA:	Animal Health and Veterinary Laboratories Agency
ANSES:	(French) Agency for Food, Environmental and Occupation Health and Safety
AVEC:	Association of Poultry Processors and Poultry Trade
BFSA:	Bulgarian Food Safety Agency
BMEL:	(German) Federal Ministry for Food and Agriculture
BPC:	British Poultry Council
BTSF:	Better Training for Safer Food
CA:	Competent authority
CAB:	(Swedish) County Administrative Board
CDMR:	Cumulative Daily Mortality Rates
CIWF:	Compassion in World Farming
CRenBA:	National Centre for Animal Welfare of Brescia (Italy)
CVO:	Chief Veterinary Officer
DCF:	(EFSA) Data Collection Framework
DDPP:	(French) Direction départementale de la protection des populations
Defra:	(UK) Department of the Environment Food and Rural Affairs
DGAL:	(French) Direction générale de l'alimentation
DMR:	Daily Mortality Rate
DOA:	Dead On Arrival
DSVR:	(Portuguese) Department of Slaughterhouse Veterinary Regulations
DVFA:	Danish Veterinary and Food Administration
DVO:	(Latvian) District Veterinary Office
ECB:	European Central Bank
EFSA:	European Food Safety Authority
FAFSC:	(Belgian) Federal Agency for the Safety of the Food Chain
FBO:	Food Business Operator
FCEC:	Food Chain Evaluation Consortium
FCI:	Food Chain Information
FPD:	Foot Pad Dermatitis
FSA:	(UK) Food Standard Agency

FTE:	Full-Time Equivalent
GHG:	Greenhouse gas
IKB:	Integrated Chain Control
KIK:	(Danish) Kvalitetssekring I Kyllingeproduktionen
LTO:	(Dutch) Federation of Agriculture and Horticulture
MAGRAMA:	(Spanish) Ministerio de Agricultura, Alimentación y Medio Ambiente
NFA:	(Swedish) National Food Administration
NGO:	Non-Governmental Organisation
NFU:	(UK) National Farmers' Union
NVWA:	(Netherlands) Food and Consumer Product Safety Authority
OV:	Official Veterinarian
PCU:	(Belgian) Provincial Control Unit
PIA:	(UK) Poultry Inspection Assistant
PM:	<i>Post-mortem</i>
PPE:	(Netherlands) Product Board for Poultry and Eggs
QAFP:	(Poland) Quality Assurance in Food Products
QSO:	(Belgian) Quality Standard Organisation)
RFSD:	(Bulgarian) Regional Food Safety Directorates
RSPCA:	(UK) Royal Society for the Prevention of Cruelty to Animals
RVO:	Netherlands Enterprise Agency
SFVS:	(Lithuanian) State Food and Veterinary Service
SOP:	Standard operating Procedure
SQA:	Scottish Qualifications Authority
SVA:	(Czech Republic) State Veterinary Administration
SVQ:	(UK) State Veterinary Qualification
TRQ:	Tariff Rate Quota
UAA:	Utilised Agricultural Area
USDA:	United States Department of Agriculture
VO:	Veterinary Officer

1 INTRODUCTION

According to Article 6(3) of Directive 2007/43/EC³ (the "Directive"), the Commission shall submit to the European Parliament and to the Council a report concerning the application of the Directive and its influence on the welfare of chickens, as well as the development of welfare indicators. This report will need to take into account the different production conditions and methods employed. It will also need to take into account the socio-economic and administrative implications of the Directive including any regional aspects.

In order to provide information to feed into this report, DG SANTE issued a call for tenders under the Framework Contract for the Provision of Evaluation, Impact Assessment and Related Services (Lot 3, Food Chain). The Food Chain Evaluation Consortium (FCEC), led by Agra CEAS Consulting, was awarded the contract.

This study describes the current situation presenting the socio-economic, environmental, administrative, regional and welfare impacts of the application of the Directive. It also considers the welfare indicators used at slaughterhouses based on Member States' experiences to improve the welfare of broilers reared.

The scope of the study is restricted to the scope of the Directive, i.e. extensive indoor, free range and organic production are not covered, neither are breeding farms or hatcheries. The focus is on commercial holdings, i.e. those with at least 5,000 birds (although the Directive applies to holdings with at least 500 birds).

The time frame for the study is from 2008 to 2014, although we have used data outside this period where it is available and where it adds to the analysis. The geographical coverage is restricted to the seven main producing Member States (France, Germany, Italy, Netherlands, Poland, Spain and the UK) for the assessment of the implementation and nine Member States (the above plus Denmark and Sweden) for the assessment of the use of animal welfare indicators recorded at slaughterhouses. Information was gathered from all EU-28 Member States through our online survey of competent authorities.

This Report sets out:

- the methodology used in carrying out this study;
- a descriptive overview of the EU poultry sector;
- an analysis of the implementation of the Directive based on a review of DG Health and Food Safety reports and other key literature, online surveys of Member State competent authorities and national AVEC members, case studies and interviews with key EU-level organisations;
- the use of animal welfare indicators at slaughterhouses based on the same sources as listed above including conclusions on welfare indicators to be used;
- supporting annexes including:
- a full literature review of the European Food Safety Authority's (EFSA's) involvement in broiler welfare; implementation of the Directive as reflected in DG Health and Food Safety audit reports; and, the impact of the implementation of the Directive;
- full results from our online survey of Member State competent authorities and national Association of Poultry Processors and Poultry Trade (AVEC) members; and,

³ Council Directive 2007/43/EC of 28 June 2007 laying down minimum rules for the protection of chickens kept for meat production.

Study on the application of the broilers Directive and development of welfare indicators:
Final Report DG SANTE Evaluation Framework Contract Lot 3 (Food Chain)

- full case study monographs.

2 METHODOLOGY

This study was conducted using a number of interlocking methodologies.

2.1 Exploratory interviews

The study began with a series of exploratory interviews with the following organisations:

- Association of Poultry Processors and Poultry Trade in the EU countries (AVEC)
- British Poultry Council
- DG AGRI
- DG SANTE
- EFSA
- Eurogroup for Animals

These interviews were used to familiarise the project team with the issues of relevance to this study, obtain background information, sources and contacts for use in the study.

2.2 Literature review

A literature review was carried out based on relevant EFSA publications and DG Health and Food Safety audit reports. Further information was made available by consulted stakeholders and a range of other information was identified in the course of the study. The literature, and specifically the DG Health and Food Safety audits, was used to set out what is currently known about the implementation of the Directive. The information gathered in the exploratory interviews and via the literature review was used as the base for our subsequent primary research.

2.3 Online surveys

A full survey methodology is presented in Appendix 2. In brief, two online surveys were developed, one administered to the competent authorities in each Member State and one to national AVEC members as representatives of the poultry industry. For the competent authority survey, a contact list comprising national Chief Veterinarian Officers (CVOs) was provided to the contractor by DG SANTE. The survey was launched on 14 June, 2016 with a response deadline of 8 July, 2016. The survey of national AVEC members was also launched on 14 June with the same deadline.

It was necessary to follow-up both surveys and to extend the deadline for responses. Although time consuming, this approach was successful and responses from all 28 competent authorities were finally received with the last response provided on 27 September, 2016.

The industry survey was less successful with responses from 12 national AVEC members received by 25 August, 2016 (75%). This lower success rate is consistent with previous experience.

Responses were validated in terms of completeness, plausibility and internal and external coherence.

Completed survey responses were returned to respondents with omission and clarification queries relating to specific questions where required. Where amendments were necessary these were discussed via email and the survey response edited appropriately by the contractor. Where editing was necessary, the revised response was

returned for validation. Some entry errors were identified by respondents following the return of their submission and these were amended accordingly. Once any questions had been addressed the response was considered to be valid.

Once the survey was closed, data were extracted into an Excel spreadsheet, arranged to facilitate analysis and extracted to provide answers to specific questions by Member State. The results were then analysed using descriptive statistics and textual analysis. Full analysis of the competent authority survey is presented in Appendix 3 and analysis of the national AVEC member survey in Appendix 4 of this report.

2.4 Case studies

A complete case study methodology is presented in Appendix 5. In summary, full case studies were carried out in the seven main poultry producing Member States (France, Germany, Italy, Netherlands, Poland, Spain and the UK); the case studies in Denmark and Sweden were partial and focused on the use of animal welfare indicators recorded at slaughterhouses and the structure of transmitting data. However, a limited investigation of the implementation of the Directive was carried out to provide context.

Case study monographs were written up from the interview notes and are presented in Appendix 5 of this report. Evidence from different sources was triangulated to highlight areas of agreement and disagreement.

2.5 Main interviews with EU-level organisations

Interviews were carried out with the following organisations to provide an EU-level overview:

- AVEC (Association of Poultry Processors and Traders)
- CIWF (Compassion in World Farming)
- Copa-Cogeca (European Farmers, European Agri Co-operative)
- EFSA (European Food Safety Authority)
- Eurocommerce
- EFFAB (European Forum of Farm Animal Breeders)
- FEFAC (European Feed Manufacturers' Federation)
- FVE (Federation of Veterinarians of Europe)
- Marel Stork (equipment manufacturer)

Interview notes were returned to interviewees for validation. The insights provided were used throughout the report where appropriate.

2.6 Attendance at BTSF workshop

The contractor attended a Better Training for Safer Food (BTSF) workshop on the monitoring of indicators at slaughterhouse to improve on farm welfare of broilers by DG SANTE in late January, 2017. This event was highly relevant to the study and covered much of the same ground. Material presented at the event has been used throughout the report where appropriate.

3 OVERVIEW OF BROILER PRODUCTION IN THE EU

3.1 Overall production

Total poultry meat production in the EU-28 was 14.1 million tonnes in 2014. The most important share of this is broiler production which accounted for 11.0 million tonnes of this total (78%). The EU-28 is a major global producer of broilers and in 2014, the last year for which data are available, accounted for 11.3% of global production; only the US, China and Brazil are larger producers (Figure 3.1).

The largest EU-28 producer of broilers in 2014 was Poland, which accounted for 19% of the total. Together the largest seven producers (in order, Poland, UK, Germany, France, Spain, Italy and Netherlands) accounted for 77% of the EU-28 total (Figure 3.2).

Broiler production in the EU-28 increased from 9.3 million tonnes in 2009 to 11.0 million tonnes in 2014 (an increase of 18.6%). The evolution of production between 2009 and 2014 in the seven largest producing Member States is shown in Figure 3.3. These Member States increased production from 7.0 million tonnes in 2009 to 8.5 million tonnes in 2014 (22%). There is annual variation in the relative shares of production over time; the key point to note is that Poland has increased its share over this period.

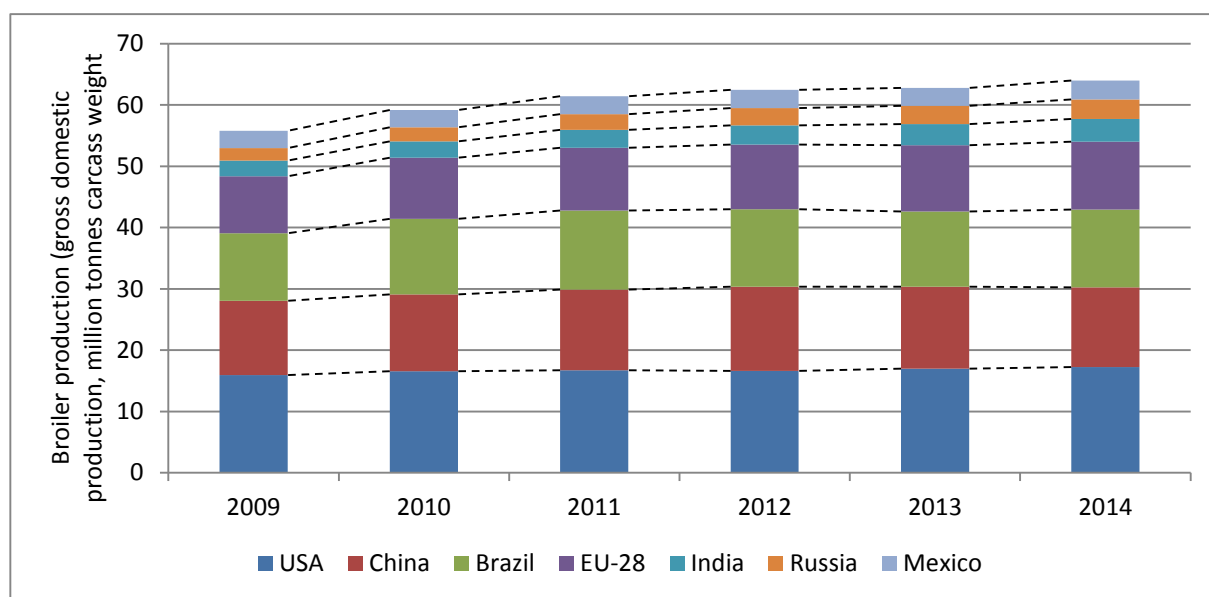


Figure 3.1: Broiler production in the main producing countries (Source: AVEC, 2015)

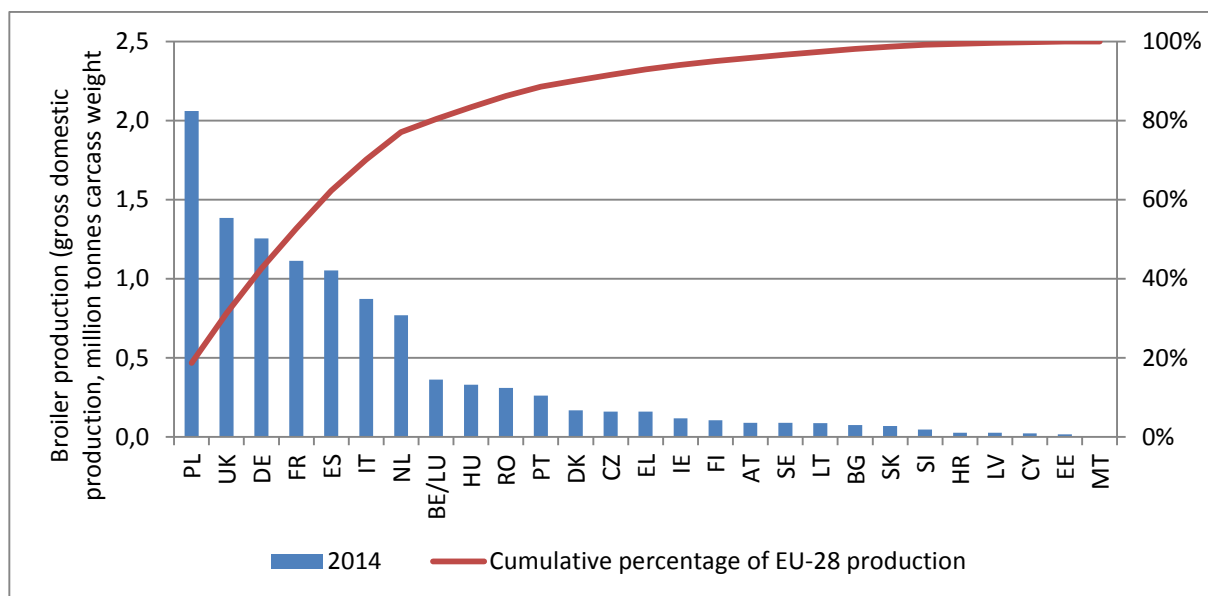


Figure 3.2: Broiler production in the EU-28 (source: AVEC, 2015)

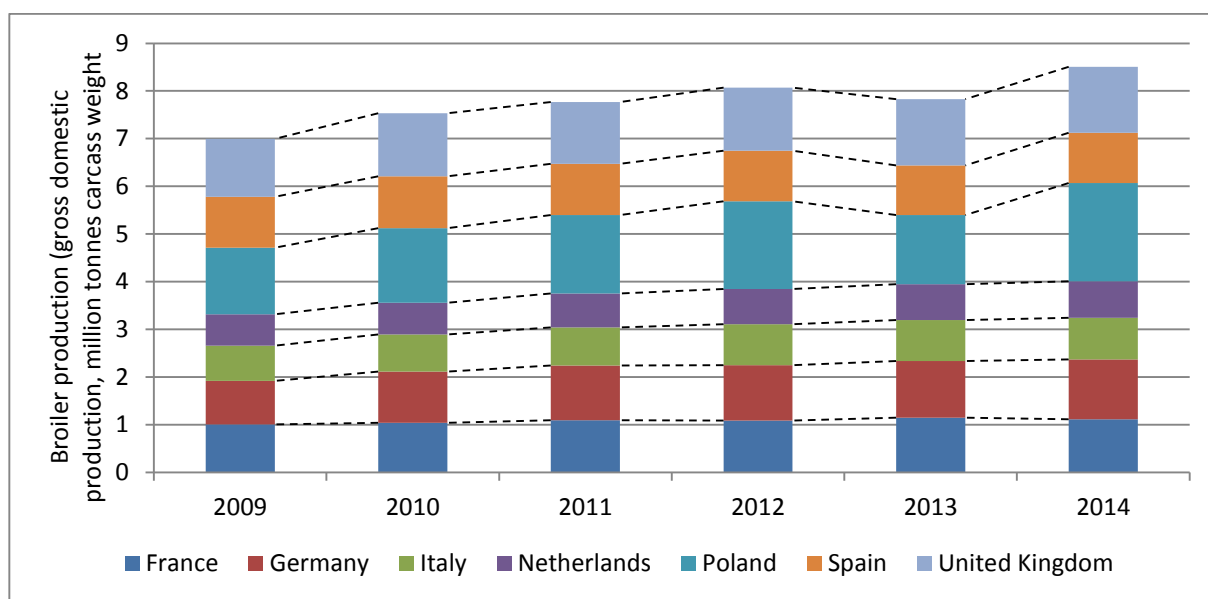


Figure 3.3: Broiler production in the main EU-28 producing Member States (Source: AVEC, 2015)

3.2 Commercial production, structure, management and employment

IBF (2013) explain that the broiler production sector begins with the breeding companies which select pure lines and produce crossbred grandparent and parent stock as day-old chicks. These are then grown on rearing farms to become broiler breeders which are moved at 20 weeks to broiler breeder farms where they produce hatching eggs for broilers. After incubation and hatching, these day-old broiler chicks are sent to broiler farms. These reach slaughter weight in 38-82 days, depending on breed and market, and are then delivered to slaughterhouses. Broiler meat is then sold to retail, food service and food industry markets.

The broiler sector in the EU is organised through two main organisational models, although in practice there is a continuum rather than two discrete approaches:

1. **Integrated production.** Under this approach several or all links in the production chain are under the control of one company. This process was started in the 1970s in Brittany as part of a push from feed compounders to integrate forwards whereas in the 1980s and 1990s integration reflected more of a backward push from slaughterhouses. Generally the hatchery, feed mill and processing plant are owned and controlled by the integrator. The integrator can also own the breeder and/or broiler farms, but many integrators choose to contract growing to individual growers. In this case the integrator provides the day-old chicks and the feed and retains ownership of the birds. The grower is then paid a set fee for their facilities, labour and non-feed variable costs. Producers are often organised (e.g. in France and Germany) in production groups (mainly cooperatives), which are responsible for negotiating the terms of the contracts with the industry.
2. **Non-integrated production.** Under this approach the different stages in the production chain are independent companies trading on the open market. This means that breeders and broiler growers buy feed and birds at their "own risk" (in other words they are entrepreneurs who own their own birds rather than contracted managers) and take responsibility for selling output to the next stage in the process. It is though common for the growers to have long-term contracts with slaughterhouses for the supply of birds. In contrast to integrated systems, growers are directly exposed to market fluctuations in the market for both feed and broilers.

Austria, France, Germany, Italy, Spain and the *UK* tend to follow the integrated model where production is based on contracts with large integrators. IBF (2013) report these large integrators as Doux and LDC in France, PHW-Gruppe in Germany, Gruppo Veronesi and Amadori in Italy, Sada in Spain and Hook/2 Sisters, Vion and Cargill in the UK. In **Belgium, Finland, the Netherlands, Poland** and **Sweden**, production tends to be non-integrated; both models exist in **Denmark** and **Hungary**. Further detail on industry structure and production systems is presented for the case study countries in Appendix 5.

Some 891.4 million broilers were produced on more than 2 million holdings in the EU-28 in 2013 (Eurostat⁴). However, many of these holdings are not commercial; broiler holdings in Romania account for three-quarters (74%) of total holdings. Commercial production is often defined as those holdings with more than 5,000 birds (LEI Wageningen, 2013). There were some 19,260 holdings with at least 5,000 broilers in the EU-28 in 2013. A total of 840.4 million broilers were kept on these holdings and thus 94% of broilers are held on less than 1% of holdings.

The number of broilers in each Member State is obviously correlated with production (see above). Just over four-fifths (82%) of commercial broiler holdings are located in the main seven producing Member States, as are 81% of all broilers. The scale of production varies widely across the EU-28 (Table 3.1). The average number of broilers on commercial holdings was 43,632 in 2013, but in the Czech Republic, Romania, Slovakia and Sweden, average numbers exceeded 100,000 (there are small numbers of commercial producers). The smallest average flock sizes are found in Croatia, Lithuania, Malta and Slovenia. Of course, averages can hide considerable variation and it is likely that there are both very small and very large commercial broiler holdings in all Member States

⁴ Poultry: number of farms and heads by agricultural size of farm (UAA) and size of broiler flock [ef_1sbroiaa].

Table 3.1: Average broiler flock on commercial holdings (>5,000 head)

	2005	2007	2010	2013
Belgium	29,529	31,047	34,903	42,018
Bulgaria	63,909	82,333	50,143	54,273
Czech Republic	73,364	94,250	117,000	115,917
Denmark	79,267	78,267	75,353	87,933
Germany	59,432	61,010	64,663	72,805
Estonia	:	:	:	:
Ireland	33,208	39,333	45,941	50,714
Greece	24,814	33,048	40,000	29,483
Spain	30,626	31,365	35,143	40,375
France	20,790	21,267	22,915	23,380
Croatia	:	10,250	10,895	16,111
Italy	73,132	61,409	60,639	64,587
Cyprus	54,667	49,000	24,000	25,000
Latvia	:	:	:	:
Lithuania	305,000	:	459,000	14,667
Luxembourg	:	:	:	:
Hungary	49,105	67,786	51,600	59,944
Malta	13,333	13,000	14,250	16,000
Netherlands	60,890	59,329	72,113	80,382
Austria	18,786	20,516	21,000	21,419
Poland	34,034	33,644	41,442	33,960
Portugal	22,870	22,774	25,160	27,356
Romania	174,000	178,000	186,083	236,556
Slovenia	13,167	13,833	13,706	15,533
Slovakia	121,833	152,800	108,500	137,250
Finland	37,143	33,500	42,200	52,769
Sweden	83,000	82,875	80,250	113,143
United Kingdom	93,504	97,775	99,962	94,490
EU-28	39,416	39,989	42,395	43,632

Source: Eurostat (ef_lsbroiaa): = no data.

An analysis of production according to stocking density using data provided through our online survey of Member State competent authorities (see A3.2 in Appendix 3) shows that, for the EU-28 as a whole, a third (34%) of broilers are kept at stocking densities not exceeding 33 kg/m², 40% are kept at stocking densities between 34 and 39 kg/m² and a quarter (26%) are kept at stocking densities between 39 and 42 kg/m² (Table 3.2). More than half (55%) of broilers stocked at the highest density are in France, with 18% located in the Netherlands and 9% in Belgium.

Table 3.2: Broiler distribution by stocking density (2013, '000 head)

	Less than or equal to 33 kg/m ²	Between 32 and 39 kg/m ²	Between 39 and 42 kg/m ²	% use of highest stocking density by Member State
Austria	7,080	0	0	0%
Belgium	1,164	1,164	20,952	9%
Bulgaria	6,140	0	0	0%
Croatia	9,419	194	97	0%
Cyprus	1,153	87	0	0%
Czech Republic	2,938	10,493	560	0%
Denmark	264	661	12,295	5%
Estonia	13	508	749	0%

	Less than or equal to 33 kg/m ²	Between 32 and 39 kg/m ²	Between 39 and 42 kg/m ²	% use of highest stocking density by Member State
Finland	0	274	6,586	3%
France	10,765	16,917	126,108	55%
Germany	0	97,150	0	0%
Greece	19,380	0	0	0%
Hungary	10,802	569	0	0%
Ireland	357	6,774	0	0%
Italy	5,036	95,675	0	0%
Latvia	1,800	0	0	0%
Lithuania	1,930	3,980	121	0%
Luxembourg	20	0	0	0%
Malta	614	6	0	0%
Netherlands	885	2,212	41,143	18%
Poland	68,051	9,607	2,402	1%
Portugal	17,050	0	0	0%
Romania	5,022	14,062	14,396	6%
Slovakia	3,608	1,332	611	0%
Slovenia	1,487	1,316	57	0%
Spain	113,413	9,970	1,246	1%
Sweden	478	7,482	0	0%
United Kingdom	17,057	77,703	0	0%
EU-28	305,923	358,135	227,322	
EU-28 percentage	34%	40%	26%	

Source: Eurostat (ef_Isbroiaa) and FCEC calculations.

There are alternatives to what is generally understood as commercial production. The conditions and names of these are set out in Regulation (EC) No 543/2008⁵ as “extensive indoor”, “free range”, “traditional free range” and “free range, total freedom”. Organic production is regulated under Regulation (EC) No 834/2007.⁶ European Commission (2016a) notes that while there are no statistics on the size of this sub-sector, industry experts estimate the market share to be between 5% and 10% of total production.

The online survey of national AVEC members found that the most widely used breed in the EU is Ross. LGC (2016) found that Ross breeds account for at least 70% of all broilers slaughtered in the EU with Hubbard and Cobb breeds less widely used. The use of slower growth breeds is typically less than 5%, although slower growth breeds are more important in **Austria**, the **Netherlands** and **France** (see Appendix 4 for further details). There has been no change in the breeds used as a result of the implementation of the Directive.

The production cycle for the main commercial breeds varies slightly across the EU with an average of approximately 40 days. This is followed by an empty period of 11 days on average (see Appendix 3 and Appendix 4 for further details). The production cycle has not been affected by the implementation of the Directive.

⁵ Commission Regulation (EC) No 543/2008 of 16 June 2008 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 as regards the marketing standards for poultrymeat (OJ L 157, 17.6.2008, p. 46).

⁶ Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (OJ L 189, 20.07.2007, p. 1).

Broiler management on commercial farms varies across the case study countries in terms of scale and general approach (see above for a discussion on integration and Appendix 5 for full details). However, management is guided by the provisions of Annex I of the Directive and the basic management framework generally changed little following the implementation of the Directive. Examples of changes that have been noted include improvements in ventilation and heating systems in **France, Germany** and the **Netherlands**; heated floors are sometimes used in the Netherlands to keep litter dry. In **Germany**, stocking density increased from 35 kg/m² to 39 kg/m² following the implementation of the Directive.

The extent of employment on commercial broiler farms depends on the degree of automation and the size of the farm. A farm manager is supported by one or two farm workers, depending on scale. Feed and water distribution is usually automated. The main labour requirement is for depopulation and cleaning at the end of the production cycle and these tasks are usually carried out by temporary workers or are contracted out. Depopulation is sometimes automated, but manual depopulation remains the norm. Further detail on employment in the broiler industry is set out in the case studies in Appendix 5.

There is no EU wide central database recording the number of slaughterhouses active in the poultry sector, but Member State competent authorities hold information on approved slaughterhouses for their individual country and report it to the Commission. An examination of this material reveals that there are 1,356 poultry slaughterhouses in total. However, these data include all EU approved premises regardless of scale; a relatively small number of slaughterhouses will account for the majority of production. Table 3.3 presents the number of poultry slaughterhouses by Member State.

Table 3.3: EU approved poultry slaughterhouses

	2016	Notes
Belgium	69	Poultry only: 44; poultry and rabbits: 25
Bulgaria	19	Activities in a further 11 establishments are listed as being temporary suspended
Czech Republic	35	
Denmark	12	
Germany	240	Poultry only: 206; poultry and rabbits: 34
Estonia	3	
Ireland	7	A further 10 operate under Local Authority control (low throughput)
Greece	30	Poultry only: 27; poultry and rabbits: 3
Spain	123	
France	53 (2013)	This figure is for slaughterhouses with annual production of more than 2.5 million broilers. There are a lot of small-scale slaughterhouses in France (~650), and a further ~300 farm slaughterhouses (approved for both poultry and rabbits)
Croatia	48	Poultry only: 27; poultry and rabbit: 4; mixed species including poultry: 17
Italy	146	Poultry only: 76; poultry and rabbits: 70
Cyprus	24	
Latvia	2	
Lithuania	11	
Luxembourg	1	
Hungary	88	Poultry only: 84; mixed species including poultry: 3; rabbits and poultry: 1
Malta	5	
Netherlands	33	Poultry and rabbits

	2016	Notes
Austria	28	
Poland	177	
Portugal	35	
Romania	38	
Slovenia	6	Only poultry: 4; poultry and rabbits: 2
Slovakia	6	
Finland	5	There are 5 large slaughterhouses and 6 small ones with less than 150,000 birds per year
Sweden	20	
UK	92	
TOTAL EU-28	1,356	

Sources: http://ec.europa.eu/food/food/biosafety/establishments/list_en.htm; France: LEI (2013) based on French Ministry data; Estonia personal communication.

3.3 Trade

The EU had a self-sufficiency rate of 103.9% in 2014 (European Commission, 2016a). Total imports to the EU-28 have fluctuated around 700,000 tonnes over the period 2008 to 2015, roughly equivalent to 6% of domestic production. Exports, however, increased from 741,862 tonnes in 2008 to 1,205,124 tonnes in 2015, an increase of 62% and, in 2015, equivalent to approximately 11% of domestic production.

The main source of imports of broiler meat to the EU is Brazil which accounted for just over half (53%) in 2015 (Figure 3.4); Thailand accounted for a further 37% and has been increasing its market share at the expense of Brazil, continuing an earlier trend which resulted from adjustments to tariff rates and quotas (European Parliament, 2010). Imports from Ukraine have increased substantially following the political crisis there. European Commission (2016a) notes that the main buyers of chicken are France, Germany, Netherlands and the UK which together account for almost two-thirds (62%) of all EU imports.

The main export destinations for EU broiler meat are far less stable with Russia being the primary destination from 2008 to 2010, after which Hong Kong and Saudi Arabia became more important. From 2014 the main export destination has been South Africa with exports to Russia ceasing completely in 2015 as a result of the import ban.

Figure 3.6 presents the evolution of total EU-28 imports and exports of broiler meat and products and shows that the net trade position has improved substantially over the period as the Euro has weakened.

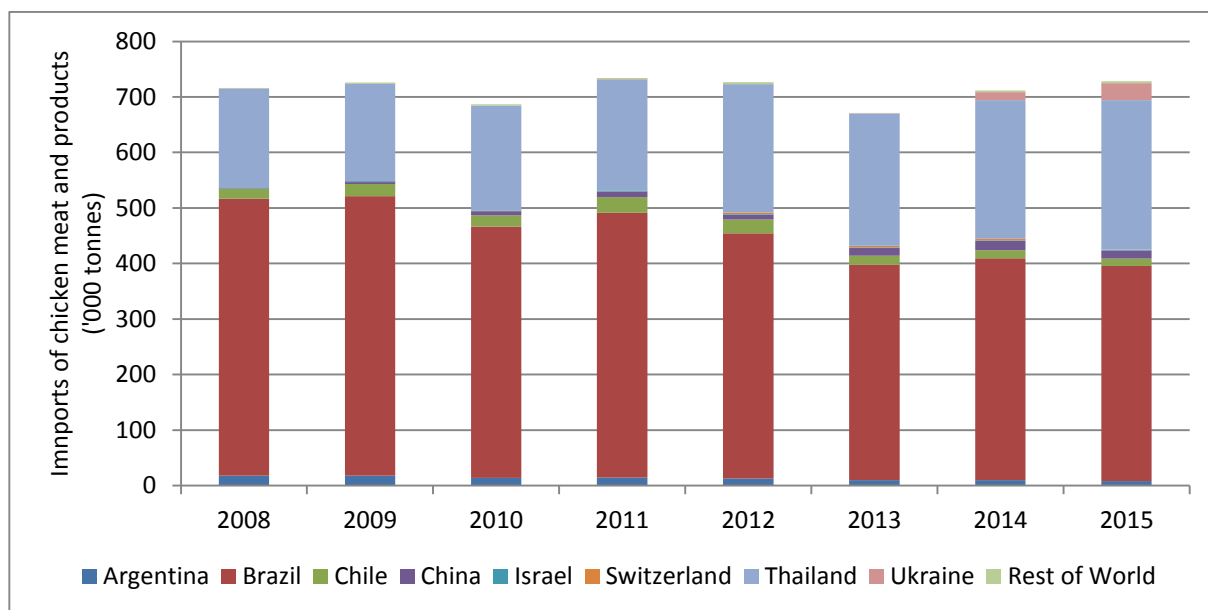


Figure 3.4: EU imports of broiler meat and products⁷ (Source: Eurostat, 2016)

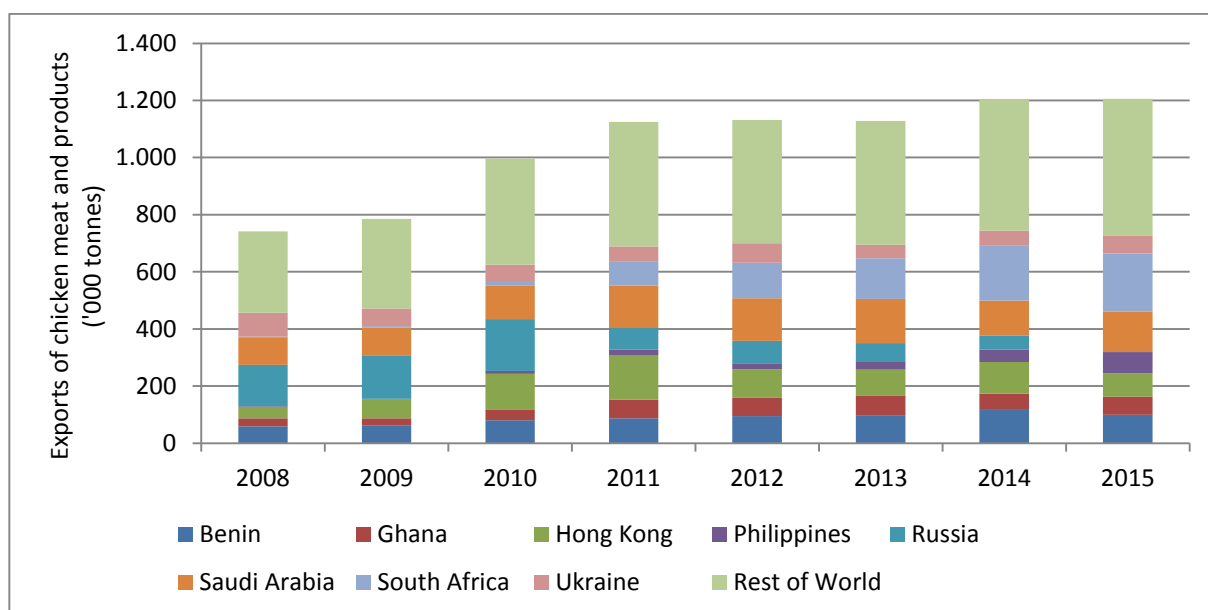


Figure 3.5: EU exports of broiler meat and products⁸ (Source: Eurostat, 2016)

⁷ Tariff codes 0207... where these include meat of the species Gallus Domesticus, tariff code 02109939 which AVEC (2015) notes is mainly poultry and tariff codes 1602... where these include meat of the species Gallus Domesticus.

⁸ Tariff codes as for imports.



Figure 3.6: Evolution of EU imports, exports and net trade in broiler meat and products (volume)⁹ (Source: Eurostat, 2016)

Imports of broiler meat to the EU tend to be of breast meat (exports are largely leg meat, wings and feet for which there is lower demand in the EU) and the majority are in the form of preparations (54%) and salted (28%) which are then further processed in the EU (AVEC, 2014); this is because the tariff rate for salted and processed poultry is lower than for fresh poultrymeat. This is reflected in the value of imports and exports. Imports averaged €2,813 per tonne in 2015, while exports averaged just €1,140. This differential value means that while the EU-28 is a net exporter in volume terms, it has a negative trade balance in value terms which amounted to €375 million in 2015.

3.4 Employment

LEI-Wageningen (2013) note that there are no sources of data on total employment in the EU poultry supply chain. However, based on detailed data available in France, Germany and the Netherlands, it was determined that, on average, 23.1 people are employed in the poultry supply chain for every 1,000 tonnes of broiler meat produced¹⁰. This figure was broken down by stage in the supply chain and from this breakdown, employment was calculated using 2014 production data as a base as shown in Table 3.4. A total of just over a quarter of a million people were employed in the EU-28 poultry sector in 2014 with the majority of these, 62%, employed in the slaughter/processing sector, with almost a fifth (19%) employed in primary production.

⁹ The same tariff codes are used as previously.

¹⁰ It is not clear whether these figures include employees in the breeding companies. IBF (2013) reported up to 6,000 employees in the three main breeding companies (Aviagen, Cobb-Vantress and Hubbard), although these figures are global rather than specifically in the EU.

Table 3.4: Number of employees in the broiler meat supply chain

	Primary production	Hatcheries	Slaughterhouses/processing	Feed industry	Other services	Total
Austria	396	63	1,296	135	189	2,079
Belgium/ Luxembourg	1,593	253	5,213	543	760	8,362
Bulgaria	326	52	1,066	111	155	1,709
Croatia	114	18	374	39	55	601
Cyprus	101	16	331	35	48	531
Czech Republic	704	112	2,304	240	336	3,696
Denmark	739	118	2,419	252	353	3,881
Estonia	75	12	245	26	36	393
Finland	466	74	1,526	159	223	2,449
France	4,893	778	16,013	1,668	2,335	25,687
Germany	5,522	879	18,072	1,883	2,636	28,991
Greece	704	112	2,304	240	336	3,696
Hungary	1,448	230	4,738	494	691	7,600
Ireland	519	83	1,699	177	248	2,726
Italy	3,841	611	12,571	1,310	1,833	20,166
Latvia	114	18	374	39	55	601
Lithuania	383	61	1,253	131	183	2,010
Malta	18	3	58	6	8	92
Netherlands	3,388	539	11,088	1,155	1,617	17,787
Poland	9,064	1,442	29,664	3,090	4,326	47,586
Portugal	1,153	183	3,773	393	550	6,052
Romania	1,364	217	4,464	465	651	7,161
Slovakia	304	48	994	104	145	1,594
Slovenia	207	33	677	71	99	1,086
Spain	4,633	737	15,163	1,580	2,211	24,324
Sweden	396	63	1,296	135	189	2,079
United Kingdom	6,094	970	19,944	2,078	2,909	31,994
EU-28	48,558	7,725	158,918	16,554	23,176	254,932

Source: LEI-Wageningen (2013) and Agra CEAS Consulting calculations.

3.5 Economic value

The Economic Accounts for Agriculture¹¹ present the production value of the poultry sector in (current) producer prices (Table 3.5). At this stage in the supply chain the sector was worth some €21.1 billion in 2015. However, this does not include the value added at slaughter or through processing. FCEC (2012) explained that there is no one single set of data at the EU level on the economic output of the poultry sector after slaughter and estimated a value of between €30.6 billion and €32.5 billion for the EU-27 in 2011 after extrapolating the data that were available at the time. Based on the value at producer prices in 2015, the value of the poultry sector after slaughter/processing in 2015 is between €32.9 billion and €35.0 billion. Using an approach based on the production of **poultry** meat and the wholesale price of class A **chicken** (known as 65% chickens), LEI-Wageningen (2013) arrived at a post-slaughter value for the poultry sector of €32 billion in 2012, which corroborates this analysis.

It should be noted that the figures above are for the poultry industry rather than the broiler sub-sector. Given that broiler production accounts for 78% of poultry production

¹¹ Produced by Eurostat: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Economic_accounts_for_agriculture_\(EAA\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Economic_accounts_for_agriculture_(EAA)).

in the EU-28 (AVEC, 2015), it is reasonable to assume that the post-slaughterhouse value of the broiler sector will be between €25.7 billion and €27.3 billion.

Table 3.5: Poultry sector output at producer prices (€ million)

	2008	2009	2010	2011	2012	2013	2014	2015
Austria	356	364	394	405	562	499	507	530
Belgium	210	189	186	196	197	182	174	157
Bulgaria	297	239	201	201	231	229	225	226
Croatia	205	182	195	225	236	271	239	235
Cyprus	1,902	2,001	1,862	2,076	2,197	1,639	1,903	1,912
Czech Republic	23	21	20	23	23	27	29	32
Denmark	123	115	112	130	133	131	133	141
Estonia	116	140	149	127	181	182	166	167
Finland	1,901	1,899	1,909	2,238	2,408	2,333	2,400	2,469
France	3,391	3,030	3,095	3,528	3,534	3,686	3,561	3,523
Germany	128	132	114	108	107	98	85	91
Greece	2,134	1,984	2,025	2,411	2,619	2,724	2,617	2,591
Hungary	72	76	78	76	77	76	77	58
Ireland	41	33	30	29	41	48	53	49
Italy	86	74	82	103	105	127	125	125
Latvia	1	1	1	0	0	0	0	0
Lithuania	739	613	639	767	777	817	795	823
Luxembourg	8	8	8	8	8	8	7	7
Malta	733	708	736	697	762	839	813	814
Netherlands	151	149	160	173	173	184	188	189
Poland	1,615	1,521	1,753	2,056	2,208	2,430	2,642	2,635
Portugal	453	450	474	485	487	517	496	511
Romania	373	398	335	385	377	425	451	441
Slovakia	92	89	90	92	94	97	96	91
Slovenia	118	108	102	105	114	123	98	107
Spain	132	123	120	138	153	171	168	162
Sweden	141	121	143	164	168	188	190	203
United Kingdom	1,982	1,785	2,097	2,193	2,559	2,739	2,791	2,818
EU-28	17,522	16,552	17,110	19,139	20,531	20,792	21,028	21,107

Source: Eurostat, Economic accounts for agriculture - values at current prices [aact_eaa01] (2016).

3.6 Future outlook

The European Commission's medium-term outlook report (European Commission, 2015), notes that poultry meat is the only meat for which both production and consumption are expected to increase over the 2015-2025 outlook period (3.8% and 3.4% respectively). Exports from the EU are expected to increase to help meet rising global demand.

Poultry meat has a number of comparative advantages over other meats, including its relative affordability, convenience, absence of religious guidelines limiting consumption, healthy image, limited greenhouse gas (GHG) emissions, lower production costs, short rearing time and lower required investments. As a result, production and consumption have been increasing steadily for many years (see above). The rate of increase in

consumption within the EU is expected to slow, especially in the EU-N13¹², due to markets reaching maturity.

World demand for poultry meat is expected to remain strong, although the rate of increase is expected to slow over the outlook period. The main areas of increasing demand are the Middle East, sub-Saharan Africa and Asia. Exports to Russia are expected to reduce, even if the current export ban is lifted, as Russia aims for self-sufficiency. Greater competition is expected generally on world markets, especially in whole chicken, as the devaluation of the Brazilian currency and generally lower production costs in key competitors will lead to lower prices. The existing pattern of trade, i.e. exports of lower value cuts and imports of higher value ones, is expected to continue (see above).

Imports to the EU are expected to increase to Tariff Rate Quota levels of around one million tonnes by 2025, mainly from Thailand and Brazil where substantial increases in production are expected, partly prompted by cheap labour, at least in the case of Thailand (IBF, 2013).

Lower input prices and increased competition on world markets are expected to allow poultry prices to recover after an expected short-term decline to around €1,890 per tonne by the end of the outlook period.

Within the EU itself, there is an expectation that there will be further increases in the total volume of slower-growing broilers and other niche products (IBF, 2013). However, price remains a key purchase criterion (FCEC, 2015) and this may limit the growth in this more expensive market. IBF (2013) also reported that the processing industry and poultry producers who responded to their online consultation expect increasing consumer demand for welfare-friendly produced broiler products in the EU.

World Poultry (2016) note that alternative, slow-growth segments in the world broiler market have existed for decades and that demand is increasing with spending power. In the EU, consumer demand is supported by retailers striving to differentiate their product. Alternative production systems such as indoor systems with enriched environments and reduced stocking densities; alternative diets; free range and organic birds offer some of this differentiation. Higher welfare quality schemes are also important such as Beter Leven and Kip van Morgen in the Netherlands and Royal Society for the Prevention of Cruelty to Animals (RSPCA) Assured (previously known as Freedom Food) in the UK, Initiative Tierwohl in Germany and Label Rouge in France.

¹² Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

4 IMPLEMENTATION OF THE DIRECTIVE

4.1 Background to the Directive

European Commission (2016a) notes that most of the welfare problems in broilers are the result of a combination of environmental, management and genetic factors. That said, scientific opinion recognises that some welfare problems are essentially related to genetic factors and others are mainly related to environmental/management factors such as stocking density and litter quality, light and barren environment. The EU adopted the Directive to address welfare problems that are affected by environmental/management factors.

The Directive applies to holdings with more than 500 chickens and sets detailed requirements on housing facilities (Annex I) covering drinkers; feeding; litter; ventilation and heating; noise; light; inspection; cleaning; record keeping; and surgical interventions. According to a stakeholder, the Directive was the first piece of EU legislation to include "welfare indicators" requiring monitoring and follow-up at slaughterhouses with the objective of informing decisions taken on-farm.

The Directive also limits the maximum stocking density to 33 kg/m² which can be increased up to 39 kg/m² if producers put in place additional measures regarding management and facilities (e.g. control of environment parameters such as concentration of ammonia, humidity and temperature) in order to guarantee minimum animal welfare standards. In addition, if a farmer has proven records of good animal welfare (e.g. low cumulative daily mortalities) he/she may be allowed to use a stocking density up to 42 kg/m².

In the case of stocking densities higher than 33 kg/m², daily mortality rate and cumulative daily mortality rate must be included in the accompanying documentation of the animals and this data needs to be recorded at slaughterhouses under the supervision of the Official Veterinarian. Furthermore, the owner needs to keep detailed records describing the technical details of the house and its equipment (e.g. ventilation, feeding and watering systems) available for competent authorities during inspections.

The Directive also established requirements for training to be provided to chicken keepers. According to the Directive, chicken keepers shall receive appropriate training focusing on animal welfare aspects and covering such issues as physiological habits and the needs of chickens, the practical aspects of the handling of chickens, emergency care and preventive biosecurity measures at farm level ensured by the Member States.

The Directive foresees that inspections and checks by competent authorities shall be carried out in chicken holdings and relevant procedures shall be put in place to determine stocking density. Furthermore, the owner and competent authorities shall be informed if the veterinarian at the slaughterhouse considers that the mortality rate on the arrival at the slaughterhouse is the result of poor animal welfare conditions. Finally, Member States should report each year to the Commission about the actions taken to address the main animal welfare problems detected during the inspections and checks.

In addition to the points mentioned above, the Directive obliges Member States to set penalties for infringements of national provisions adopted in line with the Directive and to encourage the development and distribution of guides on good management practices on broiler farms.

The Directive also states that Member States shall submit to the Commission the results of data collection based on the monitoring of a representative sample of flocks slaughtered during a minimum period of one year. However, the harmonised system required for collecting such data has not yet been formally adopted.

It is important to note that a Directive, as opposed to a Regulation, requires implementation in national law. Member States have discretion in terms of taking up the derogations on stocking density and exactly how the provisions of the Directive are to be achieved is a matter for the Member States. As a result, implementation can differ between Member States. The analysis below draws examples mainly from our case studies, although examples from the online survey are also used where sufficient detail was captured.

4.2 Implementation of the Directive

In most Member States the national implementing legislation is a direct transposition of the Directive. However, national legislation goes beyond the provisions of the Directive, or is stricter, in seven Member States.

- Stocking density derogations are not taken up, and/or maximum stocking densities are lower in Austria, Denmark, Germany, Sweden and the UK.
- Inspections and monitoring requirements go beyond the provisions in the Directive in Denmark, Finland and Germany.
- National legislation contains provisions which are not present in the Directive in Denmark, Netherlands and Sweden.
- House design requirements go beyond the requirements of the Directive in Germany.

4.3 Article 3: Requirements for the keeping of chickens

Article 3(1)

Germany is the only Member State where housing requirements (Art. 3(1a) and Annex I) must by law go beyond the requirements in the Directive. Buildings built after 2009 are required to have openings to provide natural light equal to 3% of the floored area. Flickering lights are explicitly not permitted. This means that in practice, lights providing at least 160 Hz are used (European Commission, 2012a). It is also necessary to have alarms and power back-up systems to ensure the continued provision of food and water. European Commission (2012a) also noted that national legislation goes beyond the Directive in terms of drinking and feeding space.

Article 3(2)

The basic maximum stocking density of 33 kg/m² (Art. 3(2)) is not used in **Austria**, where the maximum stocking density is 30 kg/m² or in **Sweden** where the basic maximum stocking density is 20 kg/m². In **Austria**, growers must comply with the requirements of Annexes I and III despite not stocking at higher densities (European Commission, 2011).

Articles 3(3), 3(4) and 3(5)

The two stocking density derogations (Art. 3(3), Art. 3(4) and Annex II which allows growers to stock at up to 39 kg/m² and Art. 3(5) and Annex V which allows growers to stock at up to 42 kg/m²) are not taken up at all in **Austria**. In **Denmark** producers can

only stock at 40 kg/m² (taken as the average stocking density of the current and two preceding flocks, none of which must exceed 42 kg/m² (European Commission, 2013a)). The derogation under Art. 3(5) is not taken up in **Germany** and all producers must follow the requirements of Annex II, irrespective of the stocking density they use. Art. 3(5) is not taken up in **Sweden**. Growers can progressively increase their stocking density from 20 kg/m² to a maximum of 36 kg/m² as long as they meet the requirements of the Animal Care Programme. Northern Ireland is the only devolved authority in the **UK** to adopt Art. 3(5), although no grower actually stocks at this density.

A number of Member States have introduced a scoring system for FPD, the results from which form an additional criterion which must be met by growers. In the **Netherlands** for example, growers must achieve a score of less than 80 in order to use the derogation under Art. 3(5). In other Member States, the breaching of trigger levels set against the FPD indicator can result in enforced reductions in stocking density (for example, **Denmark, Germany, Sweden** and the **UK**). European Commission (2014c) found that the approach to FPD in **Germany** differed regionally and recommended that a uniform system be introduced. It appears that this has subsequently been done. The system for assessing FPD in **Lithuania** does not appear automatically to result in stocking density reductions, although an Official Veterinarian will visit holdings and require corrective actions when triggers levels are exceeded (European Commission, 2012d).

4.4 Article 4: Training and guidance for persons dealing with chickens

Article 4(1)

Almost all Member States have ensured that keepers have received sufficient training and that appropriate training courses are available. The only Member States where it is not possible to draw this conclusion are **Croatia**, where this is likely to be related to their relatively recent accession; **Greece** where the reason is related to a lack of resources within the competent authority; and, **Malta**. Only in **Hungary, Luxembourg, Spain, Sweden** and the **UK** were training courses in accordance with Article 4 offered prior to the implementation of the Directive in 2010: the conclusion is therefore that implementation of the Directive resulted in the provision of appropriate training which may not have been fully present before.

Article 4(2)

The training courses offered in case study Member States follow the subjects set out in Annex IV of the Directive as a minimum. In **Germany**, training courses also cover legal provisions for animal welfare and measures to take in the case of disease outbreaks and epidemics (growers with at least 500 birds must have received basic training in any case under national legislation (European Commission, 2012a)). In **Spain** training courses also cover the working of equipment and legislation on sanitary issues and animal welfare. According to an animal welfare NGO, training courses in the **UK** go slightly beyond the requirements of Annex IV. Although training in **Poland** covers the topics set out in Annex IV of the Directive, the focus is rather more on legal requirements than it is on best practice. Training courses on FPD were provided in the **Netherlands** in 2011 (European Commission, 2012b). These were subsidised if growers agreed to apply various measures to reduce FPD on farm. In **Slovakia**, training goes beyond the provisions of the Directive in that it is obligatory for all flock keepers (European Commission, 2011b).

Article 4(3)

Case study Member States have all established systems to control and approve training courses. In **France** the organisations delivering the training have first to be approved by the competent authority for broiler production and also the Ministry of Education. The organisation and control of training courses in **Germany** is the responsibility of the competent authorities in the Länder. In **Italy** training is organised and delivered by UNAITALIA, the sector organisation, following agreement with the Ministry of Health, the responsible Ministry; however, the requirements concerning the length of courses, skills of the teachers and the final test are set out in a Ministerial Decree. Training in **Lithuania** is provided by the Centre for Veterinary Continuing Education and Consulting of the Lithuanian University of Health Sciences which has been recognised to provide such training by the SFVS (European Commission, 2012c). The Inspectorate of Education supervises the quality of training courses in the **Netherlands** (which are offered by a number of agricultural colleges (European Commission, 2012b) while in **Poland** responsibility has been devolved from the Ministry of Agricultural and Rural Development to the Provincial Veterinary Officer. The Agriculture or Education Ministries in the Autonomous Communities have full responsibility for, and control of, training in **Spain**, although some of these devolve responsibility to bodies which they approve for this purpose. Training in **Slovakia** is provided by an institution approved by the central competent authority (European Commission, 2011b). The **Slovenian** competent authority issued a call for proposals to provide training courses in 2012 (European Commission, 2012c). Training is controlled in the **UK** by the Office of Qualifications and Examinations Regulation (Ofqual) and the Scottish Qualifications Authority (SQA).

Six competent authorities did not provide information on the number of certificates issued, but it is clear from the data that were provided that certificates to demonstrate the receipt of training are issued in most Member States. Obvious exceptions are those Member States where training courses are not currently offered. **Estonia** has not issued certificates following training, but has issued them under Article 4(4) which suggests that certificates would be issued if training courses had been followed. Some two-thirds of all certificates issued have been following the completion of training courses.

Article 4(4)

Not all Member States which responded to the survey on the use of Art. 4(4) appear to recognise experience acquired before 30 June, 2010 as being equivalent to participation in a training course given that no such certificates have been awarded in **Cyprus, Czech Republic, Germany, Ireland, Romania, Slovakia, Slovenia** or **Spain** (no data were provided in Austria). In the case of **Spain**, there is no need for such certificates because certified training course were in place before the implementation of the Directive; in **Germany** the national legislation provides for exemptions from training for previous experience and does not require this to be certified. Approximately one-third of all certificates issued have been under Art. 4(4).

Article 4(5)

According to the survey responses, owners as well as keepers are required to undergo training in 12 Member States (**Belgium, France, Hungary, Ireland, Latvia, Netherlands, Poland, Portugal, Romania, Spain, Sweden** and the **UK**)¹³.

Article 4(6)

Competent authorities in most Member States do check whether growers/owners provide instructions or guidance on animal welfare to employees dealing with chickens. The only Member States where this appears not to be done are **Belgium, France, Greece** and **Malta**.

4.5 Article 7: Inspection

Article 7(1)

Inspection regimes are in place in all case study Member States. These vary in form from inspection regimes which cover around 10% of growers (**France, Italy, Poland, Spain**) to those which are related specifically to the Directive and are risk-based on the basis of the indicators recorded at slaughterhouses (**Germany, Netherlands** and the **UK**); **France** also operates a risk-based inspection system.

European Commission (2011c) raised issues with the inspection regime in **Belgium** and, in response, a protocol was put in place by late 2014, although an analysis had not taken place of the checks carried out at that point. Various (and usually minor) deficiencies in inspection regimes were also noted by Directorate Health and Food Audits and Analysis in **Bulgaria** (European Commission, 2012e), **Czech Republic** (2014c), **France** (2012f), **Hungary** (2011d), **Latvia** (2012g), **Slovakia** (2011b). Based on the recommendations made and the responses provided it is assumed that these have been addressed.

Article 7(2)

As far as can be determined, case study Member States appear to submit annual reports on inspections to the Commission, although it was not possible to extract these data.

The main problem identified by competent authorities in terms of carrying out inspections was insufficient resources. An absence of appropriate records and technical problems were also widely reported. Incomplete documentation was cited as a recurring issue in **France, Poland** and the **Netherlands**, especially in relation to Daily Mortality data. Common problems relating to implementation, i.e. faced by producers, include insufficient lighting (**France, Italy** and the **Netherlands**), excessive stocking densities (**Netherlands** and **Poland**) and heat stress and poor handling at catching and transport in **Germany**. Further details can be found in Appendix 3 and Appendix 5.

4.6 Article 8: Guides to good management practice

In **Germany** the federal competent authority produced a guide to good practice which included guidance on the monitoring of FPD in slaughterhouses (European Commission, 2014c); Defra were responsible for the production of good management practice guidelines in the **UK**. In **France** and the **Netherlands** guides to good management practice have been produced by industry bodies.

¹³ Despite these responses, case studies in France and the Netherlands reported that owners do not need to undergo training if they are not also keepers.

No guides have yet to be produced in **Italy**, although the national legislation foresees that sector organisations will produce guides and this is in development; the competent authority has a role in the control of content. Good practice guides are also not available in **Poland**, although production and quality requirements are issued within the Quality Assurance for Food Products (QAFP) quality label and advice can be provided through the Agricultural Advisory Centres. No guide to good practice has been issued in **Spain** because no implementation issues have been identified that would justify the need for a guide; integrators are also considered to provide sufficient guidance to their growers. Some guides may have been produced at the Autonomous Community level, although this could not be verified. European Commission (2012h) reported that good practice guides were not available for the sector in **Romania**.

In many Member States some guidance will be provided by integrators and retailers and sometimes animal welfare NGOs provide additional guides.

The competent authorities in several Member States provide guidance on the recording of indicators in the slaughterhouse and for Official Veterinarians. European Commission (2012e) and European Commission (2012h) reported that guidelines and procedures for the assessment of stocking density and a check list for broilers were available on the **Bulgarian** and **Romanian** competent authority websites respectively and were used in practice. Guidelines for the Regional Veterinary Administration and Official Veterinarians on the assessment of ante-mortem and pathological findings in broilers, including FPD, were available in the **Czech Republic** (European Commission, 2014c). **Hungary** has guidelines on the official controls of poultry slaughterhouses and cutting plants which specifies cases when feedback should be sent from the slaughterhouse to the farm of origin (European Commission, 2014d). Guidance is available for Official Veterinarians in **Poland** on the monitoring of welfare indicators in slaughterhouses (European Commission, 2011e). The competent authority in **Portugal** has elaborated comprehensive guidelines for the evaluation of animal welfare indicators at slaughterhouses (European Commission, 2011f); this includes a detailed scoring system for FPD.

European Commission (2013a) recommended that the **Danish** competent authority take suitable measures to ensure that guidance on the assessment of environmental parameters be provided to operators and competent authority staff; the competent authority responded that this would be done.

Survey results produced for the BTSF workshop in January, 2017 stated that respondents in 13 Member States felt that farmers had adequate knowledge of broiler welfare requirements, although six of these felt that knowledge could be improved further.

4.7 Article 9: Penalties

Penalties for non-compliance with the national legislation implementing the Directive are considered to be a last resort and Member States typically have a system in place which provides growers with the opportunity to take necessary corrective action before penalties would be issued. As a consequence, the use of penalties is low. It is also common to have an escalating scale of penalties which increases if corrective action is not taken. Criminal penalties apply under other areas of national law in extreme cases of animal cruelty.

In **France** penalties start from €750 and repeat infringements can lead to the closure of the farm; in **Germany** even administrative convictions can lead to a fine of €25,000 (the penalty system operates at the national level). In **Italy** fines range from €400 to €9,300

depending on the type of non-compliance and fines can be (and have been) issued for failure to take part in a training course. Fines in the **Netherlands** start from €1,500 and reductions through cross-compliance can also be made if the grower is in receipt of Pillar I payments. It is also possible in the Netherlands to use administrative law to force the grower to make repairs to faulty equipment (or have the repair made and then charged to the grower); this is the preferred approach in preference to administering a fine.

The scale of penalties in **Poland** includes enforced reductions in stocking density, the imposition of a limit or a ban on sales, the closure of the farm, fines and ultimately imprisonment; the more severe penalties are used only infrequently. The penalty system in **Spain** is devolved to the Autonomous Communities and each takes a different approach including the classification of non-compliance as an administrative or criminal offence.

Non-financial penalties (which have an indirect financial impact) include the enforced reduction in stocking density when applied to growers operating under either of the stocking density derogations; this is an option in **Denmark, Italy, Poland, Sweden** and the **UK** and, at least in the case of **Denmark** and **Sweden** is considered by the industry to be disproportionate, especially when the grower might consider the non-compliance to be beyond his/her control, for example, high levels of mortality caused by problems with the day-old chicks or resulting from culling for animal welfare reasons.

The penalty systems in place are generally viewed by the industry as being effective; competent authorities often judged the penalties to be effective on the basis that they were rarely used and/or that financial penalties are substantial in relation to poultry farm income. Non-Governmental Organisations (NGOs) in **Poland** and the **UK** though pointed out that in their opinion the trigger system from which penalties derive is not set strictly enough and this accounts for the low use of penalties. A further potential problem identified by an NGO in **Poland** is that control lists are often completed based on the oral declaration of the grower which clearly removes a degree of objectivity.

4.8 Impacts of the implementation of the Directive

There has generally been very little (in fact almost no) assessment of the impact of the implementation of the Directive. The main justification for the lack of assessment was the fact that the impacts were not substantial, at least in terms of costs and other impacts perceived by the industry. The **UK** is the only Member State which appears to be undertaking research to establish the impact of the implementation of the Directive, although this is not yet completed and nothing is publicly available.

In **Denmark** the implementation of national legislation in 2001 meant that there was little change post-implementation of the Directive; this was also the case in **Sweden** where the only real change was in making training mandatory and more formal and in the **UK** where the Red Tractor assurance scheme was widely used and required no major changes post-implementation. Case studies in **France, Italy** and **Spain** suggested very little impact in general, although improvements in training and, as a result, general awareness of animal welfare were mentioned.

The impact of implementation in **Poland** was viewed very positively in terms of housing conditions, litter quality and better access to feed and water. Ultimately the changes have resulted in a lower number of rejections from slaughterhouses. The competent authority expected that animal welfare has increased, although made the point that this assertion could not be substantiated.

The impact of implementation in **Germany** was said to have been mixed with decreases in mortality and a general improvement in animal welfare, but some increases in stocking density (although it does not follow that this necessarily leads to a reduction in animal welfare). In the **Netherlands** implementation entailed a reduction in general stocking densities from 45-50 kg/m² and the industry therefore believes that there has been a substantial negative impact on production costs (although there may have been an associated increase in positive animal welfare outcomes). The main positive impact in the Netherlands was seen as being on animal welfare as a result of the FPD monitoring system.

Industry organisations in both **Sweden** and the **UK** felt that the implementation of the Directive had created an uneven playing field because the stocking density derogations allow for differences between Member States. In both cases though it should be noted that implementation did not result in an enforced reduction in the stocking densities commonly used; of course it was also a national decision not to take up the available derogations.

According to the survey of competent authorities and the survey of national AVEC members, most impacts arising from implementation of the Directive were positive (although impacts on slaughterhouses were thought to be considerably more negative than those on growers or more generally). The impact area which received the highest positive scores from both competent authorities and national AVEC members was training. Competent authorities thought that the impact on animal welfare, both in general, through the birds' environment and specifically resulting from the *post-mortem* inspection was positive. Although the industry agreed that the impact on the birds' environment and general animal welfare had been positive it was less strongly so. The impact on guides to good management practice were viewed positively by both groups, although this time more strongly so by the national AVEC members. Both sets of respondents cited a negative impact in terms of administrative burden (on competent authorities, growers and slaughterhouses), more strongly so in the case of national AVEC members; the industry also claimed a negative impact on production costs for both growers and slaughterhouses. As would be expected from the need to record welfare indicators at the slaughterhouse, there was a reported negative impact on slaughterhouse staff and Official Veterinarian time.

Although neither survey reported a substantial impact in terms of cross-border trade, the case studies revealed that around 15% of growers in **Denmark** export live broilers for slaughter in Germany and the Netherlands at least partly to avoid the FPD control system operated in Denmark. In contrast, growers in the **Netherlands** who wish to export broilers for slaughter in other Member States must carry out the FPD check on-farm which would seem to remove the point of so-called "slaughterhouse tourism". **Belgian** slaughterhouses slaughtering birds originating in the Netherlands carry out FPD checks which they do not do for batches of domestic origin because the results have to be communicated to the competent authority in the Netherlands.

4.9 Costs of the implementation of the Directive

Implementation costs have only been estimated in six Member States and are not comparable.

In the **UK** an *ex-ante* Impact Assessment exercise was undertaken on the basis of independent research commissioned to provide an evidence base. Further independent research in the UK is currently underway which should provide an *ex-post* view on implementation costs, but this is not yet completed. The Impact Assessment produced a

cost estimate for implementation and annual costs for eight years in total present value (2010) terms of almost £61 million (€71.1 million at the European Central Bank (ECB) 2010 exchange rate¹⁴). A large proportion of this cost derived from the annual opportunity cost of the UK not adopting Article 3(5) which provides the derogation to stock at up to 42 kg/m² (even though this was not the stocking density used in the UK in any case and there was no suggestion that growers would increase stocking densities had this derogation been taken up). The most significant one-off cost was compliance with Annex II requirements. It should be noted that the anticipated cost was more than offset by an annual estimated consumer willingness to pay for the higher welfare delivered of £103 million (€120.1 million).

In **Finland** implementation was estimated to have cost growers around €6 million per year with annual inspection costs amounting to almost €100,000; additional staff were also required in the competent authority. In the **Netherlands** annual administrative and production cost for the industry was estimated to be €2.7 million with additional, but far less significant, administrative costs for the competent authority. These costs do not include costs resulting from necessary reductions in stocking density.

Cost estimates in other Member States arrived at rather lower estimates, although it is not always clear whether these include one-off and annual costs. In the **Czech Republic** the was estimated at ~€1.3 million to carry out checks in slaughterhouses; in **Slovakia** each regional competent authority had to spend around €2,000 on equipment to measure environmental parameters.

The point was made in **Denmark** that national law had already been introduced and that little change resulted from the implementation of the Directive from which it followed that there was little cost; the same was true in **Italy** where growers had largely already introduced the requirements and in **Spain** where little impact was noted. The costs of implementation in **Germany** were thought to be minor, as substantiated by an *ex-ante* Impact Assessment, and the (minor) costs in **France** were said to have been largely offset by benefits in the form of lower mortality, better animal health and overall higher quality production. No estimate was possible in **Poland**, but the perception was that costs to the competent authority were minor.

¹⁴ €1: £0.85784: <http://sdw.ecb.europa.eu/browse.do?node=9691296>

5 USE OF ANIMAL WELFARE INDICATORS

5.1 Potential welfare indicators

When considering potential animal-based welfare indicators recorded at slaughterhouses to be used to indicate animal welfare on-farm it is important to keep in mind the context. This is that the major welfare problems identified in broilers are side effects of the intense selection process designed to produce fast growth and efficient feed conversion (SCAHAW, 2000) rather than conditions on-farm. However, EFSA (2010a) acknowledged that interaction between genetic factors and the birds' on-farm environment can exacerbate or mitigate these negative animal welfare impacts.

EFSA (2012a) reported on the use of animal-based measures to assess welfare and produced a toolbox of species-appropriate measures which might be used. EFSA (2012b) reviewed the possible animal-based measures for broilers with additional reference to De Jong *et al.* (2012) and the Welfare Quality® project.¹⁵ In carrying out this review, EFSA explained that animal-based indicators must be fit for purpose. This means that indicators must be both **sensitive** and **specific**; indicators should identify a problem if it is there (sensitivity) which should be relatable to its on-farm cause (specificity) so that corrective action to improve animal welfare can be taken.

Indicators should also be robust, a notion which incorporates concepts such as **repeatability** and **reliability**. EFSA (2012b) makes the point that maintaining repeatability and reliability over time requires training at regular intervals to ensure that observers are "recalibrated" to a reference standard for the measure. The ongoing assessment of FPD scoring which takes place in **Sweden** is a good example of recalibration in practice.

EFSA (2012b) makes clear that indicators which are supposed to relate to conditions on-farm should not be affected by catching, transport or conditions at slaughter. Indicators such as wing fractures, scratches and bruising would therefore not appear to be suitable measures of conditions on-farm – a point made in survey responses, and in case study countries. One stakeholder explained that 70%-80% of wing fractures occur in the slaughterhouse.

Based on an assessment of management/environmental factors, consequences and animal-based measures, EFSA (2012b) concluded that indicators of hock burn, FPD, breast blisters, panting, lameness, ascites and plumage cleanliness have strong specific links to consequences. However, only hock burns and FPD indicators were considered to have strong specific links through animal welfare consequences to environment/management factors (inappropriate type and quality of water equipment, wet litter and high stocking density). The links between indicators of hock burn and FPD and wet litter/high stocking density were also judged to be relatively sensitive, i.e. indicators should identify a problem if it is present. These indicators are not influenced by catching, transport or conditions at slaughter and would therefore provide a good indication of welfare on-farm.

Case study contributors in **France** agreed that high stocking density resulted in reduced litter quality, but contributors in **Sweden** and the **Netherlands**, and an EU-level stakeholder, disputed a clear causal relationship, i.e., in their opinion, high stocking

¹⁵ This EU-funded project was designed to develop a standardised methodology for the assessment of animal welfare, practical strategies/measures to improve animal welfare and a standardised methodology to translate animal welfare assessments into easily understandable product information (Blokhuis *et al.* (2003).

densities (at least those up to the maximum permitted by the Directive) do not necessarily result in poorer litter quality. The stakeholder noted that FPD issues can arise in organic production as a result of wet ground. FPD indicators were in use in Sweden and Denmark before the implementation of the Directive.

Some (non-animal based) indicators, such as on-farm mortality or culls on farm are known as “iceberg” indicators. EFSA (2012b) considers these to be highly sensitive, but low specificity indicators, i.e. they clearly indicate a problem, but do not provide information on the cause of the problem which means that they cannot reliably be linked to management/environmental factors. Our case studies suggested that in practice these indicators may need to be used with care. For example, high mortality levels might result from culling as a result of problems with specific batches of day-old chicks or extreme weather such as heatwaves¹⁶ and not specific conditions on-farm. EFSA (2013a) also makes this point. On-farm culls, which in any case are often the best solution for animal welfare problems and therefore might indicate good management, are likely to be higher where the use of antibiotics is restricted (prescriptions on antibiotic use may also negatively impact mortality). These indicators would therefore need to be used in conjunction with additional indicators/follow-ups to provide context if they are to result in changes to management and/or environmental conditions which could improve welfare.

5.2 Mandatory indicators in use

According to the survey of competent authorities, animal welfare indicators to be recorded at slaughterhouses/farms have been specified in law in 23 Member States (Spain only since late 2015); while the **UK** does not specify the indicators in law, it is a legal requirement to record animal welfare indicators. The Member States where no indicators are specified in law are **Austria, Croatia, Czech Republic** and **Greece**.

A comprehensive set of potential indicators were considered as follows: FPD; hock burn; breast burn; breast blisters; emaciation; ascites; dehydration; cellulitis; joint lesions; respiratory problems; scratches; wing fractures; dead on arrival; cumulative daily mortality rate; total rejections; medicine use; other (house temperature, humidity, ventilation, litter quality, water use, air quality, etc.). Respondents were given the option to add any others (see Appendix 3 and 4 for tabular presentations of the results).

The most frequently recorded indicators are Cumulative Daily Mortality Rate (18 Member States); FPD (18 Member States) and Dead on Arrival (15 Member States). A second group of indicators comprising ascites, total rejections, medicine use, wing fractures and house environmental data are recorded by several Member States.

In **France¹⁷ and Ireland**, all indicators must be recorded by law; almost all these indicators must be recorded in **Denmark** and almost all are recorded in **Sweden** under the Animal Care Programme (followed by 99% of the industry); although not all are legal requirements. Other Member States use a smaller set of indicators.

In most cases, the indicators which must be recorded by law are linked to follow-up action on farm, although there are some notable exceptions where data must be recorded, but none appear to be linked to action (**Cyprus, Hungary** and **Slovenia**); there are other examples where specific indicators which must be recorded appear not to be followed-up (cases exist in **Belgium, Bulgaria, Latvia, Lithuania, Luxembourg,**

¹⁶ A stakeholder noted that this is a problem in southern Member States.

¹⁷ This was the finding from the survey, but the case study interviews suggested this was not actually the case.

Malta and the **Netherlands**). In some cases, this is likely to be because the link between the indicator and on-farm practice is not clear.

Where indicators have to be recorded in law, only in **Hungary** are these not transmitted to the competent authorities.

It should be noted that Annex III of the Directive requires the collection of data on Daily Mortality Rate and Cumulative Daily Mortality Rate, as well as Dead on Arrival. The survey revealed that not all Member States appear to collect these data. It is of course possible that in some cases the survey responses were not comprehensive, but it is known from the case studies that some Member States do not routinely collect data on indicators which the Directive suggests that they should. For example, Daily Mortality Rates are not passed to slaughterhouses in **France** because it is not clear how these would be used. In the **UK**, the competent authority considers the routine submission of Daily Mortality Rates to be too burdensome on the industry (a point also made in justification in **France**) and these data are only requested if it is considered that there is a reason to do so; this is also the practice in the **Netherlands**.

5.3 Voluntary indicators in use

Indicators are also recorded as part of industry standards (for example, KIK in **Denmark** and the Animal Care Programme in **Sweden**) and/or voluntary higher-welfare quality schemes (for example, RSPCA Farm Assured in the **UK**) in at least 13 Member States (not all respondents were able to answer this question). A stakeholder explained that the voluntary use of indicators is more common in northern Member States, where stocking densities tend to be higher, than in southern Member States. There was a degree of confusion on this point with some industry schemes being the vehicle through which mandatory indicators are reported as well (for example, KIK in **Denmark** and the Animal Care Programme in **Sweden**) and the industry was often unclear on whether the indicators used are actually specified in law.

The most commonly used indicator in voluntary schemes is FPD (used in 11 Member States). Dead on Arrival is used in ten Member States and hock burn in nine. It is clear that there is considerable overlap between the indicators which must be used according to national law and those used in voluntary schemes and the distinction between the two is, as a result, largely academic. Stakeholders explained that voluntary indicators are used to meet perceived consumer demands for higher animal welfare. These demands vary between Member States and, as a result, so does the use of voluntary indicators.

Stakeholders also explained that slaughterhouses use a range of additional indicators for their own, quality-related, purposes. These include indicators relating to catching, loading and transport, such as leg and wing fractures, which can also be used to highlight problems in these processes; sometimes these are the responsibility of the slaughterhouse and sometimes the grower. The most commonly used quality indicator used is breast blisters. A stakeholder noted that many large slaughterhouses had been using these indicators before the Directive was implemented.

5.4 Approach to footpad dermatitis

The general approach to FPD is similar between Member States which use this indicator, although differences in the operational details such as trigger levels and follow-up, mean that outcomes differ. A stakeholder explained that the first FPD indicator system was developed in **Sweden** by the Swedish University of Animal Sciences. This involves sampling 100 feet from each slaughtered flock and categorising each using a scale of 0 to

indicate no problem and 1 and 2 to indicate increasing grades of severity (Berg and Algers, 2004). This categorisation is made by slaughterhouse staff using picture guides under the supervision of the Official Veterinarian. The number of feet categorised as Grade 1 is multiplied by 0.5 and the number categorised as Grade 2 is multiplied by 2 to produce a score between 0 and 200.

If the score is above 40, the grower is instructed to reduce stocking density for the next flock in the same house by 1 kg/m². If the score is above 80, the grower must reduce stocking density by 2 kg/m². These restrictions then remain in place until such time as the scores for subsequent batches return to below the threshold. It is considered best practice to sample the feet from different points on the shackle line so that birds are not all sampled from the same area of the house (usually 50 from the first third to be processed and 50 from the final third); this should reduce the risk of missing localised problems or mistaking localised problems for general conditions in the house in line with the recommendations on sampling in EFSA (2012b).

The same scoring system is used in **Denmark** (the picture guide is also the same). However, while in Sweden the scores are used in the first instance to allow growers to increase their stocking density, in Denmark growers may stock at higher densities unless this indicator suggests that there is a problem. In other words, growers in Sweden have to earn the right to increase stocking density while those in Denmark can only lose this right. The same system appears to be used in **Poland**, although action is only taken in respect of the first trigger level on the second occasion it is exceeded at which point this is communicated to the farm veterinarian. Where the second trigger level is exceeded the results are communicated immediately for action to be taken. The same approach to the categorisation and scoring of FPD is also taken in **Spain**.

While the same basic approach is taken in the UK, the trigger threshold is set at 167 which is 6 Standard Deviations above the 2010 industry average. Here the FPD score forms part of a two-part trigger report. A 'Process 1 trigger report' is made if any one indicator exceeds the industry average by more than 6 Standard Deviations as described above, i.e. an FPD score in excess of 167 would be sufficient to trigger a report. A 'Process 2 trigger report' requires the Cumulative Daily Mortality Rate to exceed 3 Standard Deviations above the 2010 industry average **and** three or more other indicators to exceed the industry average which, in the case of FPD, is a score of 60.

The Swedish system is also used in **Germany**, although the threshold for action is slightly different in that this is triggered if 20% of feet are Grade 2 (i.e. a score of at least 40) or if 60% are Grade 1 or Grade 2 (i.e. a score of at least 60). Camera systems which assess every bird have been used in large slaughterhouses since 2012. The **Italian** system for assessing FPD is also very similar although the scoring guide is more descriptive than pictorial. The trigger level is set at 100.

The system used in the **Netherlands** follows the same process of sampling and scoring (van der Vaart and Simon (2017) explain that the system is based on the Danish model), although the scoring scale is based on research carried out at Wageningen University¹⁸. Three trigger levels are set at 80, 120 and 150. In contrast to the immediate action taken elsewhere, the average annual score is used in the Netherlands to determine whether an Action Plan is required. While the FPD evaluation is usually made manually using score cards and instructions attached to the Dutch Animal Keepers Regulations, the use of camera systems to automatically assess the incidence of FPD can also be used, in

¹⁸ Belgian slaughterhouses use the same system for broilers originating in the Netherlands and report to the Dutch competent authority (De Paepe, 2017).

which case at least 70% of the flock has to be assessed. A camera system is currently used only in one slaughterhouse due to industry concerns that it records higher levels of FPD than manual scoring; the competent authority though would prefer all slaughterhouses to use this system because it would ensure standardisation. Interestingly trials into the use of camera systems in **Denmark** found that it under-reported the incidence of FPD compared to manual assessment and automated systems are not currently permitted.

A stakeholder explained that camera systems for assessing FPD cost between €70,000 and €100,000 to install (systems capable of also assessing wing fractures, bruises and haemorrhages cost between €250,000 and €400,000). The IT system required is considered to be complex and expensive and installations require space, which is not always available, and trained staff to operate the system and interpret the data. It is also necessary to be able to control environmental parameters, such as moisture in the air, to ensure that visibility is appropriate. Although camera systems provide more repeatable and objective data, these still require interpretation which remains subjective. It is also necessary to decide how to use camera systems. As noted above, in the Netherlands, at least 70% of a flock must be assessed when camera systems are used, but it is also possible to assess the whole flock or just a small sample.

All stakeholders felt that setting common threshold and trigger levels across the EU would not be appropriate. The point was made that conditions differ across the EU and, while over time animal welfare consequences should converge, it is necessary to set nationally appropriate triggers and thresholds based on current incidence and realistic targets for improvements. Stakeholders felt that ideally, national trigger levels should be set with reference to an established national baseline and should also strike the right balance between safeguarding animal welfare and the resources available to operate a control system. Simply establishing the use of animal-based indicators is considered by many stakeholders to raise the awareness of animal welfare issues.

It can be seen from the above that the use of FPD as an indicator is very similar in basic approach, although there are differences in the trigger levels and the way in which the results of the indicator are interpreted and used; a point also made by stakeholders. As a result, it is not possible directly to compare the situation between Member States. The Swedish model seems to be the basis for the approach taken and this provides some consistency in scoring between some Member States. Camera systems can add greater objectivity in data capture, but these data still need to be interpreted consistently. There is a lack of consistency in the trigger levels used and in the approach to setting these.

5.5 Recording of animal welfare indicator data

The recording of animal welfare indicator data in the slaughterhouse is carried out by the Official Veterinarian or a (trained) member of the slaughterhouse staff working under the supervision of the Official Veterinarian. Data are generally recorded electronically (usually a touch-pad system), although some paper systems are still routinely used in some Member States, for example, **Italy** and **Poland**.

Indicators are monitored based on information provided by the grower with the batch of broilers to be slaughtered and through *ante-mortem* checks (usually conducted on a sample) and *post-mortem* checks depending on the indicator. The *post-mortem* checks are often carried out with reference to picture guides and descriptions of anomalies. In some cases, animal welfare indicators are only examined in the *post-mortem* check if the *ante-mortem* check was considered by the Official Veterinarian to be non-regular (**Italy**: FPD). A similar approach to the use of an FPD indicator is taken in the **UK** where this is

only assessed if there is a reason to suspect on-farm animal welfare might have been poor; in other Member States using this indicator each flock is generally assessed.

5.6 Transmission of indicator data

Indicator data are usually transmitted electronically. For example, in **Denmark** the grower receives an SMS with live weights, rejects and FPD score on the day of slaughter and a follow up email through the KIK system which also stores historic data. An electronic database system is also used in the **Netherlands** (FPD score and total rejections are always transmitted, other indicators are only transmitted if trigger levels have been exceeded) and **Sweden**. In Sweden, the system is fully automated and communicates required stocking density changes to the grower, as well as adjusting the ordering of day-old chicks accordingly. In the **UK**, a Broiler Condition Report is generated and returned to growers within 3-4 days; slaughterhouses usually also send information to the growers electronically (slaughterhouses in **Germany** also transmit data separately to the official return on indicators and this is likely to be the situation elsewhere as well, especially where the supply chain is integrated).

In **France**, data are transmitted electronically on a payment sheet which takes a few days to reach the grower. Data can be transmitted electronically or on paper in **Germany, Italy** and **Poland** with paper systems being most common in **Italy** and electronic systems in **Germany** and **Poland**. The transmission of information in **Spain** is generally electronic where it takes place, but as the method is not specified it can also be on paper.

A stakeholder stated that the empty period between broiler batches is typically 10-20 days and it is therefore important that growers receive any information on which they might be expected to act in time to allow them to do so. If information is received after the next batch has been delivered, then it is not possible to make major changes to environmental parameters until the next empty period.

Stakeholders explained that data transmission is generally quicker, more regular and more comprehensive where the supply chain is integrated (this also applies to data exchange with breeders). Integrators are also better able to interpret data than individual farmers because they have an overview of the situation from several farms. Where supply chains are not integrated, data may not be transmitted between certain stages, such as between growers and feed manufacturers, unless there is a specific problem. This reduces the utility of the information to feed manufacturers as it is considered less robust. A stakeholder explained that in the **UK**, integrators transmit indicator data to feed manufacturers, whereas in other countries, **Croatia** and **Hungary** were cited as examples, data are transmitted to feed manufacturers by the competent authorities only when serious problems are detected.

An important issue in terms of the transmission of indicator data relates to cross-border trade where broilers are raised in one Member State (authority) and slaughtered in another. There are cases where data recorded by slaughterhouses are not passed back to the competent authorities in the originator Member State which prevents official follow-up (there are also cases where information is passed back such as from **Belgian** slaughterhouses to the competent authority in the **Netherlands** (De Paepe, 2017)). In such cases there is also no provision for information to flow from grower to supervising competent authority in the slaughtering Member State. As a result, improvements in animal welfare over time are less likely as the feedback mechanism is broken. Examples were provided where such "slaughterhouse tourism" is thought to be undertaken expressly to avoid a more stringent animal welfare regime.

5.7 Structure of data transmission

The exact structure of data transmission differs by Member State and often within Member States by slaughterhouse. Examples are discussed in the case studies (see Appendix 5), but these are essentially data sheets which report scores against the indicators used. Some, such as the **UK** Broiler Condition Report and the KIK system in **Denmark**, include data to allow the grower to benchmark against previous performance and also against the wider industry (this can also be done in **Germany**). Whilst the **Polish** system does not allow the grower to benchmark performance, the district veterinary officer can monitor the progress of individual farms and benchmark individual farms against the district average.

EFSA (2013a), in providing technical assistance to the Commission on Member State submission of results of monitoring data, provided a possible structure for data transmission from Member States to EFSA through EFSA's Data Collection Framework. This covered indicators for hock burn and FPD, in addition to a range of other elements going beyond these. Any harmonised data structure could follow this template as it would allow data to also be transmitted to EFSA for EU-level analysis. A key point to note when gathering data at the EU level is that it must be collected on a consistent basis in order to allow meaningful analysis.

5.8 Use of indicator data

The exact use of indicator data on farm obviously depends on the problems that are identified and the nature of any causal links to specific issues. For example, high levels of mortality indicate a problem on-farm, but it is not possible to isolate the cause without further investigation which growers will then have to undertake, this may not always be successful. High FPD scores are usually related to litter quality. If wet, a stakeholder noted that this might result from a problem with the water supply to the house. Growers will seek to understand the reason for scores which are higher than they would have expected and will take appropriate action where they can identify what this would be. It should be noted that in many cases growers will already be aware of issues, the evidence for which is later provided through the indicator system, and will often have already taken measures to address the cause of the problem.

Action is usually required to be taken on farm where indicator trigger levels are exceeded. Sometimes breaches in trigger levels lead automatically to enforced reductions in stocking density (for example, breach of the FPD trigger in **Sweden**), but generally the action to be taken is agreed between the grower and the farm veterinarian and is not automatic.

Many growers use the information provided from the slaughterhouses to make what they perceive as necessary adjustments to management and conditions even where indicator trigger levels are not breached.

In **Denmark**, growers have had ten years' experience of receiving indicator data and credit this with some clear improvements in conditions which have resulted in a decline in the incidence of conditions such as FPD over time. Steenberg (2014) reports that the incidence of FPD scores below 40 has increased from 30% to 75% between 2003 and 2013 in Denmark and the incidence of scores in excess of 80 has decreased from 35% to 8% over the same period. The prevalence of severe FPD in **Sweden** has decreased from 11% in 1994 to between 4% and 6% from 1995 to 2001 and then to 3% in 2005 after a brief spike to 7% in 2002 and 2003 (SBA, 2011). The point was made in the Swedish case study, and also by industry stakeholders, that poor welfare is linked to reductions in

economic performance. As a result, improvements in welfare will have had economic benefits. In the case of Sweden these are thought to have compensated for the additional costs involved (SBA, 2011).

Slaughterhouses also pointed to improvements in the incidence of hock burns, breast blisters and the number of Dead on Arrival and stated that there have been (unquantifiable) economic benefits as a result of the general improvements. In the **Netherlands**, the mandatory requirement to record FPD levels has contributed to an improvement in management practices on-farm and a lower incidence of FPD.

In **France** and **Germany**, the availability of large data sets allows slaughterhouse to identify the best producers in their region and adjust their supply accordingly. Growers are also able to use the data that builds up to adjust their supply with operators in **Denmark** and **Germany** identifying problems with litter and day-old chicks and adjusting their purchasing patterns accordingly. The breeding sector also finds time series data useful in identifying issues which need to be addressed.

Often slaughterhouses operate bonus/malus systems under which payments are affected by the indicator scores; this is especially the case where there is an end market for feet which would be adversely affected by poor FPD scores. The impact of these systems in encouraging improvements was noted in particular in **Denmark, France** and **Poland**, although they are used more widely.

The breeding industry considers (heritable) traits related to broiler health and welfare in selection programmes (European Commission, 2016a). The main traits considered are immune response, skeletal integrity, heart and lung fitness, liveability/survival/low mortality, feathering and absence of breast lesions. A stakeholder explained that breeders are also likely to consider other indicators of welfare, although these are considered to be confidential. Another stakeholder said that breeders will also work with growers in response to indicator data to adapt their technical management advice, management guides and nutrition guides as required. However, this stakeholder noted that this work is hampered to some extent by the lack of harmonisation in the indicators used, and the way in which they are used, across the EU.

Stakeholders also explained that feed manufacturers have testing farms and that they use these to test feed mixtures for a variety of reasons, including to reduce the incidence of animal welfare problems. The main driver of changes in feed mix is economic performance and one of the main changes over time has been to reduce the incidence of wet litter which is also a key driver of the incidence of FPD. Feed manufacturers in the UK receive data from a range of welfare indicators, but only the FPD indicator is considered to be useful.

In summary, the general consensus from the case studies was that the use of indicators has led to improvements in animal welfare on-farm in a general sense, specifically through slaughterhouse use of bonus/malus systems and finally through the follow up provided for when indicator trigger levels are breached. Welfare indicators are also widely used in breeding programmes and in the feed industry.

5.9 Perceived suitability of animal welfare indicators

Respondents to both the competent authority survey and the survey of national AVEC members were asked to comment on their perception of the suitability of a range of possible indicators based on those presented in EFSA (2012b). Competent authority respondents were asked to rank the suitability of each indicator for assessing animal

welfare on-farm using a five-point scale from highly suitable to highly unsuitable; the industry was asked to identify which indicators are perceived to be useful for growers.

The FPD score was considered by competent authorities to be the indicator most useful in assessing animal welfare on-farm (most respondents considered this indicator to be highly suitable). Cumulative Daily Mortality Rate was ranked second with hock burn, breast burn and breast blisters of declining utility. No indicators were considered, on average, to be unsuitable in revealing poor animal welfare on-farm, although some were scored negatively by some respondents, including with most frequency: medicine use, wing fractures, scratches, Dead on Arrival and cellulitis.

FPD was also considered to be the most useful indicator for growers by national AVEC members with wing fractures and Dead on Arrival considered the next most useful followed by Cumulative Daily Mortality Rate and the number of rejections. The difference in the perceived utility of wing fractures and Dead on Arrival is likely to reflect the fact that growers have a commercial interest in their birds arriving at the slaughterhouse in good condition; the interest in the number of rejections is also likely to result from commercial interest rather than a strict concern for animal welfare. The indicator considered to be of least interest to growers was cellulitis, with emaciation, dehydration, breast blisters and respiratory problems also of low interest. The point was made in **Sweden** that the incidence of cellulitis is relatively high because the use of antibiotics is kept to an absolute minimum and that using this indicator would therefore be problematic (this indicator is not currently used in Sweden).

The case studies essentially corroborated this picture with the FPD indicator seen by all actors as being the most relevant to animal welfare on-farm. Some of those interviewed felt that hock burn and breast burn/breast blister indicators were less useful than FPD. Those interviewed in **Denmark** felt that any problem which was revealed by these indicators would almost certainly have also been revealed by the FPD indicator. In the **Netherlands**, the use of a hock burn indicator was abandoned because FPD was considered to be a more reliable indicator of animal welfare on-farm and is also easier to measure.¹⁹ A stakeholder suggested that additional indicators had also been used in other Member States, but had been discontinued for similar reasons. Stakeholders agreed that the use of a hock burn indicator added very little information where an FPD indicator was also used.

One issue raised with the use of FPD as an indicator of on-farm animal welfare was where it is linked to an automatic reduction in stocking density as is the case in **Sweden**. The Swedish industry does not believe that there is a clear causal relationship between stocking density and the incidence of FPD (a point also made in the **Netherlands**). As a result, the Swedish industry thinks that a straightforward financial penalty for breaches of FPD triggers would be more appropriate than an enforced reduction in stocking density which also disrupts the supply chain. It is though accepted that the FPD score provides a good indication that something has caused poor animal welfare on-farm and the point of the sanction is to highlight to the grower the importance of understanding and resolving issues.

Some concerns were raised with regard to the use of mortality as an indicator. In **Denmark**, where this point was made most strongly, interviewees felt that some distinction between birds culled and those that die is necessary to make this indicator meaningful (a point also made in **Germany**, **Sweden** and in the **Austrian** AVEC member

¹⁹ EFSA (2012b) makes clear that hock burns are related to the weight of the birds as well as to wet litter and ammonia concentrations in the litter.

survey response). Growers explained that culling takes place for animal welfare reasons and that this need does not always arise from conditions on-farm; for example, genetic problems and specific issues with day-old chicks can lead to a high incidence of culling irrespective of the conditions on-farm. As a result of this lack of differentiation, carrying out culling for animal welfare reasons can lead to punishment for the grower which is not considered to be the outcome that the Directive is seeking. The additional point was made that if mortality is a useful indicator of on-farm animal welfare then it should be required at all stocking densities and not just those in excess of 33 kg/m². Interviewees in other Member States also highlighted concerns with the utility of mortality indicators as currently constructed, including the perceived disproportionate burden.

The point was widely made that indicators such as Dead on Arrival, scratches and wing fractures were usually the result of issues at catching and transport and that therefore these indicators do not provide information on welfare on-farm (although of course they do report on welfare at catching, loading and transport and they are therefore not without wider utility; Dead on Arrival figures could also be influenced by the general condition of the birds prior to catching).

Some animal welfare organisations, for example, in **Poland** and the **UK**, felt that the trigger levels associated with indicators are set too high to be effective in identifying anything but the worst cases of poor animal welfare. In fact, the trigger associated with Cumulative Daily Mortality Rate in Poland was found by the Directorate Health and Food Audits and Analysis to exceed the maximum level permitted at stocking densities of between 39 k/m² and 42 kg/m² and the trigger had to be subsequently revised downwards (European Commission, 2015).

In summary, the use of an indicator system is considered to be useful in providing information on animal welfare on-farm and the incidence of FPD is considered to be the most useful indicator in this respect and has led to reductions in the incidence of severe FPD in both Denmark and Sweden. An industry stakeholder noted that while there had been concern in the industry over which indicators might be introduced under the Directive, in practice FPD is the only additional indicator widely used. Stakeholders did not think that other animal-based measures were necessary. However, stakeholders explained that a holistic approach to indicators is required; the use of individual indicators in isolation cannot provide a full picture of animal welfare on-farm and the involvement of farm veterinarians remains important.

The point was made in Germany that indicators used need to be feasible, relevant and clearly linked to causal factors. In Denmark it was stressed that indicators need to be reliable, repeatable and legally safe (i.e. they can be used in court where necessary). Indicators need to fit within this framework if they are to be meaningful and worth using. Stakeholders corroborated these comments noting that indicators should be both practical and efficient; one added that they should be robust, flexible and easy to implement.

The importance of harmonisation between Member States was raised by stakeholders and particularly in the context of the **Danish** and **Swedish** case studies. In this context, the different approaches taken to the trigger levels should also be noted. In some Member States, for example, **Denmark, Italy, Netherlands, Spain** and **Sweden**, FPD trigger levels can be reached by any combination of severity of FPD. To take an example, a score of 40 could be reached by 40 less severe cases (scored 1), 20 severe cases (scored 2) or some combination. In **Germany**, a more explicit difference is drawn between severe and less severe cases. In the **UK**, the trigger level is set with reference to the industry average incidence and therefore should move over time in absolute

terms; as long as the incidence of FPD decreases over time then this approach would offer continual improvements in animal welfare. As noted above, though, it does not follow that it would be appropriate for all Member States to operate the same trigger levels, although standard guidance on how to score indicators would help to create a more level playing field.

As long as Member States either use different indicators, or take different approaches to the use of indicators, it is possible that some growers will choose to send birds for slaughter where requirements are considered less stringent as is sometimes currently the case.

6 CONCLUSIONS

6.1 Implementation of the Directive

In most Member States the national legislation implementing the Directive is a direct transposition. However, national legislation goes beyond the provisions of the Directive in Austria, Denmark, Finland, Germany, Netherlands, Sweden and the UK.

Article 3: Requirements for the keeping of chickens

Germany is the only Member State where housing requirements go beyond those set out in the Directive. Basic maximum stocking densities in Austria and Sweden are below 33 kg/m². The two stocking density derogations (to 39 kg/m² and to 42 kg/m²) are not taken up in Austria. The maximum permitted stocking density in Denmark is 40 kg/m² and in Sweden 36 kg/m². The derogation to allowing stocking densities up to 42 kg/m² is not taken up in Germany or England, Scotland and Wales in the UK (it is taken up, but not used in Northern Ireland).

Article 4: Training and guidance for persons dealing with chickens

Only three Member States appear not to offer appropriate training courses. Only five Member States offered comparable training prior to the implementation of the Directive. The conclusion is therefore that the Directive has resulted in improvements in the training provided across the EU.

Training courses offered generally follow the subjects set out in Annex IV of the Directive. In some Member States training goes beyond these requirements. Case study Member States have all established systems to control and approve training courses. Around two-thirds of Member States recognise experience acquired before 30 June, 2010 as being equivalent to participating in training courses. Two-thirds of certificates awarded follow training courses and one-third have been awarded in respect of experience gained prior to 30 June, 2010. Owners as well as keepers are required to undergo training in 12 Member States. Finally, competent authorities check whether growers/owners provide instructions or guidance on animal welfare to employees in 24 Member States.

Article 7: Inspection

Inspection regimes are in place in all 28 Member States. Some of these cover a proportion of all growers, others take a risk-based approach. Directorate Health and Food Audits and Analysis found minor deficiencies in a number of Member State inspection regimes during audit, but action has been taken to address these.

Article 8: Guides to good management practice

Guides have been produced in several Member States, sometimes by competent authorities and sometimes by industry bodies. Guides are also produced by integrators and retailers, and sometimes by animal welfare NGOs. There are some Member States where no guides appear to have been produced.

Article 9: Penalties

The use of penalties is low as these are considered to be a last resort and Member States have systems in place for corrective action where necessary. An escalating scale of

penalties is normal with criminal penalties applying in extreme cases of animal cruelty. Penalty systems are generally considered to be effective by industry and competent authorities, although animal welfare NGOs felt that sometimes trigger levels are not sufficiently strict.

Impacts of the implementation of the Directive

There has been almost no assessment of the impact of the implementation of the Directive. However, practices were little changed as a result of implementation in a number of Member States. Most impacts mentioned were positive, with the most widely mentioned being training provision, guides to good practice and animal welfare. The main negative impacts reported were administrative burden and time requirements for slaughterhouse staff and Official Veterinarians; generally negative impacts are perceived to have been greater at the slaughterhouse than they are on farm.

Costs of the implementation of the Directive

The costs of implementation were estimated in six Member States, but the methodologies used are not comparable. The largest estimated cost was in the UK, but a large proportion of this related to the national decision not to take up the stocking density derogation to 42 kg/m². Even the large cost calculated was offset by estimates of consumer willingness to pay for the higher animal welfare delivered. Estimated costs in other Member States ranged from negligible, where little change resulted from implementation, to annual costs to the industry starting at around €1 million per year to annual costs to the industry of up to €6 million. Additional, but lower, additional costs applied to competent authorities.

6.2 Use of animal welfare indicators

Potential welfare indicators

Indicators need to be fit for purpose, which means that they must be both sensitive and specific so that they clearly identify causal factors which can be addressed on-farm. They should also be repeatable and reliable so that results are robust. Indicators should not impose an unreasonable burden on operators.

Certain indicators, such as wing fractures, scratches and bruising do not reliably inform about conditions on-farm because these injuries usually occur in catching, transport or the process of slaughter. EFSA found that indicators of hock burn, FPD, breast blisters and plumage cleanliness have specific links to consequences. However, only hock burns and FPD indicators have specific links through animal welfare consequences to environment/management factors (inappropriate type and quality of water equipment, wet litter and high stocking density). The links between indicators of hock burn and FPD and wet litter/high stocking density were also judged by EFSA to be reasonably sensitive.

“Iceberg” indicators, those which indicate that there is an animal welfare problem, but which are not specific and therefore do not help in identifying the cause, can also be useful as part of a screening process and when used in conjunction with other indicators and/or investigations.

Indicators currently in use

Several indicators of animal welfare are used, generally in line with the requirements associated with higher stocking densities in the Directive. However, not all the specified

indicators are used in all Member States. Specific concerns were raised with mortality indicators in terms of the burden that data collection imposed on growers and the fact that these do not take account of birds culled for animal welfare reasons. In many cases, industry operators are unsure whether the indicators that they use are mandatory by law or are part of industry standards and/or voluntary higher welfare schemes. The use of voluntary indicators is driven by perceptions of consumer demand and is more common in northern Member States, where stocking densities tend to be higher, than in southern Member States.

Indicators of the incidence of FPD are recorded in 18 Member States. These appear to be based on the original Swedish approach in terms of the collection of data, but calculations of values and associated trigger points differ between Member States, as do consequences for breaching levels and subsequent follow-up activities. This is considered appropriate to reflect the different levels of animal welfare outcomes encountered. Data are almost always collected manually, but automated camera systems are in use in relatively small number of slaughterhouses.

Data recording of animal-based indicators is carried out by the Official Veterinarian or trained slaughterhouse staff under the supervision of the Official Veterinarian. Data recording and transmission is generally electronic. In some Member States data are transmitted back to growers within hours, but in some the process can take a few days. It is important that data arrive with the grower in time to make any necessary adjustments before the next flock is placed. There is also variety in the nature of data transmitted with growers in some countries receiving comprehensive data straight from the slaughterhouse and some only receiving data for some indicators unless trigger levels are exceeded. As a general rule, data transmission tends to be quicker and more comprehensive where the supply chain is integrated.

The exact structure of data transmission differs by Member State according to what is recorded and often within Member State by slaughterhouse; the exact design does not seem to be an important factor. Some systems allow growers to compare their performance against specific indicators over time and also to benchmark their performance against the wider industry. EFSA has produced a proposed data model which could serve as the basis for a harmonised approach. This would also be compatible with their Data Collection Framework and would thus allow analysis of data at the EU level.

Many growers will use indicator data to make any adjustments to management and environmental conditions that they feel are necessary, irrespective of whether any specific trigger levels have been breached. In many cases, issues will already have been identified whilst the flock was on the farm and necessary action taken. Action is usually required to be taken when trigger levels are exceeded. Action can be automatic, for example, enforced reductions in stocking density, but usually results from discussions and agreements between the grower and the farm veterinarian.

There is evidence that the use of indicators has resulted in a decline in the incidence of animal welfare consequences over time. There is quantitative evidence for decreases in the incidence and severity of FPD in Denmark and Sweden and qualitative evidence for similar improvements elsewhere. These impacts have arisen in part as a result of the use of bonus/malus systems by slaughterhouses which provide an economic incentive for growers to improve performance. Indicators of animal welfare are also used in the breeding and feed industries, although the relationship between good animal welfare and economic performance should be noted because the latter is the more important driver of change.

Suitability of animal welfare indicators

Largely in line with the conclusions of EFSA, the industry and competent authorities find FPD indicators the most suitable for identifying problems on-farm which can be addressed through management and/or environmental changes. Cumulative Daily Mortality Rate was also considered a useful indicator, although as an “iceberg” indicator, other information is necessary to establish the cause of specific problems and it is important to take into account the impact of culling on the figures. Hock burn, breast burn and breast blisters were considered by competent authorities to be of declining suitability. Although EFSA concluded that hock burn can be related to management/environmental factors, it is considered likely that the FPD indicator would reveal the same problems and is more reliable; the use of hock burn as an indicator was discontinued in the Netherlands for this reason.

6.3 Findings on animal welfare indicators to be recorded at slaughterhouses

Following EFSA (2012a), only indicators of FPD and hock burn provide a relatively strong indication of problems linked to specific management/environmental factors. Indications of FPD are widely used across the EU (18 Member States) and this indicator is widely considered by both industry and competent authorities to be suitable in revealing animal welfare problems on-farm at a reasonable burden. The use of this animal-based indicator, alongside the indicators mandated in the Directive, is therefore considered to be proportionate and practical. Quantitative and qualitative evidence on the use of this indicator over time suggests that it is also effective in reducing the incidence and severity of FPD. Hock burn indicators are infrequently used. The use of this indicator was discontinued in the Netherlands where it was felt to be redundant given the use of the FPD indicator; stakeholders agreed with this conclusion.

There is a reasonable degree of coherence in terms of the way in which the FPD indicator is scored and data produced. However, there are differences in the trigger levels used and the action taken as a result. This means that growers in different Member States can operate with different “accepted” levels of FPD in their flocks and therefore different animal welfare consequences. Stakeholders found this inevitable, but noted that animal welfare outcomes should converge over time if similar indicator systems and follow-up are used.

The recording and transmission of indicator data is generally electronic. It is important that data arrive with the grower in time to make any necessary adjustments before the next flock is placed. The recording/transmission systems used differ by Member State. Some allow growers to benchmark their performance over time and against the wider industry which is useful. The exact design of the system does not seem to be an important factor, but it is noted that EFSA has produced a proposed data model which is compatible with their Data Collection Framework (EFSA, 2013a). This model could provide a harmonised approach which would allow data to be uploaded to EFSA and analysed at the EU level.

In considering the use of animal-based indicators consistently across the EU it is useful to note the following points:

- FPD indicators are already widely used for commercial reasons related to markets for feet as well as for animal welfare reasons.
- Indicators used should add information, i.e. there is no need for indicators which are “redundant” in terms of what they add. The cost of additional indicators should

be proportionate in terms of the additional information they provide. The use of an FPD indicator, supported by the array of "iceberg" indicators specified in the Directive, would seem appropriate and sufficient.

- The potential role of automated systems in providing consistent and comparable data, subject to existing limitations.
- The use of enforced stocking density reductions as a sanction for exceeding indicator trigger levels disrupts operators in the supply chain which are not responsible for animal welfare on-farm.
- The importance of ensuring that the use of indicators leads to improvements in animal welfare on-farm over time. This means that the feedback process and actions taken as a result are important. Setting a trigger level with reference to national industry averages could be helpful here as long as there is general improvement over time.
- There are limited examples of "slaughterhouse tourism" where growers send birds for slaughter in other Member States where feedback on indicators to the competent authority in the originator Member State may not take place. This could be stopped if information were always passed between Member States (as currently takes place between Belgian slaughterhouses and the Netherlands competent authority).
- When setting trigger levels, a balance needs to be found between resources available for controlling the system and the need to correctly uncover cases of poor animal welfare on-farm.
- Adequate and ongoing recalibration of manual (or automated) scoring systems should be undertaken to ensure that there is consistency between slaughterhouses and over time.

Given the above, it appears that it is appropriate, effective and proportionate for the FPD indicator to be used throughout the EU as an animal-based measure of welfare to be recorded at slaughterhouses. Harmonised guidance could be produced on the use of this indicator covering best practice. This guidance could cover the approach to sampling in the slaughterhouse, the scoring of indicators and ongoing training to ensure consistency and the approach to setting trigger levels, although the levels themselves should be determined by Member States with reference to the current incidence of FPD. Trigger levels could be set such that they will lead to improvements in the incidence of FPD over time. The guidance could also cover feedback to growers (form and timing), practical ways to reduce the incidence, etc. The possibility to use automated systems could be foreseen in any guidance produced.

Guidelines could be based on the revised definitions of FPD produced by EFSA and could follow the system developed in Sweden as this is already widely used. Guidelines could be supported by regular meetings between competent authorities and industry within Member States and in meetings at the EU level, for example through working groups or the existing BTSF programme.

7 REFERENCES

- Anonymous** (2015) Merkblatt zur Vermeidung von Hitzestress bei Masthühnern. 07.07.2015.
- Authority for Consumers and Markets** (2014) ACM's analysis of the sustainability of the "Chicken of Tomorrow". Reference: ACM/DM/2014/206028.
- AVEC** (2015) 2015 Annual Report. Association of Poultry Processors and Poultry Trade in the EU Countries – ASBL.
- Berg, C. and Algiers, B.** (2004) *"Using welfare outcomes to control intensification: the Swedish model"*. **Weeks, C. A. and Butterworth, A.** (2004) Measuring and auditing broiler welfare. CABI, Wallingford, UK pp37-49.
- Blokhuis, H. J., Jones, R. B., Geers, R., Miele, M. and Veissier, I.** (2003) *"Measuring and monitoring animal welfare: transparency in the food product quality chain"*. Animal Welfare, 12, 445–455.
- BML** (2009) Bundeseinheitliche Eckwerte für eine freiwillige Vereinbarung zur Haltung von Jungmasthühnern (Broiler, Masthähnchen) und Mastputen. 23. September 1999; 321-3545/2 4157/3659.
- Bock, B. B., Hacking, N. and Miele, M.** (2014) Report on the main problem areas and their sensitivity to be addressed by knowledge transfer for each of the specific aspects of the legislation chosen for this project. Coordinated European Animal Welfare Network (EuWelNet). Deliverable 4, 7 April 2014.
- Bundesrat** (2009) Vierte Verordnung zur Änderung der Tierschutz-Nutztierhaltungsverordnung. Drucksache 399/09.
- Butterworth, A., de Jong, I. C., Keppler, C., Knierim, U., Stadig, L. and Lambton, S.** (2015) *"What is being measured, and by whom? Facilitation of communication on technical measures amongst competent authorities in the implementation of the European Union Broiler Directive (2007/43/EC)"*. Animal, August 2015.
- De Jong, I., Berg, C., Butterworth, A. and Estevéz, I.** (2012) Scientific report updating the EFSA opinions on the welfare of broilers and broiler breeders. Supporting Publications 2012:EN-295.
- De Paepe, K.** (2017) Communication on monitoring by Belgian industry. Environment, Nature and Energy Department, Flanders.
- Defra** (2010) Impact Assessment: Council Directive 2007/43/EC laying down minimum rules for the protection of chickens kept for meat. 13/05/2010.
- Dickinson, C.** (2014) State of the poultry industry. AHDB Outlook Conference, 2014.
- Dybowski G.** (2014) Podstawy konkurencyjności polskiej branży drobiarskiej. (The base for competitiveness of Polish Poultry Sector). Studia i monografie nr 160, IAFE-NRI (ISBN 978-83-7658-473-7).
- EFSA** (2013a) *"Technical assistance to the Commission (Article 31 of Regulation (EC) No 178/2002) for the preparation of a data collection system of welfare indicators in EU broilers' slaughterhouses"*. Scientific Report of EFSA. EFSA Journal, 2013; 11(7):3299.
- EFSA Panel on Animal Health and Welfare (AHAW)** (2010a) *"Scientific opinion on the influence of genetic parameters on the welfare and the resistance to stress of commercial broilers"*. EFSA Journal, 2010; 8(7):1666, 82 pp.
- EFSA Panel on Animal Health and Welfare (AHAW)** (2010b) *"Scientific opinion on welfare aspects of the management and housing of the grand-parent and parent stocks raised and kept for breeding purposes"*. EFSA Journal, 2010; 8(7):1667, 81 pp.
- EFSA Panel on Animal Health and Welfare (AHAW)** (2012a) *"Statement on the use of animal-based measures to assess the welfare of animals"*. EFSA Journal, 2012; 10(6):2767.

- EFSA Panel on Animal Health and Welfare (AHAW)** (2012b) *“Scientific opinion on the use of animal-based measures to assess welfare of broilers”*. *EFSA Journal*, 2012; 10(7):2774.
- EFSA Panel on Animal Health and Welfare (AHAW)** (2013b) *“Scientific opinion on monitoring procedures at slaughterhouses for poultry”*. *EFSA Journal*, 2010; 11(12): 3521
- Eurogroup for Animals** (2010) New EU rules do little to protect chickens raised for meat. Press Information. Brussels, 1 July, 2010.
- European Commission** (2011a) Final report of a mission carried out in Austria from 20 to 26 January 2011 in order to evaluate the implementation of controls on animal welfare on farms and during transport. DG (SANCO) 2011-6096 - MR FINAL. Ref. Ares(2011)767482 - 14/07/2011.
- European Commission** (2011b) Final report of an audit carried out in Slovakia from 06 to 14 September 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2011-6053 - MR FINAL. Ares(2012)224773.
- European Commission** (2011c) Final report of an audit carried out in Belgium from 27 June to 01 July 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2011-6039 - MR FINAL. Ref. Ares(2011)1368519 - 16/12/2011.
- European Commission** (2011d) Final report of an audit carried out in Hungary from 05 to 09 September 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2011-6045 - MR FINAL. Ref. Ares(2012)42276 - 13/01/2012.
- European Commission** (2011e) Final report of an audit carried out in Poland from 25 May to 01 June 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2011-6049 - MR FINAL. Ref. Ares(2011)1202998 - 11/11/2011.
- European Commission** (2011f) Final report of an audit carried out in Portugal from 17 to 25 May 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2011-6052 - MR FINAL. Ref. Ares(2011)912524 - 26/08/2011.
- European Commission** (2012a) Final report of an audit carried out in Germany from 06 to 10 February 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6380 - MR FINAL. Ares(2012)622021.
- European Commission** (2012b) Final report of an audit carried out in the Netherlands from 21 to 25 May 2012 in order to evaluate the implementation of controls on animal welfare on farms and during transport. DG(SANCO) 2012-6376 - MR FINAL. Ares(2012)1372585.
- European Commission** (2012c) Final report of an audit carried out in Slovenia from 16 to 20 April 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6375 - MR FINAL. Ref. Ares(2012)1130952 - 27/09/2012.
- European Commission** (2012d) Final report of an audit carried out in Lithuania from 12 to 16 November 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6526 - MR FINAL. Ref. Ares(2013)455038 - 22/03/2013.
- European Commission** (2012e) Final report of an audit carried out in Bulgaria from 05 to 13 June 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6454 - MR FINAL. Ref. Ares(2012)1111299 - 25/09/2012.
- European Commission** (2012f) Final report of an audit carried out in France from 12 to 22 November 2012 in order to evaluate the implementation of controls for animal

- welfare on farms and during transport. DG(SANCO) 2012-6446 - MR FINAL. Ares(2013)1099030.
- European Commission** (2012g) Final report of an audit carried out in Latvia from 15 to 19 October 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6525 - MR FINAL. Ares(2013)283398.
- European Commission** (2012h) Final report of an audit carried out in Romania from 21 to 29 November 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport. DG(SANCO) 2012-6374 - MR FINAL. Ref. Ares(2013)1846550 - 07/06/2013.
- European Commission** (2013a) Final report of an audit carried out in Denmark from 07 to 11 October 2013 in order to evaluate the implementation of council of Europe requirements for animal welfare in major farmed species and official controls on chickens kept for meat production. DG(SANCO) 2013-6807 - MR FINAL. Ref. Ares(2014)1935738 - 13/06/2014.
- European Commission** (2013b) Final report of an audit carried out in the United Kingdom from 25 February to 01 March 2013 in order to evaluate the implementation of Council of Europe requirements for animal welfare in major farmed species and official controls on chickens kept for meat production. DG(SANCO) 2013-6822 - MR FINAL. Ref. Ares(2013)2847326 - 07/08/2013.
- European Commission** (2014a) Final report of an audit carried out in Italy from 03 to 14 March in order to evaluate the animal welfare controls in place at slaughter and during related operations. DG(SANCO) 2014-7075 - MR FINAL. Ref. Ares(2014)3533193 - 24/10/2014.
- European Commission** (2014b) Final Report of an Audit carried out in the Netherlands from 16 to 26 September 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations. DG(SANCO) 2014-7078 - MR FINAL (2014). Ares(2015)1140563.
- European Commission** (2014c) Final report of an audit carried out in Germany from 10 to 20 June 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations. DG(SANCO) 2014-7073 - MR FINAL. Ares(2015)256544.
- European Commission** (2014d) Final report of an audit carried out in Hungary from 24 June to 04 July 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations. DG(SANCO) 2014-7072 - MR FINAL. Ares(2015)734834.
- European Commission** (2015) Country profile: follow up status of FVO recommendations. Ref. Ares(2015)5523463 - 02/12/2015. DG(SANTE)/2015-7660 Final Version October 2015.
- European Commission** (2015) Final Report of an Audit Carried Out in Poland from 09 March to 13 March 2015. EC, Directorial F – Food and Veterinary Office. DG(SANTE) 2015-7420-MR.
- European Commission** (2015) EU Agricultural Outlook: prospects for EU agricultural markets and income 2015-2025.
- European Commission** (2016a) Report from the Commission to the European Parliament and the Council on the impact of genetic selection on the welfare of chickens kept for meat production. Brussels, 7.4.2016. COM(2016) 182 final.
- European Commission** (2016b) Use of Slaughterhouse Data to Monitor Welfare of Broilers on Farm. Overview report. DG Health and Food Safety. DG(SANTE) 2016-8999 – MR.
- European Parliament** (2010) The poultry and egg sectors: evaluation of the current market situation and future prospects. Study for the European Parliament Directorate General for internal policies policy department B: structural and cohesion

- policies, agriculture and rural development. Project carried out by Agra CEAS Consulting.
- FCEC** (2012) Study on various methods of stunning poultry. Report to DG SANCO. Project leader: Bradley, D., Agra CEAS Consulting, December 2012.
- FCEC** (2015) Study on information to consumers on the stunning of animals. Final Report to DG SANTE. Project leader: Bradley, D., Agra CEAS Consulting. February, 2015.
- Hochschule Osnabrueck** (2013) Etablierung eines Gesundheitskontrollprogramms für Puten gemäß „Bundeseinheitliche Eckwerte (2013)“.
- IBF International Consulting** (2013) Study of the impact of genetic selection on the welfare of chickens bred and kept for meat production. Final report to DG SANCO. Prepared by: Sipke Joost Hiemstra and Jan Ten Napel. Contract N° SANCO/2011/12254. January 2013.
- Jasper, M.** (2017) “Monitoring systems: communication and coordination by official services”. BTSF-Workshop on monitoring of indicators at slaughterhouse to improve on farm welfare of broilers. Grange, Ireland: 24th – 26th January 2017.
- Jordbruksverket** (2009) Konsekvensutredning till föreskrifter om ändring i Jordbruksverkets föreskrifter och allmänna råd (SJVFS 2010:XX) om djurhållning inom lantbruket m.m. Diarienummer, 31-3939/09.
- LEI Wageningen** (2013) Competitiveness of the EU poultry meat sector. LEI Report 2013-068. December 2013. Project code 2273000568. LEI Wageningen UR, The Hague. Commissioned by the Association of Poultry Processors and Poultry Trade (AVEC) in the EU.
- LGC** (2016) Study on state of play of processing technologies and the absorption of water in poultrymeat. Final Report for DG AGRI, European Commission. LGC, Agra CEAS Consulting and National Reference Laboratories. ISBN 978-92-79-54862-8.
- MAGRAMA** (2011) Estudio sobre bienestar animal en los pollos de engorde.
- Maliki, M.** (2017) BTSF Workshop Monitoring of Indicators at Slaughterhouses to Improve Farm Welfare of Broilers. 24-26 January, 2017. Moy Park Ltd.
- Ministry of Health** (various) National Plan on Animal Welfare 2010, 2013, 2016.
- Nomisma** (2016) L'avicoltura italiana: un modello sostenibile e di integrazione di filiera nel settore delle carni.
- Nygaard, C.** (2016) Danish achievements on foot pad lesions in broilers. Danish Agricultural & Food Council.
- RSPCA** (2013) RSPCA welfare standards for chickens. November, 2013.
- SCAHAW** (2000) The welfare of chickens kept for meat production (broilers). Scientific Committee in Animal Health and Animal Welfare. European Commission, Health and Consumer Protection Directorate General, Brussels, Belgium. SANCO.B.3/AH/R15/2000.
- Sandilands, V. and Hocking, P.** (eds) (2012) Alternative Systems for Poultry: Health, Welfare and Productivity. Poultry Science Symposium Series.
- SBA** (2011) Broilers: Data collection in Swedish slaughterhouses. Swedish Board of Agriculture. Brussels, 10/10/11.
- Scottish Government** (2009) Consultation on the Transposition of Council Directive 2007/43/EC on the Welfare of Meat Chickens.
- Sheppard, A. and Edge, S.** (2005) Economic and operational impacts of the proposed EU Directive laying down minimum standards for the protection of chickens kept for meat production. Research undertaken for Defra by the University of Exeter Centre for Rural Research and ADAS.
- Spindler** (2009) Abschlussbericht Untersuchungen zur Besatzdichte bei Masthühnern entsprechend der RL 2007/43/EG. Universität Hannover, für das Niedersächsische Ministerium für Ernährung, Landwirtschaft, Verbraucherschutz und Landesentwicklung.

- Steenberg, B.** (2014) Facts about the production of poultry meat in Denmark. Danish Poultry Meat Association, 04/07/16.
- UNAITALIA** (2014) Annata avicola 2014 (dati definitivi) e previsioni 2015.
- USDA** (2011) Implementation of Animal Welfare Directives in the EU. GAIN Report Number: E60042. 14 July, 2011.
- World Poultry** (2016) Breeding for alternative markets. Nov 18, 2015 update: Mar 9, 2016.

APPENDIX 1: LITERATURE REVIEW

A1.1. Summary of EFSA involvement in broiler welfare

The Scientific Committee on Animal Health and Animal Welfare, the body which held responsibility for the provision of scientific advice to the Commission on animal welfare prior to the creation of EFSA, produced a paper on the welfare of chickens kept for meat production in 2000 (SCAHAW, 2000). This report concluded that the major welfare problems in broilers are side effects of the intense selection process designed to produce fast growth and efficient feed conversion. The major welfare problems identified were listed as leg disorders, ascites, sudden death syndrome in growing birds and welfare problems in breeding birds such as severe food restriction. The report therefore recommended that efforts be made to reduce the negative side effects from breeding programmes. This report is mentioned in recital (4) of the Directive and it is clear that the Directive has been informed by it.

In 2010 EFSA produced a scientific opinion on the influence of genetic parameters on the welfare of commercial broilers (EFSA, 2010a) and a scientific opinion on welfare aspects of management for breeding stock (EFSA, 2010b).

EFSA (2010a) also noted that it is generally accepted that most of the welfare problems present in broilers are caused by genetic factors and that increased mortality is associated with faster growth rates. However, it was also acknowledged that there are important interactions with the birds' environment such as the type of production, feeding regime and management practice and that this interaction can exacerbate or mitigate these negative animal welfare impacts. The major diseases with animal welfare implications are:

- leg problems, mainly caused by genetics and fast growth, leading to lameness which can be measured by examining gait;
- contact dermatitis conditions (especially footpad dermatitis), multi-factorial causes involving environmental conditions such as wet litter as well as genetic predisposition;
- ascites, caused by genetic predisposition and linked to growth rates, its prevalence is decreasing; and,
- sudden death syndrome, caused by genetic predisposition and linked to growth rates.

EFSA noted that there is a lack of comprehensive scientific data on this issue and it was therefore recommended that surveillance systems be set up to collect relevant data on diseases with major impacts on welfare in commercial flocks, and to monitor trends in the prevalence and welfare consequences of these diseases. EFSA recommended that the data that should be recorded on farm should include the number of birds found dead, the number of birds culled, the reasons for culling and the mortality rate at different ages.

Although the genetic selection of broilers has changed considerably over the past decades and does encompass welfare traits, including particular pathological conditions, the level of genetic improvement and the impact that this has on animal welfare outcomes cannot be quantified due to the lack of access to confidential breeder data. EFSA concluded that it is therefore necessary to record data on welfare outcome indicators (such as mortality and culling rates and the reason for dying and culling, gait scoring and ascites in commercial rearing conditions) independently.

In view of the interaction between genetic traits and the environment such as lighting regimes, litter management, dietary deficiencies and contamination, air quality and temperature it is also necessary to consider indicators relating to these. That said, EFSA point out that this is not a straightforward relationship with some indicators of potentially poor welfare, such as scratches, possibly exacerbated by increased bird activity, which could itself indicate better welfare.

Based on an assessment of the risk of exposure to hazards and the magnitude of the poor welfare effects (consequences) of that exposure, EFSA stated that the areas with major risk scores were:

- unbalanced body conformation;
- high stocking density;
- fast growth rate;
- low light intensity; and,
- wet litter.

EFSA (2010b) was concerned specifically with breeding stock. A risk assessment process concluded that the main five hazards according to risk scores were:

- barren environments;
- high stocking density;
- fast growth rate;
- feed restriction; and,
- low light intensity.

The point was made that the issues relating to breeding stock are essentially the same as for broilers, but with some additional and specific concerns.

EFSA (2012a) reported on the use of animal-based measures to assess the welfare of animals. The Statement was based on previous work in relation to specific species and on protocols developed in the EU-funded Welfare Quality® project and similar scientific research. The point was made that lists of animal-based measures are long and it is not necessary to recruit all measures on every occasion when the welfare of an animal is to be assessed. The outcome of this was the proposal to use a toolbox from which a range of appropriate animal-based measures specific to the species can be drawn. The choice of measures to be used will also depend on the purpose of the assessment, the skills of the person collecting the measure, the conditions under which it is to be gathered, the time available to collect it and financial constraints. To this list might be added the stage in the production chain; in the case of broilers, on farm or at the slaughterhouse. In essence this choice requires a utility, cost-benefit assessment of specific measures.

The EFSA Statement also considers the criteria, such as validity, sensitivity, specificity and robustness that should be used to select appropriate animal-based measures. In making this assessment it is likely that overlaps between indicators will be revealed which means that it should be possible to reduce the number of indicators which it is necessary to collect data on.

Standardised field data are not available for most species and the Statement therefore recommended that future work identify the animal-based measures to be placed in the toolbox for each species and produce a short-list of measures which both provide a means of assessing welfare and for which it is possible to carry out harmonised data collection.

In line with this recommendation, EFSA (2012b) provided a review of possible animal-based measures specifically for broilers which built on the previous work discussed above as well as a scientific report updating the previous EFSA opinions (De Jong, *et al*, 2012) and the Welfare Quality® project. Unlike EFSA's work, the Welfare Quality® project focused on all animal-based indicators which could be used to determine animal welfare rather than only on those associated with negative welfare outcomes.

EFSA (2012b) explained that animal-based indicators must be **fit for purpose** in that the test methods and related procedures must be appropriate (properly validated) in view of a specific purpose. **Validation** means that the diagnostic **sensitivity** and **specificity** must be understood (when combined these can be referred to as **accuracy**). Some measures can have adequate sensitivity, but low specification. In other words, these indicate that something is wrong, but do not identify exactly what this is or what has caused it. Such measures are known as "iceberg indicators". These can provide a good overview, but require the use of more specific indicators to provide feedback which can be used to address the problem. Robustness is also an essential attribute so that measures taken are **repeatable** and **reliable**. This is an essential characteristic for measures which are to be harmonised. Where indicators are reported at the flock, farm or population level it is important that the sample used is unbiased and is representative of the variation present, i.e. sex, weight, location in the building, *etc.*

EFSA (2012b) categorises animal-based measures as follows:

- Observations and measures. These are direct indicators derived from welfare assessments carried out on-farm, ante- or post-mortem. These include assessments of behaviour, clinical signs of injury or lameness, contact dermatitis, *etc.* and some are required to be collected by veterinarians or other authorised individuals.
- Flock records. These are indirect and provide overarching indicators which include body weight, disease records, mortality, *etc.* These are not usually taken from individual birds and may include records of animal-based measures obtained using automated methods (e.g. automatic weight recording).

Non-animal-based measures, those which are resource- and management-based, are categorised as:

- Observations and measures. In this case of housing provided, management practices, biosecurity and health control.
- Documentation. Records covering biosecurity, feed delivery, feeding programmes, lighting programmes, checking back-up systems, bird origin and delivery, staff training).

A list of potential animal-based measures was developed based on the Welfare Quality® project and a review of literature. This is reproduced in Table A1.1. Sources of possible measures are not indicated in the interests of clarity; these can be found in EFSA (2012b). Indicators which appear in the Directive are clearly identified.

Table A1.1: List of animal-based measures to address welfare consequences in broilers

Consequence	Available animal-based measures	
	Welfare Quality®	Other sources
Mortality	<ul style="list-style-type: none"> • Culls on-farm (F) • On-farm mortality (F) 	<ul style="list-style-type: none"> • Found dead (F) • First week mortality (F) • Cumulative daily mortality rate: Council Directive 2007/43/EC (F) • Daily mortality rate (F)
Musculoskeletal disorders (infectious, developmental, degenerative)	<ul style="list-style-type: none"> • Gait score (F) 	<ul style="list-style-type: none"> • Gait analysis (F) • Digital motion detections (F) • Anatomical and pathological changes (F/S) • Automated activity recording (F) • Latency to lie test (waterbath test) (F), modified latency to lie test (F) • Force plate assessment (F)
Muscle disorders: <ul style="list-style-type: none"> • myopathies (deep pectoral myopathy, muscular dystrophy); and, • muscle damage 		<ul style="list-style-type: none"> • Biochemical indices of muscle damage (F/S) • Anatomical and pathological changes, autopsy (F/S)
Contact dermatitis	<ul style="list-style-type: none"> • Breast burns (F/S) • Hock burns (F/S) • Foot-pad dermatitis (F/S) 	<ul style="list-style-type: none"> • Foot-pad lesions (F/S) • Contact dermatitis (F/S)
Skin disease	<ul style="list-style-type: none"> • Breast blisters (F/S) 	<ul style="list-style-type: none"> • Breast blisters (F/S)
Ascites, pericarditis, sudden death syndrome and spiking mortality syndrome		<ul style="list-style-type: none"> • Anatomical and pathological changes, <i>post-mortem</i> inspection, autopsy (F/S) • Found dead, mortality, daily mortality rate: Council Directive 2007/43/EC (F)
Respiratory and mucous membrane diseases (infectious and environmental origin)		<ul style="list-style-type: none"> • Mortality (F) • Morbidity (F) • Anatomical and pathological changes, <i>post mortem</i> inspection (F/S)
Thermal discomfort (heat stress)	<ul style="list-style-type: none"> • Panting (F) 	<ul style="list-style-type: none"> • Panting (F) • Space distribution (F)
Thermal discomfort (cold stress)	<ul style="list-style-type: none"> • Huddling (F) 	
Behavioural restriction	<ul style="list-style-type: none"> • Qualitative behavioural assessment (QBA) (F) • Plumage cleanliness (F/S) 	<ul style="list-style-type: none"> • Mobility (digital motion detections) (F) • Leg problems (see above musculoskeletal disorders) • Motivation for activity (F) • Duration of bouts of different behaviours (F) • Distance walked per unit of time (F) • "Bird compression" (actual a minimum space occupied by birds) (F)

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Consequence	Available animal-based measures	
	Welfare Quality®	Other sources
Fear (SCAHAW, 2000)	<ul style="list-style-type: none"> Avoidance distance test (ADT) 	Fear measures (avoidance distance test, touch test, novel object test) (F)
Hunger		<ul style="list-style-type: none"> Body weight (F/S) Growth rate, feed consumption (F)
Thirst	<ul style="list-style-type: none"> Dehydration measures (shank skin chicks) (F/S) 	<ul style="list-style-type: none"> Water consumption (F) Dehydration measures (shank skin chicks) (F/S), Voluntary water consumption (F)
Digestive dysfunction	<ul style="list-style-type: none"> Plumage cleanliness (F/S) 	Excreta quality (diarrhoea) (F)
Emaciation	<ul style="list-style-type: none"> Emaciation (F/S) 	Weight, body condition (F/S)
Injuries	<ul style="list-style-type: none"> Plumage damage (feather pecking; laying hen protocol) (F/S) Comb pecking wounds (laying hen protocol) (F/S) 	<ul style="list-style-type: none"> Scratches, wounds, bruising (F/S) Broken wing bones, broken legs (F/S) Aggressive behaviour (F) Culling due to injuries (F)
Other diseases (infectious and non-infectious)	<ul style="list-style-type: none"> Eye pathologies (laying hen protocol) (F/S) Parasites (laying hen protocol) (F/S) Septicaemia (F/S) Hepatitis (F/S) Abscesses (sub-cutaneous pus) (F/S) 	<ul style="list-style-type: none"> Eye irritations and abnormalities (F/S) Parasitic infections (ecto-parasites, endo-parasites) (F/S) Septicaemia (F/S) Hepatitis (F/S)

Source: EFSA (2012b).

Note: (F) refers to measures which can be recorded on farm; (S) refers to measures which can be recorded at slaughterhouses.

EFSA (2012b) makes clear that not all of the identified indicators are practical for use in commercial flocks of standard broilers (for example, force plate analysis of lameness, biochemical indices of muscle pathology); other measures have not been validated for the intended purpose (for example, Qualitative Behaviour Assessment). It is also made clear that animal-based measures taken at slaughterhouses, but meant to reflect animal welfare on-farm, should not be affected by catching, transport or slaughtering conditions. For example, foot-pad dermatitis is not influenced by catching and transport whereas broken wing bones and bruising are.

EFSA (2012b) developed two diagrams linking **factors** (high stocking density, wet litter, etc.) to **consequences** (reduced litter quality, pain from breast burn, etc.) to **animal-based measures** (foot-pad dermatitis, breast blister, etc.). The first of these showed the relationship between consequences and animal-based measures in terms of specificity and the second in terms of sensitivity. These diagrams showed which animal-based measures might be used to indicate factors causing problems.

A key finding was that even where there are links between consequences and animal-based measures these tend to be relatively weak so that there is no clear certainty that an animal-based measure is in response to a specific consequence or that if a consequence is present that this will be detected by the animal-based measure. This means that these measures would be likely to lead to false positives (implying a consequence where there is none) and false negatives (implying no problem when in fact there is). Clearly a system based on measures such as these would be of questionable fitness for purpose.

For example, a strong specificity and sensitivity link was found between "panting" and "hyperthermia/heat stress" indicating that if "panting" is observed, "hyperthermia/heat stress" is very likely to be present in the flock. Although "on-farm mortality" and "dehydration" measures are also linked with "hyperthermia/heat stress", the specificity is lower, which means that there is little indication of which consequence is present. Despite this, because "high temperature and humidity", "high stocking density" and "poor ventilation" all have low probability links with "hyperthermia/heat stress", it would be difficult to draw conclusions on causality.

On the other hand, the diagrams show that if "hock burn" and "foot-pad dermatitis" are present they are strongly linked through the consequences of "pain from hock burn" and "pain from foot-pad dermatitis", respectively to "wet litter" as a causal factor and through "reduced litter quality" to "high stocking density".

Examples of "iceberg indicators" highlighted by the diagrams are "on-farm mortality" and "culls-on-farm". These indicators are linked with high sensitivity, but low specificity, to a large number of consequences and therefore to many possible causal factors. These indicators could therefore be useful for screening flocks with welfare problems, but would not be able to identify the cause of these.

The diagrams also highlight links between factors. For example, where there is "high stocking density" there is also likely to be "wet litter". It is therefore clear that there are a lot of inter-relationships rather than clear "straight lines" between indicators and ultimate causes.

EFSA (2012b) also found that there are many consequences which cannot be linked to animal-based measures, although most can be linked to non-animal-based measures, usually stocking density and wet litter measures. Examples included "reduced air quality", linked to "high stocking density" and "atmospheric ammonia irritating the eyes" linked to "wet litter".

There are also cases where it is possible to consider an animal-based measure, but where a non-animal-based measure might be more practical. For example, it is possible to assess eye discharge in individual birds, but it might be more practical/cost-effective to record the level of ammonia and air quality and assess eye discharge in a sample of broilers as a check on this less specific approach.

EFSA (2012b) concludes by considering the development of tools to monitor broiler welfare and notes the need for the systematic collection of data to allow the further investigation of associations between factors, consequences and animal-based measures and the investigation of the predictive capacity of the correlations and associations.

The point is made that consideration is required in terms of how data are to be analysed and used as well as how they are to be recorded. In other words, the feedback of data to allow action to be taken is important; data collected at the slaughterhouse are of no

practical use unless they can be used to improve the situation on-farm. There is also utility in the data being used as an input into policy decisions.

EFSA (2012b) notes the provision within the Directive for daily mortality rates and the cumulative mortality rate to be monitored where birds are kept at stocking densities greater than 33 kg/m² and points out that while these measures have poor specificity and sensitivity, they are associated with a high number of consequences. Additional information on management practices, such as those described in Annex I of the Directive, could allow links between mortality and factors/consequences to be better quantified. However, the way in which data will be made available is considered to be unclear (also for the additional data requirements when stocking up to 42 kg/m²).

With respect to animal-based measures, the point is made that the measurement of these needs to be standardised across the EU and concern is raised that it is not clear how standardised this process will be. The potential for automated data collection is stressed to help achieve the necessary standardisation and some examples of systems in use in slaughterhouses are provided.

EFSA (2012b) notes that while there are typical animal-based measures which can be recognised on-farm, not all useful animal-based measures can be observed and quantified under normal farming conditions, particularly at the end of the production cycle, when animal density is approaching its limit. It is therefore necessary to consider some indicators at later stages in the supply chain, such as in the slaughterhouse, where the visual inspection is an ideal point at which animal-based measures can be taken.

In terms of the use of such indicators, EFSA note that a system of routine recording of foot-pad dermatitis in broilers was developed in the mid-1990s in Sweden, and was later adopted in Denmark, and is now applied at all broiler slaughterhouses in these countries. This is based on the visual examination of a systematic random sample of 100 single broiler feet per flock at slaughter. The feet are examined after scalding, and given a score from 0 (no lesions), to 1 (mild, superficial lesions, discolouration) or 2 (severe lesions, ulcers). The scores are then weighted and summarised to give a total flock score, which is used as a direct indicator of foot-pad dermatitis and an indirect indicator of litter quality and bird management. According to EFSA, this system has proven relatively easy to enforce and standardise using short courses and photographic material. The results are reported back to farmers and involved organisations and show where urgent actions have to be taken, either immediately before the next fattening flock arrives on the farm (e.g. new and better absorbing litter) or by introducing more fundamental changes in the animal houses (e.g. equipment, enrichment).

In summary, EFSA (2012b) found that the strongest animal-based measures that can be recognised on-farm are "panting", "dehydration", "lameness", "culls on-farm", "on-farm mortality", "plumage cleanliness" and "emaciation". The animal-based measures which can be comprehensively recognised at the slaughterhouse during meat inspection are: "foot-pad dermatitis", "hock burn", "breast burns", "breast blisters", "emaciation", "ascites" and "dehydration".

EFSA (2013a) provides technical assistance to the Commission for the preparation of a data collection system of welfare indicators in EU broiler slaughterhouses. This is concerned with the requirement of Article 6(2) of the Directive which Member States to submit to the Commission the results of the data collection based on the monitoring of a representative sample of flocks slaughtered during a minimum period of one year. Specifically, EFSA was asked to assess whether the proposed sample size set out in the

Commission draft document proposing a harmonised data collection system is sufficient to achieve the objectives set.

The Commission draft document sets out the animal welfare indicators to be collected. These were selected on the basis of (i) feasibility; and (ii) impact in terms of animal welfare. Feasibility was determined by current practice in a number of Member States, specifically Denmark, France, Spain, Portugal, Sweden and the UK. Impact was determined by the prevalence and severity of the conditions as well as correlation with management practices (see EFSA, 2012b). These indicators are:

- Hock burns
- Foot pad dermatitis
- Total rejections
- Culling rate
- Cumulative daily mortality
- Standard mortality
- Dead on arrival at the slaughterhouse

EFSA (2013a) concludes with the recommendation that if an EU harmonised data collection system is implemented in the future and Member States submit data directly to EFSA, these data should be submitted through the EFSA Data Collection Framework (DCF). A possible data model for the submission of data is proposed.

EFSA (2013b) is concerned with monitoring procedures at slaughterhouses for poultry relating to the slaughter process itself and is therefore not directly relevant to this study.

A1.2. Implementation of the Directive by Member State

The series of relevant Directorate Health and Food Audits and Analysis reports allows an initial overview of the implementation of the Directive (Table A1.2). Although this would have been correct at the time of the audits, it is possible that the situation has evolved since then and this is something that will be assessed in our online survey of Member State competent authorities. A summary of the relevant findings from the Directorate Health and Food Audits and Analysis audit reports has been extracted and is provided below by Member State (in most cases these have been paraphrased or otherwise edited). European Commission (2016b) provides an overview of relevant Directorate Health and Food Audits and Analysis reports which corroborates the independent findings presented here.

Table A1.2: Relevant DG Health and Food Safety audit reports

Member State	Audit report category		
	Slaughter related operations	Farms and transport	Major farmed species and chickens for meat production
Austria		January, 2011	November, 2013
Belgium	December, 2014	July, 2011	
Bulgaria		June, 2012	
Czech Republic	June, 2014		
Denmark	May, 2014		October, 2013
France	April, 2015	November, 2012	
Germany	June, 2014	February, 2012	
Hungary	July, 2014	September, 2011	
Italy	March, 2014	November, 2011	
Latvia	February, 2014	October, 2012	

Member State	Audit report category		
	Slaughter related operations	Farms and transport	Major farmed species and chickens for meat production
Lithuania		November, 2012	
Netherlands	September, 2014	May, 2012	
Poland	March, 2015	June, 2011	
Portugal		May, 2011	
Romania		November, 2012	
Slovenia		April, 2012	
Slovakia		September, 2011	
Spain	April, 2014		
United Kingdom			March, 2013

A1.2.1. Austria

Final report of a mission carried out in Austria from 20 to 26 January 2011 in order to evaluate the implementation of controls on animal welfare on farms and during transport

Austrian national legislation goes beyond the Directive in terms of stocking densities with the maximum set for chickens at 30 birds/m² with no exemptions. However, the Directive had not been fully transposed as there was no requirement for operators to obtain a training certificate, as required by Article 4; although training courses were available it was not ensured that all requirements of Annex IV of the Directive were included.

A non-discriminatory inspection, as foreseen under Article 7.1 of the Directive had been carried out and this concluded that the national requirements for breeding broilers, including the stocking density of 30 kg/m², were respected and the conditions for keeping birds was in line with the requirements of the Directive. The farmer regularly received inspection reports from the authorised veterinarians in a slaughterhouse. This included data on injuries detected, such as percentage of broken wings or leg bones and haemorrhages around the chest. However, no information on foot lesions was routinely reported. If the authorised veterinarian in the slaughterhouse detects significant injuries which could be related to the transport of or catching of birds, then the official veterinarian would be informed who would then perform a follow up check on the farm.

The Directorate Health and Food Audits and Analysis recommended that the Directive be transposed into national legislation, in particular the requirements on training and certification as required by Article 4. In response the competent authority (CA) noted that the corresponding requirements for farms are laid down in the Animal Welfare Act [Tierschutzgesetz] and in the 1st Regulation on the Keeping of Animals [1. Tierhaltungsverordnung (1. THV)]. It stated that the necessary clarifications and additions will be made in Annex 6 to 1.

Final report of an audit carried out in Austria from 25 to 29 November 2013 in order to evaluate the implementation of Council of Europe requirements for animal welfare in major farmed species

By November, 2013, no system had been established to monitor *post-mortem* indicators of animal welfare in poultry slaughterhouses. Further, the audit found that no specific instructions or guidance had been issued on how to implement Annex III of the Directive on monitoring and follow-up at the slaughterhouse.

The audit team observed a large slaughterhouse's systems of control related to the evaluation of ante and *post-mortem* indicators of animal welfare. The conclusion was that the slaughterhouse visited had a well-conceived and implemented system for assessing and reporting on a number of welfare indicators found at *post-mortem* (these are detailed in the DG Health and Food Safety audit report). Where standards were not respected, price reductions were imposed. This, and the fact that there had been no reports to the provincial CA in either 2012 or 2013, suggested that animal welfare conditions are generally good on the broiler farms supplying this slaughterhouse. According to the central competent authority, the industry expected to implement a national scoring system for foot pad dermatitis (FPD) by June, 2014.

A1.2.2. Belgium

Final report of a mission carried out in Belgium from 27 June to 01 July 2011 in order to evaluate the implementation of controls on animal welfare on farms and during transport

The Directive has been transposed into Belgian legislation. Under this, training for keepers new to the industry will be made available in Flanders and Wallonia if needed. One training course has been held for CA staff.

In the absence of full information on all broiler premises from official controls, the CA has used the available resources and reports of Belgian commercial poultry quality standards organisations (QSO) to inform them of the operational standards present on the majority of broiler premises. The CA has put in place a system which authorises approximately 95% of broiler holdings in Belgium to operate at the highest stocking density (42 kg/m²) permitted in the Directive if the farmers are members of a QSO and implement its procedures.

However, these holdings cannot necessarily meet all the requirements of the Directive as the QSO does not always monitor all the requirements of Annex V. There has been no official delegation of these official controls to the QSO. In addition, as the CA relies on the results of the QSO, operators may not have been the subject of monitoring by the CA in the last two years which is not in compliance with point 1(a) of Annex V of the Directive.

The Directorate Health and Food Audits and Analysis recommended that the CA ensure that the system used to monitor the requirements of the Directive complies fully with all the reporting requirements of Annex V and provides satisfactory assurances of the reliability of the information provided to the CA.

In response the CA agreed that the QSO inspections are accepted as the required inspections in the framework of Annex V of Council Directive 2007/43, but stated that this agreement had never been made official and acknowledged that there is no real follow-up by the CA of the inspections carried out. The CA stated that the Animal Welfare Department will draw up an official protocol with the QSO which will clearly state the responsibilities and tasks of each party. A verification of the inspections carried out will also be included in this protocol.

By late 2014, a protocol had been put in place between the certifying body and the CA to regularly check broiler farms but the records of the certifying bodies' checks had not been analysed (see below).

Final report of an audit carried out in Belgium from 24 November 2014 to 03 December 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The Directorate Health and Food Audits and Analysis audit found that neither the daily mortality rate (DMR) or the cumulative daily mortality rates (CDMR) were not entered in the documents accompanying birds to the slaughterhouse (this is required under point 1(1) of Annex III to the Directive). The rationale for this provided by the central CA was that the sector considers this requirement to be an administrative burden and that nobody wanted this information at slaughterhouse level.

The Directorate Health and Food Audits and Analysis also found that the system set up by the central CA and the Federal Agency for the Safety of the Food Chain (FAFSC) for monitoring welfare indicators in slaughterhouses (point 2 of Annex III to the Directive) is insufficient. Welfare indicators used include total DMR, birds rejected on *post-mortem* inspection and deaths on arrival. However other welfare indicators such as foot-pad dermatitis, hock burns and breast blisters are not included. The only trigger level that initiates an investigation when exceeded is deaths on arrival (1%), but it was noted that enforcement action was not taken because of the low number of non-compliance cases on *post-mortem* inspection.

In terms of monitoring compliance with the criteria for increasing stocking density (Annex V to the Directive), the Directorate Health and Food Audits and Analysis noted that:

- A protocol is in place between the certifying body and the CAs to check broiler farms every two years as required by the Directive. FAFSC check broiler farms once every eight years.
- The Provincial Control Units (PCUs) have no regular information on the monitoring of Annex V to the Directive. The certifying body report only serious problems to PCUs and they were not aware of any shortcomings regarding light, records, litter, ventilation, gas concentration, relative humidity, humidity or CDMR compared with the requirements of the Directive.
- Although the CA indicated that the certifying body report the results of these checks to them via a database, they could not confirm that within the last two years producers operating at the higher stocking densities comply with the Directive as FAFSC did not analyse the data.

In conclusion, the Directorate Health and Food Audits and Analysis stated that:

The monitoring of welfare indicators in poultry slaughterhouses is insufficient to allow enforcement actions to be taken when and where necessary, as the system is based mainly on an indicator of welfare during transport — deaths on arrival — plus certain unscored *post-mortem* indicators which do not trigger any action. It also lacks data on daily mortality rates.

Monitoring of compliance with the criteria for increasing stocking density was also insufficient as the CA has not got a system in place to ensure that the results of these checks confirm that within the last two years producers operating at the higher stocking densities comply with the Directive.

The Directorate Health and Food Audits and Analysis recommended that a system for monitoring broiler welfare in poultry slaughterhouses be established so that:

- enforcement actions can be taken when necessary, based on triggered post-mortem indicators of welfare; and,
- the records of daily mortality rates accompany the broiler chickens to slaughterhouses when these birds are kept at stocking densities above 33 kg/m².

The CA responded that the Flanders and Walloon regions will examine the possibilities for installing a more extensive monitoring system for broiler welfare in the slaughterhouses with the poultry sector. In the first instance it will be assessed whether it would be possible to adopt the monitoring system for foot pads used in the Netherlands. The poultry sector will also be reminded of the obligation to have the DMR accompany the birds to the slaughterhouse. The possibility of including these data in the food chain information documents will be considered.

With respect to stocking densities above 33 kg/m², the CA noted that regionalisation meant that the central protocol with the QSO would need to be redrafted at the regional level. When this is done (2016), a system will also be set up to follow-up the inspection results.

A1.2.3. Bulgaria

Final report of an audit carried out in Bulgaria from 05 to 13 June 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis found that the Directive has been fully transposed under the Regulation of 26 August 2008 (State Gazette 72 of 15/8/2008). The register of broiler farms is available on the Bulgarian Food Safety Agency (BFSA) Website. Training for keepers of chickens kept for meat production (Article 4 of the Directive) is performed by OV's of the relevant Regional Food Safety Directorates (RFSD).

Guidelines and procedures for the assessment of stocking density and a new check list for broilers were available on the CA website and were used in practice.

The overall animal welfare conditions at the broiler farm visited were considered to be satisfactory. Stocking density requirements (where higher than 33 kg/m²) had been assessed and the OV had correctly calculated the stocking density. A compliance notice had previously been given for the omission of records on cumulative daily mortality rate in the documents accompanying birds to the slaughterhouse. Despite this, these records had still not been sent with recent batches of birds to slaughter.

The monitoring of environmental parameters foreseen in Annex II of the Directive had been carried out only once by the farmer that the Directorate Health and Food Audits and Analysis visited. Equipment to check these parameters had been recently purchased by the CA, but because the units used were different from those set out in the Directive, the OV was not able to state if the levels detected were or were not in compliance with the legal requirement. The central CA was aware of this issue and guidelines for the conversion of these parameters to allow their correct reading were provided after the audit had been completed.

There is no system in place for the communication of *post-mortem* inspection results (such as abnormal levels of contact dermatitis, parasitism and systemic illness) to the owner or keeper of the animals and to the CA for appropriate action. There are no specific guidelines to slaughterhouse OV's for the assessment of specific *post-mortem*

lesions linked to animal welfare (such as: a threshold % of birds with contact dermatitis above which the CA and the owner would be notified, or a scoring system to indicate the severity of the lesions). However, Good Management Practice guidelines were available, but at farm level only.

The Directorate Health and Food Audits and Analysis concluded that although there were some deficiencies in the verification of the environmental parameters for increased stocking densities, official controls on broiler farms were implemented correctly.

However, there is no system in place for communication of animal welfare indicators to or from slaughterhouses, contrary to Annex III, points two and three of the Directive.

The Directorate Health and Food Audits and Analysis therefore recommended that such a system be put in place. In response the CA explained that the requirements of Annex III, points 2 and 3 of the Directive, are transposed into the national legislation (Art. 13 of Ordinance Nº 26 of 5.08.2008 laying down minimum standards for animal welfare and protection for broilers, promulgated in SG 72 of 15.08.2008). Further, the BFSA has elaborated a system for the better communication of possible animal welfare indicators to/from slaughterhouses (official letter signed by the executive director of BFSA 17/07/2012).

A1.2.4. Czech Republic

Final report of an audit carried out in the Czech Republic from 16 to 20 June 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The DG Health and Food Safety audit found that there is a “trigger” for animal welfare built into the State Veterinary Administration (SVA) information systems concerning poultry *ante* and *post-mortem* findings in slaughterhouses. This system highlights to the OVs where threshold values are exceeded and a decision is needed. The triggers include daily and cumulative daily mortality rate, mortality during transport, dead or injured birds detected at ante-mortem and pathological findings (singly and in combination) from *post-mortem*. However, there is no system in place for scoring footpad dermatitis.

Although the Directorate Health and Food Audits and Analysis concluded that an appropriate system is in place, they suggested that the system does not appear to be effective because it had not resulted in a single slaughterhouse notification for animal welfare of broilers on holdings in two years.

The Directorate Health and Food Audits and Analysis recommended that the CA review the system for analysing the results from *post-mortem* monitoring in poultry slaughterhouses (required by Article 3(1) and Annex III of the Directive), so that (i) adequate attention is paid to levels of contact dermatitis such as footpad dermatitis; and, (ii) it leads to the identification of possible indications of poor welfare conditions in the holding of origin.

In response the SVA stated that guidelines will be provided to the Regional Veterinary Administration (RVAs)/OVs on the issues of assessment of ante-mortem as well as pathological findings in broilers, including footpad dermatitis. The trigger system will also be modified to be more useful for everyday inspections to be more effective in terms of feedback. They added that the data for 2014 will be evaluated and used for the selection of farms for measurement of animal hygiene conditions in broiler farms

according to Article 11 of Decree no. 208/2004 Coll. on minimum standards for the protection of farm animals.

A1.2.5. Denmark

Final report of an audit carried out in Denmark from 07 to 11 October 2013 in order to evaluate the implementation of Council of Europe requirements for animal welfare in major farmed species and official controls on chickens kept for meat production

Denmark has implemented the provisions of Directive 2007/43 through the following legislation: Act no. 687 on the keeping of broilers; Order no. 757 on the keeping of broilers and the production of eggs for hatching and Order no. 245 on education and qualifications in connection with the keeping of broilers.

A maximum stocking density of 40 kg/m², measured as the average of the stocking densities for the present flock and the two previous flocks is permitted. At no time is it allowed to exceed the maximum stocking density permitted in the Directive of 42 kg/m².

The Danish poultry Council and the Ministry of Justice have drafted guidelines which have been issued in accordance with Article 8 of the Directive and provide useful management information for producers.

Keepers of chickens bred for the production of meat must participate in a training course to receive a certificate attesting their competence. Transitional provisions were made for persons who had been responsible for a broiler farm from 1 April 2005 until 1 April 2010 and had no serious infringements of animal welfare legislation during that period. One day courses approved by the Danish Veterinary and Food Administration (DVFA) have been provided by the Knowledge Centre for Agriculture, part of the Danish farmers advisory system. These courses cover the subjects mentioned in annex IV of the Directive.

Official Controls on Farms

The DVFA makes extensive use of and relies on the Kvalitetssikring i Kyllingeproduktionen²⁰ (KIK) quality assurance database to inform and carry out their official controls on broiler farms. The basic concept and features of the system were set out in the audit report as follows:

- The Danish Poultry Meat Association has developed a quality assurance and documentation system for its members (KIK) accredited to the EN 45011 standard, including a central database, which records information on all stages in the rearing of chickens for meat including: breeding, hatching, feed and other suppliers, rearing on farm, catching, transport and slaughter. Part of the KIK standard has been approved by the DVFA. The system has been fully implemented since 2009 covering all farms slaughtering in Denmark, only a small number of producers exporting birds are not covered. Members are subjected to an annual inspection by KIK and an inspection by an external audit body every three years.
- All bodies involved in the rearing of chickens for meat have access to KIK, including DVFA officials who can interrogate it at farm, office, or slaughterhouse level to ensure that keepers are complying with the requirements of the Directive.

²⁰ Quality Assurance in Poultry Production.

- Information on the KIK system is based around the concept of rearing of birds in flock rotations and recording it on a house basis. Information on the requirements of the Annexes to the Directive including parameters for each building such as measurements, ventilation capacities, alarms, lighting programmes etc. used for registration of producers are entered into KIK. Useable floor area is not measured or routinely verified by Veterinary Officers (VOs), but is initially assessed by Industry Consultants. One case was reported where the police were asked to measure the useable area as a producer had not used a consultant to submit data and had a poor compliance history.
- Producers must record key figures daily regarding the environment in the house (temperature and air humidity), mortality and any reasons for killing birds. Daily mortality rates (DMR) are entered by the farmer and are available to the slaughterhouse OV.
- The database calculates stocking densities on the basis of house measurements and the number of animals and weights of consignments delivered to the slaughterhouse. It also calculates the CDMR on the basis of food chain information submitted by the farmer and this is then subsequently updated when additional dead birds may be found during house cleansing and disinfection between batches. Results of scoring for foot pad dermatitis (FPD) are also recorded within the database. After slaughtering, the producer can obtain the slaughter results and broiler payment information via his access to the database.

In terms of official controls on farms, training for VOs and OVs was held on two occasions in 2011 and 2013 with a meeting of all personnel involved in field controls held in 2012. Detailed guidance for carrying out animal welfare checks on holdings of broiler chickens was revised by the DVFA in 2013. Prior to 15 February 2001 every flock rotation on broiler farms was visited by a VO to carry out ante-mortem inspection. Since then, ante-mortem inspection has been carried out in slaughterhouses, although control of hygiene requirements was still carried out in each flock on farm until March 2010, when the legislation was changed. The CA inspects at least 5% of all broiler farms, but at least 50 farms, each year, which means that in practice 50 farms (approximately 25% of all farms) are controlled yearly. The premises to be visited are selected centrally and sent to the regional offices where VOs specialised in broiler production perform the visits. Inspections must take place in last week of the rearing cycle when the birds are usually at their highest stocking density.

The Directorate Health and Food Audits and Analysis concluded that the CA has a well-developed and satisfactory system of official controls to implement the Directive on farm. The programmed annual checks of broiler holdings and effective targeted follow up inspections based on information received from slaughterhouse checks has resulted in graduated enforcement action. Although, there is a possible weak point in controls in relation to environmental parameters (carbon dioxide CO₂ and ammonia NH₃), the outcome based system has resulted in the identification of problem farms and action has resulted in an improved animal welfare situation. This is despite there being no requirement in the broiler industry guidelines that operators must ensure that the requirements of Annex 2 point 3 of the Directive are met.

Reporting of Results of Checks in Poultry Slaughterhouses

Denmark has had legislation in place requiring the monitoring of post mortem indicators of animal welfare in poultry at slaughterhouses since 2001. Every flock delivered to the slaughterhouse, has had to be examined for a number of welfare indicators at the slaughterhouse including:

- Control of plumage condition (since 2001)

- Control of FPD (since 2001)
- Control of information from the producer regarding breed and mortality, and the number of chickens dead on arrival (since 2010)
- Control of other indicators, which may indicate welfare problems in the house, for instance hock burns, breast blisters, scratches, emaciation, dehydration, crop constipation (since 2010)

For FPD, 100 feet from 100 different birds (50 from the first and 50 from the last part of the flock) must be examined for foot pad lesions and each foot must be given a score from 0 for no foot pad lesions, 0.5 where non serious lesions are seen and 2 where serious lesions are present.

The score for all 100 feet is then calculated and the OV at the slaughterhouse must react as follows:

- If the total score is no more than 40 points: no reaction
- If the total score is from 41-80 points: the OV issues a warning, telling the producer to correct the conditions in order to reduce the score of the next flock delivered for slaughter. If the total score is 41 or more when the next flock is delivered, the OV asks the regional veterinary authority to take action.
- If the total score is 81-200 points, the OV asks the regional veterinary authority to take action.

Serious maltreatment of broilers, refusal to correct problems or other infringements can still be reported to the police, irrespective of the FPD score.

The KIK system's database has been instrumental in being the portal for data entry, recording and interrogation of this data as it relates to FPD for a number of years. From this data the DVFA has been able to calculate that the prevalence of serious FPD (scores over 80) has decreased from approximately 60% in 2002 to about 10% in 2012. There has been a correlated increase in the number of flocks judged to have low FPD (scores less than 40) from approximately 10% in 2002 to 65% in 2005. There has not been much change in these parameters between 2005 and 2012. The prevalence of mid-range scores has narrowed from 30% in 2002 to 20% by 2012.

Training for OVs in the scoring of FPD has recently been given every two years, and results from the anonymous scoring of feet samples sent to OVs have been collated and reported upon to DVFA at the same frequency as this was seen to be necessary to maintain and improve consistency of scoring. One University researcher in the field acts as the reference judge for scoring the samples and providing consistency. OVs have also joined the field VOs for training days on broilers.

The audit concluded that the well-conceived and implemented system for assessing and reporting on welfare indicators found at *post-mortem* in poultry slaughterhouses, together with financial incentives provided by slaughterhouses, has been effective in raising the level of welfare on broiler farms through marked reductions over time in the level and severity of footpad dermatitis.

The Directorate Health and Food Audits and Analysis recommended that the CA should take suitable measures to ensure that guidance on the assessment of environmental parameters provided to both operators and CA staff include all the requirements of Annex II, point 3 of the Directive and that rearing templates supplied by hatcheries to farmers comply with these.

In response, the CA said that guidelines for operators on the assessment of environmental parameters (NH₃, CO₂, temperature and humidity) will be drafted. Hatcheries will be asked to correct the management guidelines for relative humidity on the template document and bring them in accordance with the provisions of the Directive. The guidelines for the CA staff on control in broiler flocks will be amended in order to specify the provisions on environmental parameters. The CA expected to implement these measures no later than 1 April 2014.

Final report of an audit carried out in Denmark from 05 to 09 May 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

Although the report states that in addition to its main objective the audit also evaluated whether indications of poor welfare conditions of chickens kept for the production of meat are being detected at slaughterhouse level and subsequently reported and acted on as required by Article 3 and Annex III of the Directive, no further reference to the Directive was found.

A1.2.6. France

Final report of an audit carried out in France from 12 to 22 November 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The audit found that there are 14 training bodies approved to offer courses for broiler keepers throughout France. In order to gain approval, details must be provided of the course, the trainers and the methods to be used. The General Directorate of Education and Research of the Ministry of Agriculture, Food and Forest (Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt) are responsible for approving such bodies and the list of bodies established is valid for five years.

Some 174 trainee broiler keepers attended 14 training sessions in 2011 with a total duration of 133 hours of training. In 2012, at the time of the audit, 11 training sessions had been attended by 127 trainees with a total duration of 133 hours of training. Certificates can also be issued on the basis of experience (Article 4 of the Directive).

The central CA set a target for the Direction départementale de la protection des populations (DDPPs) to check broiler farms which had requested to operate at the highest permitted stocking density (39-42 kg/m²) of 20% of these in each half of 2011 and 10% in 2012.

The CCA has developed an inspection protocol. The audit concluded that the documented procedures for broiler inspections facilitate a harmonised approach to inspections and are generally comprehensive in covering the legal requirements. However, although the Directive does allow derogations from the maximum mortality rates at the increased stocking density when sufficient explanation is given, instructions allow keepers who have had exceeded the maximum mortality rates on up to two occasions, and who also have had significant mortalities in the first 10 days of production, to continue to operate at the highest densities without considering this as a non-compliance. In addition, the audit found that CA procedures do not adequately cover the assessment or verification of environmental parameters such as light intensity, relative humidity and gas concentrations.

The Directorate Health and Food Audits and Analysis recommended that the central CA should ensure that documented procedures (required under Article 8 of Regulation (EC) No 882/2004), provide sufficient guidance to inspectors to assess and verify the requirements of Annex I (6) and Annex II (3) of the Directive. It was noted that these instructions should not allow derogations beyond those allowed by Annex V 2 to this Directive and should take full account of Article 2 (c), in relation to mortalities and mortality rates at the increased stocking density.

In response the competent authority noted that appropriate changes would be made in terms of the treatment of mortality rates. A meeting with industry representatives would be scheduled to address this.

Final report of an audit carried out in France from 08 April 2015 to 17 April 2015 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The Directorate Health and Food Audits and Analysis reported that the Direction générale de l'alimentation (DGAL) has issued several instructions on the monitoring of broiler welfare required by Article 3(1)(b) and Annex III of the Directive. Documents accompanying the birds to the slaughterhouse include a field for the cumulative daily mortality rate, as calculated by the owner or keeper, but not for the daily mortality rates despite both of those being required by point 1.1 of Annex III to the Directive. Instead of the daily mortality rate only the sum of the 10 first days of life and the sum of the 15 days previous to slaughter are recorded. The DGAL indicated that they consider the data currently provided to be sufficient and if necessary the OV can request more data from the farmer. However, despite the possibility to access this data at a later stage:

- Point 1.1 of Annex III of the Directive does not limit the data regarding the daily mortality rate to a particular period of the birds' life; and,
- Point 1.2 of this Annex continues with the requirement for OV to check the plausibility of the data as part of the monitoring and follow-up at the slaughterhouse.

Therefore the full data set on daily mortality rate should be provided from the beginning instead of upon additional request.

The DGAL has set up a system for monitoring of welfare indicators in slaughterhouses as required by Point 2 of Annex III of the Directive and has set triggers for action for the cumulative daily mortality rate, the mortality in the 10 first days of life, the 15 days previous to slaughter and on arrival to the slaughterhouse. Several lesions of birds rejected on *post-mortem* inspections, such as abnormal levels of contact dermatitis and certain systemic illness, have also been allocated triggers for action.

The evaluation of foot pad dermatitis is not yet included in the trigger system. The DGAL stated that work on this is on-going and results are expected before the end of 2016.

When the trigger levels are exceeded, the OV informs the business operators and the relevant districts, in accordance with point 3 of Annex III of the Directive.

On this basis, the Directorate Health and Food Audits and Analysis concluded that there is a system for monitoring welfare indicators in poultry slaughterhouses which triggers enforcement actions and results in corrective actions. However, possible spikes in the daily mortality rates (possibly indicating poor welfare or health conditions at some point

during the rearing cycle) could still result in an acceptable cumulative daily mortality rate but go undetected due to the full data on daily mortality rates not being sent.

The Directorate Health and Food Audits and Analysis therefore recommended that the CA should extend the system for monitoring of broiler welfare so that full records of daily mortality rates accompany the broilers to slaughterhouses in line with point 1.1 Annex III of the Directive.

In response, the CA said that it would examine the possibility of transmitting these data. In the meantime, it noted that there is a box on the current food chain information form to add "any additional comments on the deaths", which allows the farmer to notify any abnormal daily mortality over the rearing period. An update to the response added that the technical difficulties had been overcome and this information could now be transmitted as foreseen.

A1.2.7. Germany

Final report of an audit carried out in Germany from 06 to 10 February 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

German legislation restricts stocking density to 39 kg/m². National legislation also goes beyond the Directive in terms of drinking and feeding space and prescribes that the light frequency must be perceived as non-flickering by the birds, which in practice means lights providing at least 160 Hz are used.

Regarding training for broiler keepers, as required by Article 4 of the Directive, all farmers operating farms with more than 500 broilers would have received basic training as they would need to prove that they were competent to run a farm as required by §17 of the Animal welfare ordinance (Tierschutz Nutztierhaltungsverordnung). Farmers with previous professional training or three years' experience with operating a farm with more than 500 broilers without any animal welfare issues arising were exempt from the need for further specific training.

The Directorate Health and Food Audits and Analysis concluded that Germany has a good system of official controls regarding EU requirements for broiler farms. The chances of overlooking certain requirements during inspection can be overcome through other aspects of official control, such as direct supervision or further training of OVAs so that checks are fully harmonised and comprehensive regarding the requirements of the Directive.

No recommendations in respect of the Directive were made.

Final report of an audit carried out in Germany from 10 to 20 June 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The Directorate Health and Food Audits and Analysis noted that a working group (Länder Consumer Protection) published a Handbook (Handbuch – Tierschutzüberwachung in Nutztierhaltungen) which included guidance on monitoring of footpad dermatitis in slaughterhouses. The Handbook describes a three-level scoring system for footpad dermatitis and sets an intervention level (> 20% feet with score 2 or > 40 % feet with score 1). The Handbook also contains checklists for registration of other post mortem findings regarding broiler welfare.

However, the Handbook does not contain specific guidance on a system for recording results of monitoring and follow up of problem flocks over time. Annex III of the Directive indicates that if the results of the post mortem inspection are consistent with poor animal welfare conditions, the OV shall communicate the data to the owner or keeper of the animals and to the CA. The Directorate Health and Food Audits and Analysis reported that this had been partly done at the slaughterhouses visited, as there was only identification of the farms involved but not the individual buildings/flocks which would allow problem buildings/flocks to be followed up. There was also no procedure prescribed for the OV in the slaughterhouse to communicate to the local CA responsible for the farm on the overall results of monitoring.

Visits to other slaughterhouses revealed that the OVs used the Handbook scoring system and checklists, but did not evaluate the results in the way recommended; there was also no evidence of farmers being requested to draw up an action plan, as described in the Handbook, as there was no system to co-ordinate the information between the local CA of the farms and the slaughterhouse OVs.

The Directorate Health and Food Audits and Analysis found that there has been some industry support to improve footpad dermatitis with a small financial incentive for certain category of broilers (if at least 30% are in category 0, an additional 1c/kg, 2c/kg is paid for 40% of the birds). However, there was no incentive for conventional production.

In conclusion, the Directorate Health and Food Audits and Analysis stated that the Handbook is a good basis to start monitoring footpad dermatitis, but it does not indicate how controls should be organised to help reduce levels. The CAs did not adequately identify problem flocks or have an integrated recording system which would allow co-ordination of actions between slaughterhouse and farm CAs. In addition, as certain Länder use a different scoring system to that indicated in the Handbook, it is difficult for CAs to interpret and follow-up data from different Länder.

The Directorate Health and Food Audits and Analysis therefore recommended that a coordinated control system for footpad dermatitis be implemented, so that scoring and evaluation of results are uniform between Länder and that cases are appropriately followed up as required by Art. 3(1)(b) and Annex III, points 2 and 3 of the Directive.

Although there is a file which should contain the CA's response to the Directorate Health and Food Audits and Analysis' recommendation, the responses are in fact missing from the table.

A1.2.8. Hungary

Final report of an audit carried out in Hungary from 05 to 09 September 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis found that the Directive has been transposed into Hungarian legislation by Annex 7 to Decree 32/1999.

Training for broiler keepers has been approved at the County level and there is cooperation with the Poultry Board in delivering this training.

Large broiler farms are included in annual inspections. The inspection visit carried out revealed a number of deficiencies:

- Near the end of the production cycle, the light programme did not comply with requirements since for several flocks it prescribed less than six hours of darkness per day for longer than 3 days before slaughter.
- Although the farm had stocking densities higher than 33 km/m² it did not include information on the daily, and cumulative daily, mortality rates on the documentation accompanying the flocks to the slaughterhouse.
- Although indicated in the checklist, there was not sufficient explanation in the instructions to ensure that these points were adequately covered.
- The District veterinarian had to rely on the operator for equipment to measure environmental parameters.

In conclusion, the Directorate Health and Food Audits and Analysis noted that the light programme does not comply with the requirement for a minimum darkness period and the necessary data on mortality rates is not sent to the slaughterhouse. It therefore recommended that documented procedures, as required by Article 8 (1) of Regulation (EC) No 822/2004, for carrying out checks of broiler farms clearly indicate the periods for which a minimum darkness period is required (Annex I, 7 of the Directive). In response, the CA undertook to refine the question in the checklist by adding the exact data. It was also planned to discuss this issue and emphasise its importance during the next national animal welfare conference (19/12/2012).

The Directorate Health and Food Audits and Analysis also recommended that documented procedures, as required by Article 8 (1) of Regulation (EC) No 822/2004, for carrying out checks of broiler farms clearly indicate the necessary data on mortality rates which has to be sent to the slaughterhouse (Annex III, 1 of the Directive). The CA undertook to amend the guidance on transport and suggested that data on mortality rates might be inserted in documents accompanying the animals. Again, it was planned to discuss this issue and emphasise its importance during the next national animal welfare conference (19/12/2012).

Final report of an audit carried out in Hungary from 24 June to 04 July 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

According to the central CA, there are few broiler holdings with stocking densities above 33 kg/m² and all of these holdings have stocking densities below 39 kg/m². However, documents accompanying the birds for slaughter do not include a field requesting the stocking density nor, in the case of holdings with stocking densities higher than 33 kg/m², mortality rates, which are required by Point 1.1 of Annex III of the Directive.

The central CA had not produced instructions on the monitoring of welfare indicators in broilers at slaughterhouses, including the welfare indicators to monitor at *post-mortem* such as footpad dermatitis, their thresholds and the system to co-ordinate necessary actions at farm level.

With regard to birds dead on arrival, the broiler slaughterhouse visited by the audit team did keep records on numbers, as required by Point 1.2 of Annex III of the Directive; autopsies were also carried out by the authorised veterinarian on a maximum of ten DOAs per day and the results of these autopsies were recorded. This was identified as a good practice by the audit team. However, records of *post-mortem* results, as required by Point 1 Chapter I Section II of Annex I of Regulation (EC) No 854/2004, were not being kept in the broiler slaughterhouse visited by the audit team. These results are necessary for the purposes of Point 2 of Annex III of the Directive to identify possible indications of poor welfare conditions in the holding of origin.

In conclusion, the absence of a system for the monitoring of broiler welfare indicators at slaughterhouses impedes both the identification of welfare problems in the holdings of origin at slaughterhouse level, and subsequent corrective measures at farm level.

The Directorate Health and Food Audits and Analysis recommended that a system be set up to ensure that official veterinarians in slaughterhouses are provided with instructions and the necessary information, in particular the stocking density of the holding of origin, the daily mortality rate and, where applicable, the cumulative daily mortality rate, in order to carry out monitoring of indicators of poor animal welfare, including footpad dermatitis, at slaughterhouses. The Directorate Health and Food Audits and Analysis also called for coordinated follow-up actions to be taken so that detected welfare problems can be addressed at the farm level.

In response, the CA stated that chicken keepers must take part in animal welfare training (Article 4 of the Directive) and that training material would be completed so that in the case of farms with stocking densities in excess of 33 kg/m², all required data will be added to the farmer's declaration (which is part of the accompanying documentation in the case of inland transport). A new checklist for poultry slaughterhouses contains questions regarding provisions laid down by the Directive which can be checked at slaughterhouses.

The CA also noted that the NFSCO Food and Feed Safety Directorate issued a guideline on the official controls of poultry slaughterhouses and cutting plants, which has been in force since 2013. This is obligatory for every official veterinarian and contains the rules of ante- and post mortem inspections and of the necessary documentation; furthermore it specifies the cases when feedback shall be sent from the slaughterhouse to the farm of origin.

The CA added that the animal welfare indicators are defined by the Decree No. 32/1999 of the Ministry of Agriculture and Rural Development. However, the central CA undertook to highlight the monitoring of broiler welfare indicators at the next animal welfare meeting and in a circular letter for the Regional CAs.

A1.2.9. Italy

Final report of an audit carried out in Italy from 09 to 18 November 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis reported that the Directive has been transposed into Italian legislation by legislative decree n. 181 of 27 September 2010. An implementing Ministerial decree for this legislative decree had not been issued at the time; the corresponding draft proposal had been sent by the central CA for Ministerial decision on 13/10/2011.

Before the implementing Ministerial decree was issued the use of stocking densities above 39 kg/m² was not allowed. For densities between 33 and 39 kg/m² some interim measures have been provided in MH note No. 3550 of 25/2/2011, including what is considered acceptable as animal welfare training of the operators in the absence of an official programme.

The four main broiler producing provinces in Emilia Romagna agreed between them on a harmonised procedure for approval of stocking densities above 33 up to 39 kg/m². This procedure requires a formal approval of that higher density, based on the application provided by the operator, and the audit team saw such an application. All the information required under the Directive was included in the application and formal approval had recently been issued.

On the basis of its inspection visits, the Directorate Health and Food Audits and Analysis concluded that the full implementing legal basis for the Directive had not been published and the control system was still being developed. However, the official controls were generally satisfactory and no major non-compliances were detected by the audit team. That said, the CA lack equipment to measure environmental parameters and cannot sufficiently assess certain requirements as a result. The procedures for control of broiler farms were insufficient to correctly calculate the stocking density where the flock within a building was sub-divided.

This led to the recommendation that the central CA should ensure that documented procedures, as required by Article 8.1 of Regulation (EC) No 822/2004, for carrying out checks of broiler farms clearly indicate (i) the necessary data on mortality rates which has to be sent to the slaughterhouse (Annex III, 1 of the Directive); (ii) the requirement concerning temperature and humidity inside the house in case of either high or low temperatures outside (points 3 (b) and 3 (c) of Annex II of the Directive); and (iii) ensure that an accurate assessment of stocking density for broilers, as required by Article 3 of the Directive can be made.

In response it was noted that the Ministry of Health is finalising the preparation of a specific ministerial decree (Legislative Decree 181/2010) to implement Directive. This will include procedures to provide the necessary data on mortality rates to be sent to the slaughterhouse as well as an accurate assessment of stocking density. Procedural instructions will be provided for the verification of requirements concerning the temperature and humidity inside the shed in case of high or low outside temperatures.

Final report of an audit carried out in Italy from 03 to 14 March 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The Directorate Health and Food Audits and Analysis found that the Animal Welfare National Control Plan (Piano Nazionale del Benessere Animale, PNBA) for 2013 provides instructions for the monitoring of welfare indicators in broilers at the slaughterhouse as required by Annex III of the Directive. When following the instructions of this plan one of the indicators to evaluate is the CDMR. However, the formula used was incorrect and instead calculates the total mortality rate.

The PNBA for 2013 also indicates that the CDMR is to be found on the documents accompanying the birds (required by Point 1.1 of Annex III of the Directive). However, the accompanying documents seen by the audit team varied between regions and none of these documents had a specific field requiring the CDMR.

The trigger level for the CDMR had been set at 2% + 0.12% multiplied by the slaughter age of the flock in days. This is significantly higher than the value of the maximum CDMR permitted to keep broilers at stocking densities above 39 kg/m² indicated in Point 1(c) of Annex V to the Directive.

The Directorate Health and Food Audits and Analysis concluded that although a procedure has been developed by the central CA to carry out the monitoring of animal welfare indicators in poultry at slaughterhouses, the inaccuracy of these procedures and the lack of availability of information regarding the flocks do not guarantee that this monitoring system will help to identify, at slaughterhouse level, indicators of welfare problems in the holdings of origin.

The Directorate Health and Food Audits and Analysis therefore recommended that the CA ensure that the daily mortality rate and, where applicable, cumulative daily mortality rate, are included in the documents accompanying broilers transported to slaughterhouses as required by Point 1.1 of Annex III of the Directive.

In response, the CA noted that the Ministry of Health is taking steps to ensure that documents accompanying the broilers to the slaughterhouse are filled out online by the owner / keeper of the animals so that they can be used directly by the slaughterhouse OV. Steps are also being taken to include daily mortality rate and, where applicable, cumulative daily mortality rate, as well as breed as required under Legislative Decree 181/10 which implements the Directive.

The Directorate Health and Food Audits and Analysis also recommended that the CA establish a system which ensures that OVs in slaughterhouses are provided with the correct instructions and necessary information, in particular the stocking density of the holding of origin, the daily mortality rate and, where applicable, the cumulative daily mortality rate, in order to carry out monitoring of indicators of poor animal welfare as required by Point 2 of Annex III of the Directive.

In response the CA said that information on stocking densities and daily and cumulative mortality rates would be built into the online data accompanying animals to the slaughterhouse. This will allow OVs to have access to the information in real time.

A1.2.10. Latvia

Final report of an audit carried out in Latvia from 15 to 19 October 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The audit found that the Latvian Rural Advisory and Education Centre (Latvijas Lauku konsultāciju un izglītības centrs) has provided training for broiler keepers as required by Annex IV of the Directive. Although national legislation does not require the daily mortality rate to accompany the birds to the slaughterhouse, the CA said that this information is sent in practice. Annex III 1.1 of the Directive requires both sets of data, the daily mortality rate and the cumulative daily mortality rate to be sent where flocks are stocked at the higher stocking density.

Although the checklist for inspection did indicate the relevant legal requirement, there was no documented procedure specifying how to assess the average relative humidity inside the house over a 48 hour period (Annex II 3(c) of the Directive requires that when outside temperatures are below 10°C the average relative humidity inside the house must not exceed 70% during 48 hours).

The procedure for assessing stocking density did not include a verification of the areas supplied by the keeper, neither did it direct the inspector to consider the density at the time of thinning of the flock, usually 6 to 7 days before the remaining birds are slaughtered.

In conclusion, the Directorate Health and Food Audits and Analysis noted that procedures for inspections are partly fulfilled by the checklist provided by the central CA, but these do not provide sufficient instructions on how to verify certain legal requirements listed in these checklists, such as stocking density and relative humidity. The national legislation did not include all of the provisions of the Directive and as a result the requirement for sending certain data to the slaughterhouse was not checked.

The Directorate Health and Food Audits and Analysis therefore recommended that the CA provide documented procedures for inspections of broiler farms so that there are sufficient instructions on how to verify certain legal requirements, currently listed in checklists, such as stocking density and relative humidity as indicated in the Directive.

In response, the CA indicated that necessary changes would be made to the Food and Veterinary Service procedures KR.10.P.186 "Guide for the animal and site inspection".

The DVO also recommended that the CA transpose all provisions of the Directive into national legislation, in particular the requirement to send data on the daily mortality rate to the slaughterhouse with the birds, as indicated in Annex III 1.1 of this Directive.

The Ministry of Agriculture said that it will ensure that the Directive is fully transposed into national law by 31 December 2013.

Final report of an audit carried out in Latvia from 24 to 28 February 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The Directorate Health and Food Audits and Analysis found that CA guidelines for monitoring welfare indicators at broiler slaughterhouses were at a draft stage. The audit team noted that:

There is not yet a system in place for follow-up of the monitoring of indicators of broiler welfare at slaughterhouses which would involve interaction between Food Inspectors and Veterinary Inspectors at the regional level²¹.

The inspections carried out suggested that some monitoring was being undertaken and that the initial picture was not good with 70% to 90% of birds showing lesions. These data are transmitted monthly to the regional authority, but would be sent daily once a procedure is approved.

Following the recommendation in the DG Health and Food Safety audit 2012/6525 (see above), the Regulations of Cabinet No 1325 were amended and entered into force on 23 November 2013 and now include the requirement to send data on the daily mortality rate to the slaughterhouse with the birds, as indicated in Annex III 1.1 of Directive 2007/43. However, the inspections revealed that in practice, Cumulative Daily Mortality Rates were sent, but not Daily Mortality Rates.

In conclusion, the Directorate Health and Food Audits and Analysis noted that the CA is still developing a monitoring system for broiler welfare indicators at slaughterhouses and there is not yet a system to ensure that the requirements of the Directive are met. As a result, welfare issues such as high levels of food pad dermatitis have not been addressed.

The Directorate Health and Food Audits and Analysis recommended that the CA should develop and implement a monitoring system for broiler welfare, as required by Article 3(1)(b) of the Directive.

The CA responded that training sessions for OV's and the regional competent authorities would be arranged to cover: (i) supervision measures on the assessment of welfare in slaughterhouses and on non-compliance with reporting requirements; (ii) the monitoring of welfare requirements on broiler farms; and, (iii) methodological guidelines on the evaluation of animal welfare data collected at slaughterhouses and non-compliance with reporting procedures.

A1.2.11. Lithuania

Final report of an audit carried out in Lithuania from 12 to 16 November 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis noted with respect to the 24 hour light regime (Annex I point 7 of the Directive), that a misunderstanding in the Lithuanian transposing of the Directive into national law resulted in the imposition of a regime that is the opposite of that required.

The audit reported that in Lithuania it is required to not only communicate the intent to use a stocking density higher than 33 kg/m², but to receive a formal document from the territorial State Food and Veterinary Service (Valstybinė Maisto ir Veterinarijos Tarnyba) (SFVS) to confirm approval. At the time of the audit, no holding had been given approval to stock at more than 39 kg/m².

²¹ In their comments on a draft version of this report the CCA indicated that the OV submits monthly reports to the regional authorities on the results of post-mortem veterinary inspections of poultry; ante-mortem examination results are reported to a database within 24 hours of their receipt.

The SFVS accepts the FBO procedure (as described in an SOP) of weekly weighing some birds, and if density exceeds the limit, undertaking thinning, as a sufficient guarantee of compliance. When thinning was practised the SFVS did not use the average weight of the birds slaughtered to establish the stocking density at the date of thinning. It used instead the latest weekly weighing prior to the date of thinning and added to it an estimated daily weight gain that is based on a standard growth curve for that hybrid. Two practical cases calculated during the audit showed that this approach underestimates the weight of the birds and therefore also the stocking density at the houses.

The central CA has established which parameters, and respective limits, should be monitored at the slaughterhouse (required by Art. 3(1) of the Directive) in order to issue notification of findings consistent with poor welfare conditions as required in Annex III, 3 of the Directive.

From each flock 300 feet are randomly selected and inspected. Each plantar area is checked to determine presence and severity (extent) of foot pad lesions. The inspected feet are classified into three different groups and scored. Feet with no lesions are placed in group one and given 0 points, feet with lesions of up to 0.5 cm² are placed in group two and given 0.5 points each, and feet with an affected area larger than 0.5 cm² are placed in group three and given 2 points each. The sum of points from group two is multiplied by 0.5 and the sum of points from group three is multiplied by 2. The resulting figures are added, then divided by 300 (number of inspected feet) and multiplied by 100 with the final result expressed as a percentage. If this exceeds 70% (e.g. At least 106 feet in group three, or at least 83 feet in group three plus 184 in group two, etc.), a notification is sent to the holding of origin and respective territorial SFVS. In such a case, in accordance with SOP KT-2-4-6, an OV will visit the holding for on-the-spot investigation and will require the keeper to take corrective measures.

The training of broiler keepers is covered by chapter VII of Order B1-173 dated 27/4/2010. The described training course and issuing of certificates is in line with the requirements of Art. 4 and Annex IV of the Directive. The SFVS has recognised one training organiser - the Centre for Veterinary Continuing Education and Consulting of the Lithuanian University of Health Sciences. Since July 2011, two courses have been organised and 65 keepers have received certificates.

The territorial SFVS have also issued 174 certificates based on competence acquired before 30/6/2012 and recognised as equivalent to the training course (in line with Art. 4(4) of the Directive).

In conclusion, the Directorate Health and Food Audits and Analysis noted that the central CA has satisfactorily implemented a training system for broiler keepers, in line with the requirements of Art. 4 and Annex IV of the Directive. The system of inspections to verify compliance with the requirements of the Directive was deemed to be generally adequate, however, an incorrect light regime is being imposed and the method currently used for calculating broiler stocking densities resulted in these being underestimated which can lead to non-compliances with approved maximum stocking densities.

The Directorate Health and Food Audits and Analysis recommended that the central CA should continue with its efforts to have the Lithuanian legislation concerning broiler production modified to ensure that the misunderstanding concerning the light regime is corrected, and Lithuanian legislation is brought into alignment with the requirements of the Directive Annex I point 7. Corresponding modifications should also be made to the relevant SOP.

In response, the CA stated that the legal act will be amended and the relevant SOP will be corrected accordingly by 1 June 2013.

The Directorate Health and Food Audits and Analysis also recommended that the central CA should take measures to ensure that the method used for calculating broiler stocking densities does not underestimate the real density, in order to guarantee that the FBO does not exceed the stocking densities for which it has approval.

The central CA said that SOP (KS-2-4-6 D1) will be amended by 1 June 2013 so that the method of calculation of broiler chicken density will be in line with the Directive.

A1.2.12. Netherlands

Final report of an audit carried out in the Netherlands from 21 to 25 May 2012 in order to evaluate the implementation of controls on animal welfare on farms and during transport

National legislation

The audit reported that the Directive has been transposed into national law by two pieces of legislation, a Decision (Vleeskuikenbesluit 2010) and a Regulation (Regeling Vleeskuikens), both of which entered into force on 1 February 2011. These contain additional rules based on the Broiler Agreement signed between the Government and poultry organisations in October 2009. A manual of good practice provided by the Product Board for Poultry and Eggs (Produktschap Pluimvee en Eieren-PPE) is available to producers.

National legislation provides for stocking densities up to 42 kgs/m², but most keepers (90%) stock at between 39-42 kgs/m². The chosen maximum stocking density and the usable area of the houses are some of the data included in the Register of broiler farms.

The broiler agreement goes beyond the requirements of the Directive and aims to address the incidence of hock burns in holdings with the highest stocking density (15% hock burns is the maximum average permitted in seven flocks). However, the CA indicated that research on foot pad dermatitis (FPD) demonstrated that this is a bigger welfare problem than hock burns. As a result, the CA plan to introduce a standard FPD benchmarking system from 1 January 2013, after running a pilot project.

Training

The CA recognised the experience of keepers who kept broilers before July 2010 and granted them the certificates necessary to comply with Article 4 of Directive 2007/43. For new keepers, the requirements from the Directive are integrated in the national qualifications "Keeping Production animals" (Act on Professional Education), which are recognised by the Dutch CA. Several Dutch Agriculture Colleges at MBO level (intermediate vocational education) provide two options to obtain the certificate:

- students with an MBO diploma with a specialisation in the production of poultry;
- a module or "certified unit" on the welfare of broilers available to those who wish to keep broilers without following the whole MBO course.

In addition, the CA indicated that in 2011 broiler keepers had the opportunity to follow a short training course on foot pad lesions. Subsidies on the cost of this training were

available if farmers agreed to apply various measures to diminish foot pad lesions on their farms.

Organisation of official controls

The system in place in the Netherlands to register flocks requires the keeper to introduce the data required under the Directive in a website set up in 2011 by the National Service for the Implementation of Regulations (Dienst Regelingen- DR). From October, 2012 the system will also use data provided to the PPE by keepers to administer and enforce the Directive in cooperation with NVWA. The DR registers houses and flocks, and performs analysis of data with NVWA for administrative enforcement and selection of farms to be controlled by NVWA which performs the physical inspections. DR may undertake corrective actions when non-compliances are detected and may also execute administrative penalties.

In 2010, the CA visited all broilers farms under the scope of the Directive to advise on new requirements and to check some of the requirements of this legislation, such as the calculation of usable areas. With the entry into force of the legislation in February 2011, inspections started to cover all the requirements, including those pertaining to the highest densities, and data from slaughterhouses also started to be used. For 2012, 100 holdings have been selected for inspections on a random basis. The CA plan to have enough administrative and slaughterhouse data soon to select holdings based on risk assessment.

For each farm the NVWA has recently produced an Excel table using data from the DR database with several flock parameters, such as usable area, mortality rates, data on thinning performed, maximum live weight stocking densities per house and data from slaughterhouses on percentage of hock burns. This was shown to be a very useful and useable tool for the selection of inspections by risk assessment as it provided an overview of stocking density management and highlighted areas where flocks were not compliant. It also gave very useful support of the inspectors in the field and provided sufficient details of flock mortalities from previous flocks for the granting of the over 39 kgs/m² density status of a farm.

In 2011 the CA planned to check 142 broiler holdings; 126 were checked in practice. The highest numbers of non-compliances were due to incomplete administrative data, and discrepancies between monitoring data provided by the farmer and data from the slaughterhouse.

Concerning enforcement, there were 31 cases where keepers received verbal warnings during inspections and in four cases written warnings (administrative actions) were issued. The CCA enforcement strategy has produced an active table-guidance where the enforcement strategy is prescribed, linking non-compliances with actions to be taken and type of sanction if necessary.

Broiler farm visits

These visits revealed no shortcomings. However, the OV's did not have adequate measuring equipment to allow verification of compliance with the environmental parameters, namely CO₂ and NH₃.

Slaughterhouse data

The documentation accompanying the broilers for slaughter met with the requirements of Annex III, 1 of the Directive. The central CA has established which parameters, and respective limits, should be taken into account at the slaughterhouse in order to issue notification of findings consistent with poor welfare conditions as required in Annex III of the Directive:

Concerning hock burns, 100 birds per flock are checked. Those flocks with blisters bigger than 0.5 cm² in more than 15% of the birds checked trigger a notification to be sent to the broiler keeper with a copy to the CA. The keeper is expected to address the situation and the CA is required to put in place an action plan which could include on the spot investigation.

The standard for FPD to be implemented by 1 January 2013 will score FPD and set trigger levels. Improvement plans will be requested from those farms scoring between 80 and 120 points whilst those farms registering over 120 points will also be set back to a maximum stocking density of 39 kg/m².

In conclusion, the Directorate Health and Food Audits and Analysis stated that the control system on broiler production implemented by the CA is satisfactorily verifying compliance with the requirements of the Directive and some aspects of this system go beyond the requirements of this Directive. However, the CA had not provided equipment to enable the inspectors to verify the measurement of ammonia and carbon dioxide levels on farm.

The Directorate Health and Food Audits and Analysis therefore recommended that the central CA should ensure that inspectors have adequate measuring equipment to enable them to verify compliance with environmental parameters, mainly ammonia and carbon dioxide levels on farm, as required by point 3(a) of Annex II to the Directive.

In response, the CA said that the NVWA would provide such equipment within three months.

Final report of an audit carried out in the Netherlands from 16 to 26 September 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

Whilst the documents accompanying the birds to the slaughterhouse include a field for the cumulative daily mortality rate, daily mortality rates are not included, even though this is required by Point 1.1 of Annex III of the Directive.

The central CA has set up a system for the monitoring of welfare indicators in slaughterhouses as required by Point 2 of Annex III of the Directive. Welfare indicators include: foot pad dermatitis, hock burns, breast blisters, birds rejected on *post-mortem* inspection and the cumulative daily mortality rate. The evaluation of foot pad dermatitis for the trigger system can be carried out using one of two methods: visual (50 feet after the first third of the batch and another 50 feet after the second third of the batch) or digital (at least 70% of the entire batch).

When the trigger levels are exceeded, the OV informs the Business Operator (BO) and Intervention Bureau Animals (IBDier), as envisaged by Point 3 of Annex III of the Directive. IBDier will in turn contact the keeper who is:

- notified of the findings;
- requested to take appropriate corrective actions;

- warned that an inspection for animal welfare on the farm could possibly be carried out; and,
- warned that if the infringements are repeated further action will be taken.

Fines are categorised depending on the severity of the infringement. Fines for non-compliance with the requirements of the Directive range from €1,500 to €2,500.

The central CA also records foot pad dermatitis scores for each house with a stocking density greater than 39 kg/m² to calculate the yearly average score. When the yearly average exceeds the acceptable limit then the maximum allowed stocking density for the next year is reduced to a maximum of 39 kg/m².

When triggers exceeded the limits the audit team noted that cases were well reported. However, in a case where the farm of origin was in another Member State, IBDier did not send the information letter to the CA of origin. The audit team was told this was due to task prioritisation following reduction of staff towards the middle of 2014.

In conclusion, the Directorate Health and Food Audits and Analysis found that the CA has set up a good system for the monitoring of welfare indicators in poultry slaughterhouses by establishing a trigger system, based mainly on the monitoring of foot pad dermatitis, which initiates enforcement actions when and where necessary. Without the daily mortality rates this system however lacks a useful tool to evaluate if, and at what stage of the birds' life, there were animal welfare problems on farm and the appropriateness of corrective actions proposed by the keeper.

It was therefore recommended that the system for monitoring broiler welfare be extended so that the records of daily mortality rates accompany broilers to slaughterhouses when these birds are kept at stocking densities above 33 kg/m².

In response, the CA explained that it is possible for the supervising veterinarian at the slaughterhouse to retrieve data on daily mortality from the farm if the other evidence available suggests that this is necessary.

A1.2.13. Poland

Final report of an audit carried out in Poland from 25 May to 01 June 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The audit found that the central CA provided guidance and check lists to the OVs. Training courses for keepers have been organised and are in progress. However, the Directorate Health and Food Audits and Analysis noted that the national legislation (the Animal Protection Act) requires the CA to issue training certificates only after completion of a training course whereas certificates should also be issued where the keeper has acquired experience equivalent to such training (Article 4(4) of the Directive).

In conclusion, the Directorate Health and Food Audits and Analysis stated that adequate documented procedures for checks were provided by the central CA and the checks were correctly performed. However, national legislation does not ensure that all keepers of poultry hold the required certification.

The recommendation followed that the CA should ensure that the requirements on training and certification of keepers of broilers, as required by Article 4 of the Directive, are fully transposed into national legislation.

In response, the CA explained that the Chief Veterinary Officer had written to the Department of Food Safety and Veterinary Matters of the Ministry of Agriculture and Rural Development noting the necessity to make Polish legislation compliant with the requirements of the Directive.

Final report of an audit carried out in Poland from 09 March 2015 to 13 March 2015 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The audit found that a document indicating the daily mortality rate, cumulative daily mortality rate (CDMR), and the hybrid or breed of the birds accompanies broilers which originate from flocks with stocking densities above 33 kg/m², as required by Point 1.1 of Annex III of the Directive.

The central CA had very recently issued detailed instructions for OV's working in poultry slaughterhouses to monitor animal welfare indicators in broilers as required by Point 2 of Annex III of the Directive. These instructions include the evaluation of samples of chicken's feet for footpad dermatitis and a relevant scoring system with two trigger levels of action depending on the severity of the welfare conditions of the birds:

- a trigger level for average welfare conditions, in which the OV at the slaughterhouse reports the findings to the supervising District Veterinary Office (DVO). This information is kept at the supervising DVO and only communicated to the DVO of the farm of origin if a second notification is made;
- a trigger level of poor welfare conditions, in which the OV at the slaughterhouse reports the findings to the supervising DVO. The DVO in turn communicates the findings to the DVO of the farm of origin for necessary action.

A cumulative daily mortality rate of more than 5% triggers a notification of poor welfare conditions. This value is significantly higher than the maximum permitted CDMR in poultry flocks being kept at stocking densities between 39 and 42 kg/m², as indicated in Point 1(c) of Annex V of the Directive.

The data collected in the slaughterhouses on the welfare indicators of broilers is kept at the slaughterhouse unless this requires action according to the trigger system.

In conclusion, the Directorate Health and Food Audits and Analysis noted that the system that has started being implemented for the monitoring of welfare indicators of broilers at slaughterhouses takes into account the main animal based indicators but there is a risk of having only limited impact on the welfare conditions in farms. This is due to the high trigger values for the CDMR and the lack of availability of this data at the CAs where this matters, namely the DVO of the farm of origin and the central CA.

It was therefore recommended that the "trigger levels" for cumulative daily mortality rates be modified such that official controls at the slaughterhouse effectively detect poor welfare conditions of chickens at the farm of origin and communicate these conditions to the owner or keeper of the animals and to the CA, as required by Points 2 and 3 of Annex III of the Directive, in order to improve their welfare.

To address this recommendation, the Chief Veterinary Officer (CVO) instructed the district veterinarians to collect these data for 10% of holdings. The CVO also sent a letter to the Institute of Animal Production with a request to send information on mortality after these data are collected.

A1.2.14. Portugal

Final report of an audit carried out in Portugal from 17 to 25 May 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The audit found that the Directive had been transposed into Portuguese legislation (Decree 79/2010 of 25 June 2010). However, training for keepers and notification of details of the farms, including stocking density were not at the time in place, pending the adoption of the implementing legislation.

The CA had elaborated a comprehensive guideline for the evaluation of animal welfare indicators at poultry slaughterhouses (including a detailed scoring system for foot pad dermatitis) and set up an information system for registration of data on *post-mortem* inspection results. When thresholds for specific indicators are exceeded an "alert" is given and the case is transmitted to the regional coordinator for animal welfare. This will be used as a risk criterion in the selection of the broiler farms to be inspected by each DSVR.

The Directorate Health and Food Audits and Analysis concluded that the Directive had been fully transposed pending the publication of implementation. The system of using data from slaughterhouses to target certain broiler farms was considered to be a good use of inspection resources.

There were no recommendations.

A1.2.15. Romania

Final report of an audit carried out in Romania from 21 to 29 November 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

During the evaluation of the control system for animal welfare it was noted that there is a mistranslation of the original English language version of the Directive. The Romanian translation does not use the word "rate" when referring to the requirement to send the records of daily mortality rate to the slaughterhouse as required in point 1(1) of Annex III to the Directive.

The audit reported that six training sessions for keepers of chickens kept for meat production were organised by the Romanian Union of Poultry Breeders during 2011. Farm owners' attendance records concerning these training sessions and subsequent cascade training to staff were available at the broiler premises visited in both Counties. The CA intends to recognise this training officially through a Service Note (Article 4(3) of the Directive requires the control and approval of training courses).

Guidelines and procedures for the assessment of stocking density and a new check list for broiler farms were available on the CA website and were used in practice by the OVs met. There was one checklist for stocking densities up to 33 kg/m² and further additional checklists for higher stocking densities. The checklist for the lower density omitted the requirement for alarm systems and back-up power systems where premises were dependent upon automated or mechanical equipment.

Visits undertaken by the audit team revealed that there is a system in place for the communication of *post-mortem* inspection results (such as abnormal levels of contact

dermatitis, parasitism and systemic illness) to the owner or keeper of the animals and to the CA for appropriate action.

There are no specific guidelines to slaughterhouse OVs for the assessment of specific *post-mortem* lesions linked to animal welfare. The central CA stated that they were awaiting a Commission Decision in order to put in place a system that would be acceptable on a European level as there is much cross-border trade in the slaughter of broilers into and from Romania

Good Management Practice guidelines were not available for this sector in Romania.

In conclusion, the Directorate Health and Food Audits and Analysis noted that the CA has put in place a generally satisfactory system of controls on broiler farms and they were mainly carried out correctly with only some minor deficiencies in operation noted based upon a misinterpretation of one point of the Directive, an incorrect translation of another point and a missing reference in one of the CA checklists to alarms and back-up systems for automatic or mechanical systems in premises operating below 33 kg/m². The CA has not put in place a system for welfare reporting from slaughterhouses as it is awaiting the outcome of a Commission decision on this subject.

OVs were unable to utilise the available equipment for measuring environmental parameters as they have not received training on its use and the many different types of devices held at County offices complicates this issue for the CCA.

The Directorate Health and Food Audits and Analysis therefore recommended that the CA should ensure that the minor deficiencies noted in the application of official controls laid down in the Directive are rectified.

In response, the CA said that it had initiated modifications to the transposition of the Directive into Romanian law and was developing a procedure for monitoring at the slaughterhouse to meet the requirements of Annex III, Section 2 of the Directive. This process would be completed by the end of April 2013 with training on this to begin in May 2013.

The procedure will include the following:

- the documents accompanying the chicken consignment to the slaughterhouse;
- elements and the lesions that are to be assessed in slaughterhouses;
- the feed-back to the economic operator / authority, from the slaughterhouse OV.

In short, formal monitoring in the slaughterhouses will commence from July 1, 2013. The veterinary inspection checklist on compliance for the protection and welfare of chickens kept for meat production has been modified and a draft "Guide for the protection and welfare of broiler chickens kept for meat production" will be developed. Both will be disseminated as required.

A1.2.16. Slovakia

Final report of an audit carried out in Slovakia from 06 to 14 September 2011 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis audit team found that training courses required by Article 4 of the Directive are available to broiler keepers and because

national legislation does not provide for the possibility of recognising the previous experience of keepers, they are obligatory for all broiler keepers. These courses are provided by the institution approved by the CCA and from the documentation seen it appears that all requirements of Annex IV of Directive are included in the curriculum. Four courses with 72 participants had taken place by the time of the audit.

The central CA provided the district CAs with instructions, including limits for assessment of adequate cumulative daily mortality rate (CDMR).

In conclusion, the Directorate Health and Food Audits and Analysis reported that the central CA has put in place a system for training which goes beyond EU requirements as it is obligatory for all flock keepers. The audit team also found that there was insufficient involvement of the OV in the verification of compliance with Annex V of the Directive which led to the situation where broiler farms were operating at higher stocking densities without fulfilling all necessary conditions. However, this legislation only recently entered into force and the CA has put a system for controls in place, but this has not yet been sufficiently implemented by the district CAs.

It was therefore recommended that the CA take measures to ensure that the quality of inspections in holdings with broilers is improved and that OVs perform adequate assessment of all the requirements of the Directive, such as the assessment of cumulative daily mortality rate (Annex V.1(c) of the Directive) and that both keepers and the CA have suitable equipment to ensure the adequate control of environmental parameters (point 3(a) of Annex II of the Directive).

In response, the CA noted that the national training plan for 2012, which is obligatory for all the veterinary inspectors performing controls of animal protection, will include the theoretical evaluation of compliance with minimum requirements for protection of broilers in compliance with the Directive.

In October 2011 a survey was carried out to assess the availability of equipment to ensure control of environmental parameters. On the basis of the results of this survey, the CA will ensure the availability of further equipment where this is required. Expenditures concerning the purchase of further equipment were incorporated into planned capital expenditure for 2012.

A1.2.17. Slovenia

Final report of an audit carried out in Slovenia from 16 to 20 April 2012 in order to evaluate the implementation of controls for animal welfare on farms and during transport

The Directorate Health and Food Audits and Analysis found that the Directive had been transposed into national legislation in June 2010 with the publication of the "Rules on the protection of animals kept for farming purposes". Inspection of the requirements of this legislation was implemented into official controls in the middle of 2011.

In 2011 the CA inspected 49 broiler holdings detecting non-compliances in 11 of them. In 2012, 22 holdings were inspected (up to April) with non-compliances detected in 16.

The central CA launched a tender in March 2012 for proposals for a training programme for broiler producers. In accordance with the "Rules on the protection of animals kept for farming purposes", broiler keepers must complete their training at the latest by 13 July 2012.

The system in place in Slovenia requires the operator to provide the CA with an update on the intended production density for every cycle of production, even when the density is not planned to change and no changes are made to the houses, equipment or procedures.

The documentation accompanying the broilers for slaughter included daily mortality rate, cumulative daily mortality rate and hybrid or breed of the chickens as required in Annex III, 1 of the Directive.

The central CA has established which parameters, and respective limits, should be taken into account at the slaughterhouse in order to issue notification of findings consistent with poor welfare conditions as required in Annex III, 1 of the Directive. There were:

- when a flock has less than 10,000 birds, 300 are checked, if it has between 10,000 and 20,000 birds, 600 are checked, if more than 20,000 birds are held, then 900 are checked;
- if there are blisters with a diameter above 10 mm, present on the foot, tarsal joint or breast of more than 50%, 30% or 5% respectively of the birds checked, a notification is sent to the broiler keeper with copy to the CA;
- the keeper is expected to address the situation and an OV will visit a broiler holding for on the spot investigation if two consecutive notifications are received for eight flocks originating from the same house.

In conclusion, the Directorate Health and Food Audits and Analysis found that the control system on broiler production implemented by the CA is satisfactorily verifying compliance with the requirements of the Directive. A training system for broiler keepers is not yet in place, but the procedures to set it up have been initiated and a deadline established for it to be implemented by July 2012.

The Directorate Health and Food Audits and Analysis made no recommendations relating to the Directive.

A1.2.18. Spain

Final report of a mission carried out in Spain from 01 to 10 April 2014 in order to evaluate the animal welfare controls in place at slaughter and during related operations

The audit found that monitoring under Article 3(1)(b) and Point 3 of Annex III of the Directive was at an early stage of development in Spain. From the information sent to the audit team, one Autonomous Community (Catalonia) had put in place specific animal welfare indicators for reporting on *post-mortem* conditions of broilers in slaughterhouses, and set intervention levels and a system of communication to livestock authorities for investigation and possible enforcement.

Findings from the one poultry slaughterhouse visited in Galicia indicated that there are major welfare issues to be addressed as footpad dermatitis (FPD) is continuously present in the birds presented for slaughter at a rate of approximately 60-80% of birds affected with a varying severity of lesions.

The Autonomous Community in Galicia is developing procedures for communicating the results of *post-mortem* inspections to the relevant authorities for follow-up action. They have set the following animal welfare indicators as intervention levels for follow up action: Daily Mortality Rate (DMR) over 0.5%, Cumulative Daily Mortality Rate (CDMR)

over 5%. A new definition of FPD using a three stage scale for lesions is being drawn up in Galicia, but no intervention level has been laid down. There is no intervention level laid down in the national guidelines for agreed sanctions at Autonomous Community level though the offence of "repeated findings of the arrival of birds with FPD or plantar or breast wounds" is categorised as a serious offence.

No information on DMR or CDMR as required in point 1.1 of Annex III to Directive 2007/43 was available at the slaughterhouse. A letter was sent from the Autonomous Community to all poultry producers on 3 April 2014 asking them to provide DMR and CDMR information when submitting food chain information to business operators.

In conclusion, the Directorate Health and Food Audits and Analysis said that controls on the recording of specific welfare indicators *post-mortem* at poultry slaughterhouses, CA intervention levels, and procedures for follow up action are not in place in most Autonomous Communities or are just starting to be implemented four years after the relevant EU legislation entered into effect.

It was therefore recommended that the OVs in slaughterhouses are provided with the correct instructions and necessary information, in particular the stocking density of the holding of origin, the daily mortality rate and, where applicable, the cumulative daily mortality rate as required by Point 1.1 of Annex III of the Directive, in order to carry out effective monitoring of indicators of animal welfare as required by Point 2 of Annex III of the Directive, and that field veterinarians take appropriate actions to follow up on the information provided from slaughterhouses on indications of poor animal welfare as required by Point 3 of Annex III to the Directive.

In response, the General State Administration (AGE) reported that Ministry of Agriculture, Food and Environment (Ministerio de Agricultura, Alimentación y Medio Ambiente, MAGRAMA) prepared, at the request of the producing sector, in June 2012, a "Note on the documentation that must accompany flocks of broilers on entry into the slaughterhouse" in order to provide harmonisation. The note set out the data that the owner must provide to the slaughterhouse, the data that the slaughterhouse must collect and provide to both the owner of the farm of origin and the competent authorities.

MAGRAMA will also prepare a document which sets out threshold values for the data to be collected in slaughterhouses which will trigger communication with the owner or keeper of the animals and to the competent authority so that they may take appropriate measures.

To ensure a harmonised assessment, training workshops will be developed in 2015/2016 to support the use of slaughterhouse indicators. The central CA will also:

- adopt working procedures and control protocols before March 31, 2016; and,
- include, in its programming for the first quarter of 2017, monitoring of official controls to check their effectiveness.

A1.2.19. United Kingdom

Final report of an audit carried out in the United Kingdom from 25 February to 01 March 2013 in order to evaluate the implementation of Council of Europe requirements for animal welfare in major farmed species and official controls on chickens kept for meat production

Reporting of results of checks in poultry slaughterhouses

The Directorate Health and Food Audits and Analysis audit reported that the system described below relates to Great Britain (GB), but Northern Ireland is similar in application. GB has put in place a system (operational since July 2010) for the collection and communication of poultry slaughterhouse *post-mortem* welfare indicators. High incidences of poor welfare indicators (triggers) are sent to Animal Health and Veterinary Laboratories Agency (AHVLA) offices to investigate.

The *post-mortem* conditions monitored by the system were selected on the basis of published scientific evidence and discussions with representatives from the relevant CAs and industry. The conditions are: ascites/oedema; cellulitis and dermatitis; dead on arrival (DOA); emaciation; joint lesions; septicaemia/respiratory issues; total carcass rejections; CDMR and FPD score using a scorecard agreed by industry, Food Standards Agency (FSA) and Defra. The meat chicken welfare trigger system involves two processes:

- Process 1 aims to identify holdings where the rate of one or more post-mortem condition(s) is exceptionally high (greater than 6 standard deviations (SD) above the mean), possibly indicating a specific on-farm welfare issue
- Trigger levels in use for Process 1 are listed in the Table below. AHVLA are alerted if the level of a post-mortem condition is exceptionally high (exceeds mean + 6SD).

Post-mortem condition	Process 1 trigger level (%)
Ascites/Oedema	2.02
Cellulitis & Dermatitis	3.00
Dead on Arrival (DOA)	1.51
Emaciation	0.67
Joint lesions	0.43
Septicaemia/Respiratory	9.28
Total carcass rejections (farm attributable)	11.76
Cumulative Daily Mortality	11.85
FPD score*	167

* The FPD score is not a percentage but is a score of the severity and extent of lesions (between 0 and 200) based on scoring 100 feet²².

- Process 2 aims to identify holdings where CDMR is unusually high (greater than 3 standard deviations above the mean) and, additionally, the rate of 3 or more post-mortem conditions is above the national average, possibly indicating a more generalised on-farm welfare issue.
- Trigger levels in use for Process 2 are listed in the Table below. AHVLA are alerted if the CDMR is unusually high (exceeds mean + 3SD = 7.37%) and, additionally, the rate of three or more post-mortem conditions is high (exceeds the mean).

Post-mortem condition	Process 2 trigger level (%)
Ascites/Oedema	0.21
Cellulitis & Dermatitis	0.20
Dead on Arrival (DOA)	0.12
Emaciation	0.04
Joint lesions	0.02
Septicaemia/Respiratory	0.49
Total carcass rejections (farm attributable)	1.11

²² <http://archive.defra.gov.uk/foodfarm/farmanimal/welfare/onfarm/documents/fpd-key-card.pdf>

FPD score*

60

FSA officials within GB slaughterhouses carry out ante-mortem and *post-mortem* inspections on all batches of meat chickens. Specifically trained plant staff (Poultry Inspection Assistants, PIAs) can carry out *post-mortem* inspections in certain slaughterhouses. Condition cards are used to increase the accuracy and consistency of recording *post-mortem* findings. *Post-mortem* inspection results and details of CDMR, breed/hybrid and stocking density, provided on the (FCI) form submitted with the birds are entered onto the dedicated IT software. The system operates across all GB slaughterhouses and data are uploaded to a central FSA database every 24 hours. The trigger system operates within this central database and monitors the inspection results recorded by all batches of conventionally reared meat chickens. The system generates a trigger report for any batch of birds that exceeds the set threshold trigger levels.

Once generated, each trigger report is checked by a Veterinary Manager to ensure that there are no obvious discrepancies. Any discrepancies identified are followed up with slaughterhouse staff and rectified. All trigger reports are emailed to FSA staff at the slaughterhouse, and if provided, the slaughterhouse FBO, the broiler producer named on the FCI form, and in some cases, where permission has been provided, to the producer's private veterinarian. Trigger reports are also emailed to the Broiler Directive team within the AHVLA Specialist Service Centre (SSC) in Worcester for follow-up by AHVLA veterinarians.

Upon receipt, all trigger reports are assessed by a veterinary officer (VO). The majority are resolved immediately following this assessment, with typical outcomes being that upon contacting the keeper the VO finds that action has already been taken to resolve the problem or that the problem relates to an off-farm issue (e.g. DOAs that are attributed to transport conditions rather than to a pre-existing problem on the farm and have already been followed up), and this is followed up separately. In other cases, action may already be in place following a previous trigger report and the VO may consider this to be sufficient to resolve the issue(s) identified in the current trigger report. Where no action plan is in place the VO may request the producer to develop and submit one for approval, and in a small number of cases a visit is carried out. All VO actions taken at the regional level are fed back to the Directive team so that the outcomes of individual trigger reports are tracked.

There are two different types of reporting from slaughterhouses: **normal reporting** using information supplied by the FBO (including FCI) which is then collated and analysed by the FSA and may or may not lead to trigger reports, and **exception reporting** when the OV or PMI notes specific incidences of serious welfare conditions at AM or PM and then investigates.

In exception reporting, the OV would be informed of potential cases of FPD or other conditions by the *post-mortem* indicators. If the level of FPD is judged to be sufficiently high enough to warrant further investigation, he/she will score a sample of 100 birds from the batch and record the level of FPD observed. An exception report is generated when an issue (FPD or any other condition) is felt to be particularly severe and a breach of welfare legislation is suspected. This would then be sent directly to the AHVLA office where the farm was located for immediate follow up action. At the time of the audit there had been 26 such exception reports since 2010, where serious welfare issues such as severe FPD, or high incidences of breast-blisters had been noted in the slaughterhouse visited and incident reports were sent to the relevant AHVLA offices for follow up. The

OVs had never received any feedback from AHVLA on the 26 exception reports that they had sent for follow-up.

Exception reporting of welfare conditions from slaughterhouses to the regional AHVLA office is via email or fax. The ensuing delays noted in the transmission of these reports to the relevant VO meant that they could not react in sufficient time to any particular problem issue at slaughterhouse as the birds had usually been slaughtered by the time the reports were received²³.

Figures for daily mortality rates were not available on the FCI documentation seen at the slaughterhouse by the DG Health and Food Safety audit team (CDMR records were available). Defra indicated that it had not implemented this requirement of their own legislation as it was deemed to be too burdensome on industry.

The trigger system has been actively reviewed since its inception and a number of suggested changes have been put forward to improve its operation and resource implications such as:

- raising the indicator thresholds to limit the number of trigger report issued;
- suggestions to report on house rather than batch basis;
- collating multiple premises trigger reports; and,
- analysing seasonal data for trends;

Enforcement

There were 4,016 process 1 and 792 process 2 trigger reports in GB in 2012. Some of these reports will be for multiple batches sent from the same house on the same day. Enforcement action resulting from trigger reports is left mainly to the discretion of local VOs. Many hundreds of action plans have been requested since the system started operating in March 2010.

The Directorate Health and Food Audits and Analysis audit team reported some frustrations in the industry with the perceived heavy administrative procedures for assessing action. To counter this, and progress some longstanding chronic cases, meetings with poultry breeding companies, poultry veterinarians and keepers had been arranged as an initiative of certain VOs and had been well received by all involved and improvements in welfare conditions on certain farms had been noted as a result.

Enforcement escalation advice is provided by the responsible AHVLA policy team when each trigger report is sent for action to the relevant AHVLA office. A more prescriptive escalation system introduced in May 2012 grades trigger reports into 5 options:

- The first 3 options relate to notification of fewer than 3 trigger reports in the last 3 months; cases in this category can have any number of trigger reports generated prior to the preceding 3-month dataset;
- Options 4 and 5 are where there are more than 3 and 10 trigger reports respectively in the last 3 months which require that either a visit should be considered (option 4) or should be carried out (option 5).

²³ In their response to the FVO's draft report the CA stated that they had put in place a revised procedure for the reporting process for suspected breaches of animal welfare on the farm or during transport. The CA included a revised flowchart illustrating this procedure with their comments on the draft report.

Some 11 farms in GB were identified as Option 5 premises i.e. having more than 10 trigger reports within a 3 month period in 2012. This resulted in 10 advisory visits from an AHVLA VO though no full inspections using the WF 82 checklist were completed²⁴.

There have been three welfare escalation investigations conducted into broiler farms since the trigger system came into operation in GB.

The Directorate Health and Food Audits and Analysis concluded that the UK has put in place a well-conceived and generally well implemented system for assessing and reporting on welfare indicators found at *post-mortem* in poultry slaughterhouses. Improvements in the welfare of chickens reared for meat are being targeted through the development of actions plans at farm level and graduated enforcement action. The system has been continually under review and development in order to refine its enforcement characteristics and simplify administrative procedures for those operating it.

It is not clear yet whether the system has been effective at raising the level of welfare on meat chicken farms, but it has certainly generated enough information for the CA to be in a position to move more quickly in this direction. However, actions taken in response to exception reporting of severe welfare conditions found at slaughter noted by the audit team did not merit any visits or escalated enforcement action or feedback of information to the reporting OVs in the slaughterhouse visited and were therefore not fully effective.

Checks on Broiler farms

The Directorate Health and Food Audits and Analysis audit team reported that the UK implemented the Directive through national legislation in each of the four devolved authorities. The national legislation for GB sets a stocking density limit of 39 kg/m². The limit is set at 42 kg/m² in Northern Ireland, though no premises are currently stocking at this rate.

A series of workshops were delivered by the Agricultural Development Advisory Service (ADAS) across the UK in the lead up to the implementation of the Directive to inform meat chicken keepers of the new requirements. The UK also provided guidance to keepers on how to comply with the Directive including a dedicated webpage.

With regard to training, approximately 90-95% of industry keepers and staff made use of the UK's provision to use the principle of grandfather rights as laid down in Article 4(4) of Directive 2007/43. For those newer staff or keepers and owners not able to use this provision, there are extensive training opportunities available throughout the country and the provision of the courses and qualifications are overseen by the UK National Training and Proficiency Council.

VOs were trained in the lead up to implementation of the Directive requirements with seven training events held in 2009 and 2010. Senior veterinary Defra policy staff, ADAS specialists and AHVLA animal welfare veterinary leads provided training to approximately 100 VOs, about half of all VOs. Since then there has been local cascade and mentoring training.

This training material has been made available to all AHVLA staff via the Network of Expertise: an internal AHVLA repository of information which also hosts interactive groups on various sectoral issues where problems can be discussed. There was a

²⁴ In their response to the draft report the CA stated that these data are provisional and are subject to change following final collation of the 2012 data set.

productive active discussion group on the meat chicken Directive and issues relating to its implementation, much of it relating to the trigger system.

The preparation of the planned inspection programme for farm animal welfare (including for chickens reared for meat) was similar to that seen during the last DG Health and Food Safety animal welfare audit in 2009 and as required in Article 3(1) of Regulation 882/2004 is based upon a system of risk prioritisation. As a result of research commissioned by Defra, membership of a Quality Assurance (QA) scheme is now included as a criterion in the risk prioritisation which will reduce the likelihood of a premises being inspected.

The frequency of all animal welfare checks is set to check 1% of single farm payment claimants with livestock. These farms are selected at central level for stand-alone welfare cross-compliance inspections and are given various risk scores. Some 80% of these comprised the claimants with the highest risk scores and 20% were randomly selected²⁵;

The centrally selected farms are then notified to the regional AHVLAs to carry out inspections over the course of the year. In addition, a number of targeted controls based upon the results of a well-developed trigger system are carried out nationally. High incidences of poor welfare indicators collected by the FSA at slaughterhouses (trigger reports) are sent to AHVLA offices to investigate.

Defra guidance to VOs on suitable frequencies for monitoring environmental parameters by keepers suggests taking measurements of CO₂ and NH₃ levels when these agents pose maximum risk (usually during brooding and at maximum stocking densities respectively). However, the audit visits did not provide adequate assurance that the requirements relating to these environmental parameters in Annex II point 3 of the Directive were effectively met. Neither did the number of advisory visits made allow the CA to gather concrete information about the situation on the farms or in the sheds themselves (Article 7 of the Directive requires that inspections shall be carried out on an adequate proportion of animals kept within each Member State).

In conclusion, the Directorate Health and Food Audits and Analysis reported that the CA has a well-developed and generally satisfactory system of official controls to implement the meat chicken Directive which targets the majority of premises by risk analysis both at the initial selection of farms for cross-compliance inspections and then as a result of information (triggers) received from slaughterhouse checks. However, the absolute numbers of inspection visits arising from each of these risk targeting processes is relatively low in relation to the scale of production and the number of animals involved.

Further, environmental parameters are not being adequately controlled due to the relatively low number of visits (and insufficient evidence obtained therefrom) and also because action plans (produced in response to *post-mortem* trigger reports) make no reference to these requirements of the Directive set down in national law. Bearing in mind the regular ongoing discussions of ventilation as a critical point in the majority of

²⁵ In their response to the draft report, the CA stated that the scheduled inspections include those for cross-compliance for which a minimum of 1% of claimants of single farm payments with livestock must be inspected. Regional selection is not possible as the 3 GB devolved administrations each hold a single separate list of claimants (for England, Scotland and Wales) from which selection is made. This ensures that the highest risk farms are selected regardless of location geographically. If Regional selection was carried out it is possible that higher risk inspections might not take place in some Regions. In addition to those inspections issued by the central team to the Regional teams a relatively small number of inspections are issued during the summer to ensure that new claimants may be selected for an inspection.

action plans seen by the audit team, the opportunity to remind, include and enforce these legislative requirements is not being effectively and fully exploited.

Sufficient training for keepers of meat chickens, of a recognised standard, and provided within a national proficiency framework, is available to address the requirements of Article 4 of the Directive.

Verification of farm inspections

The legal requirements here relate to Regulation (EC) No 882/2004. However, the audit report also commented with respect to the implementation of Directive 2007/43. It was noted that:

- there was an ongoing documentary review by the AHVLA technical veterinary services manager of 10% of action plans generated as a result of trigger reports; those cases chosen for escalated enforcement action are all reviewed by the same person;
- a review of the first year of operation of the trigger system has been produced which identified and made proposals for system revision;
- a teleconference had taken place between policy officers and implementing lead regional veterinary officers on the implementation of the Directive, specifically focusing on intervention levels, enforcement and perceived low frequencies of farm inspection visits;
- there is a Network of expertise discussion groups which is a useful forum to put forward suggestions for improvement and revision of procedures and receive responses on policy questions;
- a research study is being carried out by the University of Bristol to assess the impact of all aspects of the Directive including training of keepers, the slaughterhouse monitoring and feedback of welfare indicators and AHVLA enforcement activity.

In conclusion, the audit team found that the CA has put in place satisfactory actions to date to effectively monitor the implementation of most of the requirements of the Directive, even if these are not always systematic and there are some gaps in their scope. It was recognised that the CA has identified these non-compliances and proposes to address them by introducing audit capabilities, but it has not put forward any actions for systematic ongoing verification of the effectiveness of official controls at all levels.

The Directorate Health and Food Audits and Analysis recommended that the CA should take measures to ensure that: the environmental parameters specified in Annex 1 point 7 of the Directive in relation to minimum lighting periods for birds, gas parameters laid down in Annex II point 3 of the Directive, and the requirements for records of daily mortality rates to accompany consignments of birds to slaughterhouses as required in point 1(1) of Annex III to the Directive, are effectively monitored and enforced in the application of national measures to ensure the welfare of chickens reared for meat in the UK.

The following response was provided:

- The CA will update the inspection checklist (WF82) and guidance to include legislative requirements of environmental parameters in these documents. VOs will be instructed that they must check records of environmental parameters including light intensity experienced by a flock and where necessary check such parameters if they are thought to be in breach of the Directive or if there are no records of such measurements or if records need validation. The Operations Manual and

associated VO guidance document on environmental parameters will be updated accordingly by September 2013.

- Where environmental parameters are likely to be a causal factor in observed poor welfare, inclusion of actions to resolve problems thought to be caused by environmental parameters will be requested as part of an Action Plan. The CA will update the Action Plan template and guidance to ensure that, where relevant, improvements in monitoring and control of environmental parameters are included by September 2013.
- The CA will explore with the meat chicken industry (by September 2013), via the Broiler Core Stakeholder Group, the extent to which the industry sustain reduced light levels after thinning and work towards ensuring full compliance. The CA will remind the industry of the environmental parameter requirements. The CA will ensure that it is clear in the revised guidance being consulted on by the meat chicken industry during 2013 what the light intensity requirements are after thinning.
- Although daily mortality rates are not provided on the Food Chain Information report accompanying each batch of birds to the slaughterhouse, the sum of these rates, the Cumulative Daily Mortality Rate (CDMR), is routinely provided. CDMR data are used to inform the OV and the trigger system on the welfare provenance of the birds, and OVs have the ability to request the full record of daily mortality rates from keepers where they think that this would be beneficial (as described in the FSA's Manual for Official Controls).
- Daily mortality rates are requested and reviewed by AHVLA VOs during inspections of meat chicken holdings, and additionally when investigating trigger reports in which the Process 1 trigger level for CDMR has been exceeded (as described in AHVLA's Operations Manual).
- Discussions with delivery body representatives and other stakeholders have demonstrated that in most cases having access to daily mortality rate data for all flocks is of no benefit in determining the welfare status of birds. It is for this reason that the UK chose to establish a risk based approach for reporting and monitoring these data by establishing processes for requesting and reviewing these data when it is considered beneficial to do so. Routine provision of daily mortality rate records accompanying each flock to the slaughterhouse would prove unduly burdensome both to industry and to the CA with no significant benefit to animal welfare.

A1.2.20. Summary of the implementation of the Directive

Based on DG Health and Food Safety audit reports and other material available to us at this stage (principally LEI Wageningen (2013) and Bock, *et al* (2014)) some information is available on implementation in 20 of the 28 Member States²⁶. The following conclusions can be drawn with respect to implementation of the Directive.

- **Transposition:** the Directive has been fully transposed into national legislation. The DG Health and Food Safety reports highlighted some minor issues of translation in Lithuania and training requirements in Poland; in both cases the competent authority stated that these issues would be addressed.
- **Implementation:** there are some stricter national rules in some Member States, for example, in Austria (maximum stocking density 30 kg/m²), Bulgaria (maximum stocking density 39 kg/m²), Germany (maximum stocking density 39 kg/m²), Netherlands (maximum level of hock burns for birds kept at 42 kg/m²), Sweden

²⁶ The Member States for which there is no information from these sources are Croatia, Cyprus, Estonia, Finland, Greece, Ireland, Luxembourg and Malta.

(maximum stocking density 20 kg/m² with a derogation up to 36 kg/m²) and the UK (no derogation on stocking density beyond 39 kg/m², except in Northern Ireland). Implementation is regional in Germany, Italy and Spain; implementation is a devolved matter in the UK.

- **Enforcement:** a mixed picture emerges. The DG Health and Food Safety reports highlighted a number of problems across a range of Member States, however, the competent authority responses to recommendations made should address the shortcoming identified. Problems and difficulties identified related to stocking density; mortality registration; light requirements; humidity and gas concentration; documentation; and, the quality of inspection and inspection equipment.

In addition to the above, Butterworth, *et al* (2015) focuses on the use of welfare measures by Member States with regard to the Directive based on their involvement with the EUWelNet project. A key finding was that there is considerable variation between Member States. The measures which are used in those Member States providing information are (in descending order of use from 100% for the first two measures to approximately 55% for the last):

- foot pad dermatitis;
- dead on arrival;
- total rejections;
- ascites;
- cumulative daily mortality;
- joint lesions;
- hock burn;
- breast lesions;
- emaciation (thin birds);
- wing fractures;
- cellulitis;
- respiratory disease; and,
- scratches.

Most of these measurements are made by competent authority officials (official vet: 51% of the total and meat hygiene inspector: 28%). Privately employed slaughterhouse staff make the measurement in 21% of case. Cumulative daily mortality is recorded by either the grower or the official veterinarian (50% in each case). Measurements are made either with reference to scoring charts and photographic reference scales or based on the experience of staff working to local definitions or positive/negative scores. In some Member States data on the environmental conditions in the poultry house is recorded from farm records. This is particularly the case with regard to temperature, humidity, ventilation and water usage.

Butterworth, *et al* (2015) highlighted the extent of harmonisation of existing measurement methods between Member States and commented on the variability in reference and guidance material and interpretation for enforcement. These findings are reproduced in Table A1.3

Table A1.3: Harmonisation of existing welfare measures and variability in reference material

Measures	Degree of harmonisation of existing measurements between Member States (low,	Variability in reference and guidance material to Member States and
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	medium, high)	interpretation for enforcement (low, medium, high)
Foot pad dermatitis, hock burn, dead on arrival, total rejections	High	Medium (some variability)
Ascites, cumulative daily mortality	Medium	High (significant variability in methods used to assess and to frame professional judgements)
Breast lesions, cellulitis, emaciation, joint lesions, respiratory problems, scratches, wing fractures	Low	High (very variable methods and guidance on data collection)
Environmental measures (house temperature, humidity, ventilation, litter quality, water use, medicine use, air quality)	High (environmental measures are common measures used by producers)	High (very variable enforcement decisions and professional judgements made on the basis of these measures)

Source: Butterworth, et al (2015); Table 1, p5.

In summary, Butterworth, et al (2015) conclude that while there is general agreement between Member States in terms of the measures which can be practically assessed, there is significant variation in the combination of measures collected and in the scoring and reference material used. The key reasons for the different approaches were cited as:

- Different Member States are at different stages of implementation of the Directive.
- Different Member States have focused different levels of resourcing and personnel on the activities required by the Directive.
- The structure of the poultry industry differs between Member States, and some Member States already specify stocking densities below the maximum set out in the Directive whilst make extensive use of both derogations to stock at higher densities.

A1.3. Impact of the implementation of the Directive

There is some literature on the **expected** impact of the implementation of the Directive, but little on the **actual** impact. European Parliament (2010) considers the likely impact based on a number of sources (a key source is Sheppard and Edge, 2005) and concludes that it is likely that the Directive will only have economic impacts on broiler farms in some Member States (notably in north-west Europe). For example, based on stocking densities in use at the time it was expected that the majority of Dutch and Belgian farms would be affected, as would be 20% to 30% of French and UK farms, if stocking densities up to 42 kg/m² were used. However, if stocking densities were limited to 39 kg/m² (as they ultimately were in England, Scotland and Wales within the UK) a greater impact would be expected. The point is made that the actual consequences will depend on implementation at the national level and the presence of voluntary schemes which were already restricting stocking density (stricter rules on density in Sweden and Denmark, and voluntary schemes in the UK and Germany were mentioned). This report concluded on the basis of economic calculations made in Belgium, the UK and the Netherlands that lowering stocking densities to meet the Directive's requirements would potentially increase production costs at farm level by 1.0-1.5%.

The UK government must undertake Impact Assessments before introducing legislation. Agriculture is a devolved matter and there are separate assessments for England and

Scotland. The English Impact Assessment calculated a one-off cost to industry in terms of compliance of £14.7 million (€17.1 million at ECB 2010 exchange rate²⁷) with an ongoing annual cost of £5.1 million (€5.9 million). In addition, a one-off cost of £2.2 million (€2.6 million) was calculated for training with a further ongoing annual cost of £0.49 million (€0.57 million). Government costs in terms of inspection and enforcement were calculated to be £0.12 million (€0.14 millions) (one-off) and ongoing annual £0.16 million (€0.19 million). It was also noted that consumers may face a potential price adjustment. Benefits to consumers were also estimated and the mid-range of this estimate was £103 million (€120.1 million) per annum. Additional, non-quantifiable benefits were expected in terms of management quality and the creation of a level playing field both nationally and across the EU.

The Scottish Impact Assessment used much of the same source material, but adjusted to reflect the scale of the industry in Scotland. The one-off investment cost to the industry was calculated at £1 million (€1.2 million at ECB 2010 exchange rate) with an ongoing annual cost of £13,201 (15,389). The impact of restricting stocking densities was put at £426,789 (€497,516) as a one-off cost and £550,259 (€641,447) on an ongoing annual basis. Total training costs were calculated at £548,121 (€638,955) whilst inspection costs were put at £19,000 (€22,149) and £30,000 (€34,972) as one-off and ongoing costs respectively. Benefits to Scottish society were expected to be £11 million (€12.8 million) per annum.

In terms of the actual impact of the Directive, USDA (2011) noted that, based on broiler production data, the implementation of the Directive did not lead to disruptions on EU broiler markets. Broiler farmers affected by reduced stocking densities simply lowered bird densities. While this did result in some decrease in output, this was made up for by reducing the time between batches and by some expansion of sheds. Despite this, the source states that studies suggest an increase in production cost of 5%. The studies are not referenced and so cannot be investigated, but it appears unlikely that studies into the impact could have been undertaken and published between implementation in 2010 and the publication of USDA (2011). It is therefore most likely that the studies referred to were concerned with the expected rather than the actual impact, or else were conflating several pieces of EU legislation (see below).

Sandilands and Hocking (2012) report that the impact of the Directive has been variable across the EU with Member States such as Denmark, Germany, Sweden and the UK already largely complying with the new stocking densities and Mediterranean countries typically stocking below 32 kg/m² for climatic reasons. The Directive is though expected to have had a major impact in the Netherlands and Central and Eastern Member States where stocking rates of 46 kg/m² were previously common. Because EU retailers tend to use Quality Assurance schemes, it was considered likely that imports would meet the requirements of the Directive. This report also found that global competitiveness is not likely to have been impacted because third countries have lower production costs for a range of reasons, with labour, feed and climate differences being of greater importance than animal welfare standards. As would be expected from the rationale for the Directive, the impact on the quality of life of broilers was stated to have been positive, even if the impact on welfare remained to be seen.

LEI Wageningen (2013) considered the overall economic impact of EU legislation under the three main groups of environmental, food safety and animal welfare legislation (national legislation going beyond EU requirements was not considered). In sum the additional costs resulting from EU legislation amounted to 5.1% of total production costs

²⁷ €1:£0.85784: <http://sdw.ecb.europa.eu/browse.do?node=9691296>

in 2011 (base cost €0.82/kg liveweight). However, the most significant costs related to GMO legislation and salmonella control. The only identified cost item that relates to the Directive is "density", but this accounts for just 2% of the total additional cost.

In addition to the evidence above, the series of Tables and Figures presented in section 3.1 of this report do not reveal any obvious structural break following implementation of the Directive in 2010. For example, average flock size increased (Table 3.1), production increased (Figure 3.3), imports decreased, exports increased with the consequent positive impact on net trade (Figure 3.6). In short, there is no evidence to suggest that the implementation of the Directive had a negative impact on the sector as a whole, although this does not preclude negative impacts on individual producers.

Of course, an impact on animal welfare can be expected to have taken place where stocking densities had to be limited to comply with the Directive. However, our exploratory interviews, and literature from animal welfare organisations such as Eurogroup for Animals (2010), support the evidence above that across many parts of the EU, stocking densities were little changed meaning little actual impact on resulting animal welfare.

APPENDIX 2: SURVEY METHODOLOGY

Two online surveys were developed, one administered to the competent authorities in each Member State and one to national AVEC members as representatives of the poultry industry.

A2.1. Launch of online surveys

For the competent authority survey, a contact list comprising national Chief Veterinarian Officers (CVOs) was provided to the contractor by DG SANTE. On 08 June, 2016 an explanatory email was sent to each contact informing them of the study, the forthcoming online survey and also the case study countries. This email included the letter of mandate provided by DG SANTE. On 14 June, 2016 a second email was distributed which included a link to the online survey and which set a response deadline of Friday 8 July, 2016. Both emails requested that the recipient forward the material to the relevant person within the competent authority.

All emails were tracked and the minority which did not successfully reach the intended recipient were investigated. In two cases anti-spam software prevented delivery due to the attached letter of mandate so a further email was sent without the attachment to explain the project and to request assistance.

The contractor attended an AVEC reception on 21 March, 2016 and used this opportunity to informally request assistance with the industry online survey. The contractor also attended a meeting of the national members of AVEC in Brussels on 1 June, 2016 and made a presentation to delegates about the study and the data collection methodologies to be used.

On 14 June, 2016 an email was sent to contacts within each of the 16 national AVEC members referring to the presentation and requesting that members complete the online survey (the Commission's letter of mandate was attached to the email). The same deadline of Friday 8 July, 2016 was set.

It was decided not to send PDF versions of the survey questionnaires in the first instance because previous experience suggests that some respondents then print this out, complete it by hand, scan it and return it via email. As well as adding an additional data entry task, this also introduces the possibility of transcription errors. However, after receiving a request for a PDF copy of the questionnaire from one survey target the contractor decided that sending out the questionnaire would also serve as a useful reminder which might boost the response rate. PDF versions of the questionnaires were duly sent to all competent authority and industry targets.

A2.2. Following up survey contacts

By Monday 11 July, 2016 responses had been received from eight competent authorities (29%) and four national AVEC members (25%). Those competent authorities and national AVEC members which had not completed a questionnaire were sent a reminder on 11 July, 2016.

In the case of competent authorities, where no response had been provided it was not possible to tell whether the original emails had been passed on and so the reminder was drafted carefully to allow for situations where the original email had been passed on and situations where it had not been. Because of the uncertainty in delivery to the right

person, and the importance of receiving responses, no specific deadline was mentioned in this follow-up.

In the case of national AVEC members, a follow-up email asked whether it would be possible to supply a response within an additional two-week period, i.e. by 25 July, 2016.

An update on survey responses was provided to DG SANTE on Monday 18 July, 2016. With respect to the competent authority survey, DG SANTE offered to contact those that had not provided a response to any of the emails. This offer was taken up and it proved very helpful. A further eight responses were received from competent authorities by 25 July, 2016; several respondents indicated that they would not be able to complete the survey until after annual leave had been taken.

Some seven responses from national AVEC members had been received by 25 July, 2016 with the assistance of AVEC which had followed up national members which had not responded.

Given the importance of obtaining survey responses and the clear difficulty presented by trying to collect information in the peak holiday season it was decided to follow up the remaining non-respondents individually and to not set a final response deadline. Although time consuming, this approach was successful and responses from all 28 competent authorities were finally received with the last response provided on 27 September, 2016.

The industry survey was less successful with responses from 12 national AVEC members received by 25 August, 2016 (75%). This lower success rate is consistent with previous experience.

A2.3. Validation of survey responses

Four types of check were carried out:

1. **Completeness.** Omissions are always possible and each survey response was checked to identify questions where answers had not been provided.
2. **Internal coherence.** A coherence check was carried out to assess the internal consistency of each response. Several questions were identified, the answers to which implied or precluded certain answers to other questions. For example, if Question 23 in the competent authority survey stated that welfare indicators to be recorded at slaughterhouses/farms have been specified by law at national/regional level, then the indicators which have to be provided should be indicated in Question 24.

The survey question logic (routing the respondent through the questionnaire) ensured that it was not possible to provide answers to questions where this was not necessary. For example, if the answer to Question 23 (competent authority survey) was "no", then Question 24 is not relevant and would not be visible to the respondent.

In addition to the above, each open text question was assessed to make sure that the answer provided made sense and was clear.

3. **Plausibility.** The answer to some questions could be checked for plausibility, for example, Question 10 on the length of the average production cycle. An answer

which deviates substantially from the expected range (35-50 days) is likely to be a mistake.

4. **External coherence.** Finally, all survey responses were triangulated, i.e. checked against the other information available to us from our literature review. The nature of the questions asked meant that there were few questions which could be checked in this way, but one example is the maximum permitted stocking density.

Completed survey responses were returned to respondents with omission and clarification queries relating to specific questions where required. Where amendments were necessary these were discussed via email and the survey response edited appropriately by the contractor. Where editing was necessary, the revised response was returned for validation. Some entry errors were identified by respondents following the return of their submission and these were amended accordingly. Once any questions had been addressed the response was considered to be valid.

A2.4. Extraction of survey results and preliminary analysis

Once the survey was closed the data were extracted into an Excel spreadsheet. Data were then arranged to facilitate analysis. Data were extracted to provide answers to specific questions by Member State and the results were then analysed using descriptive statistics and textual analysis. Full analysis of the competent authority survey is presented in Appendix 3 and analysis of the national AVEC member survey in Appendix 4 of this report.

APPENDIX 3: SURVEY OF COMPETENT AUTHORITIES

In accordance with our proposal, the key features of the survey are as follow:

- Method: online survey
- Target: competent authorities
- Coverage: EU-28

Completed survey responses were received from all 28 Member States, in almost all cases all questions were answered. The survey was directed to the relevant official within the competent authority via the national CVO (see section 2.3); the results ought therefore to be definitive. However, there are a small number of inconsistencies between some results and the case studies conducted; attention is drawn to these in the text. The results are analysed below.

A3.1. National legislation

In seven Member States the national legislation is either stricter or goes beyond the provisions of the Directive as shown below:

- Austria:**
- Stocking densities (Articles 3.2, 3.3, 3.4 and 3.5) are stricter than the Directive and Annexes II and V (lower maximum stocking density and/or no derogations)
- Denmark:**
- Inspections and monitoring (Article 3.1(b)) are stricter than set out in Annex III
 - Stocking densities (Articles 3.2, 3.3, 3.4 and 3.5) are stricter than the Directive and Annexes II and V (lower maximum stocking density and/or no derogations)
- Finland:**
- National legislation contains additional provisions
 - Inspections and monitoring (Article 3.1(b)) are stricter than set out in Annex III
- Germany:**
- House design requirements (Article 3.1(a)) are stricter than set out in Annex I
 - Inspections and monitoring (Article 3.1(b)) are stricter than set out in Annex III
 - Stocking densities (Articles 3.2, 3.3, 3.4 and 3.5) are stricter than the Directive and Annexes II and V (lower maximum stocking density and/or no derogations)
- Netherlands:**
- National legislation contains additional provisions
- Sweden:**
- Stocking densities (Articles 3.2, 3.3, 3.4 and 3.5) are stricter than the Directive and Annexes II and V (lower maximum stocking density and/or no derogations)
 - National legislation contains additional provisions
- UK:**
- Stocking densities (Articles 3.2, 3.3, 3.4 and 3.5) are stricter than the Directive and Annexes II and V (lower maximum stocking density and/or no derogations)

The most common area where national legislation differs from the provisions of the Directive is in relation to stocking densities (five Member States). Inspections and monitoring requirements go beyond the provisions of the Directive in three Member States; in three Member States the national legislation contains provisions which are not set out in the Directive. **Germany** is the only Member State in which house design requirements go beyond those set out in the Directive.

National legislation is a straightforward transposition of the Directive in the remaining 19 Member States that completed the survey.

A3.2. Stocking densities and production cycle

As noted above, stocking densities are more restricted in five Member States than is allowed for in the Directive.

- In Austria, the maximum stocking density is set at 30 kg/m² and this cannot be exceeded. A lower stocking density was used to provide higher animal welfare.
- In Denmark the maximum stocking density allowed under derogation is 40 kg/m² taken as the average stocking density of the current flock plus the previous two; the stocking density must at no time exceed 42 kg/m². This is for both historic and animal welfare reasons.
- Producers in Germany can stock up to a maximum of 39 kg/m², but the requirements in the Directive that accompany this higher stocking density are applied to all growers, including those stocking at levels below 33 kg/m². As with Denmark, this is for both historic and animal welfare reasons.
- In Sweden growers are permitted to stock at up to 36 kg/m² as long as they meet the requirements of a 31 point Animal Care Programme. Again, this is for historic (current practice) and animal welfare reasons.
- England, Scotland and Wales within the UK did not take up the opportunity to stock at between 39 kg/m² and 42 kg/m²; Northern Ireland did, though no premises are currently stocking at this rate. The choice not to use the second derogation in most of the UK was informed by practice at the time (i.e. only a small number of growers were affected by not taking up the derogation) and for animal welfare reasons.

Whilst the stocking densities permitted in the **Netherlands** are the same as those set out in the Directive, there is an additional requirement on those stocking at between 39 kg/m² and 42 kg/m² to maintain a score for FPD of below 80 (there are similar requirements to conform with FPD scores to stock at higher density in other Member States including **Denmark, Germany, Italy, Poland, Spain, Sweden** and the **UK**, although this is not always with respect to the Article 3(5) derogation).

The proportion of national broiler flocks kept at various stocking densities is shown in Figure A3.1. In five Member States (**Austria, Greece, Latvia, Luxembourg** and **Portugal**) all commercial broilers are kept at stocking densities up to 33 kg/m². In **Croatia, Cyprus, Hungary, Malta** and **Spain** more than 90% of the national flock is kept at this stocking density, as is 85% of the **Polish** broiler flock.

At the other end of the spectrum, 96% of the **Finnish** broiler flock is kept at between 39 kg/m² and 42 kg/m², as is 93% of the **Danish** and **Netherlands** flocks; just over four-fifths (82%) of **French** commercial broilers are stocked at this density.

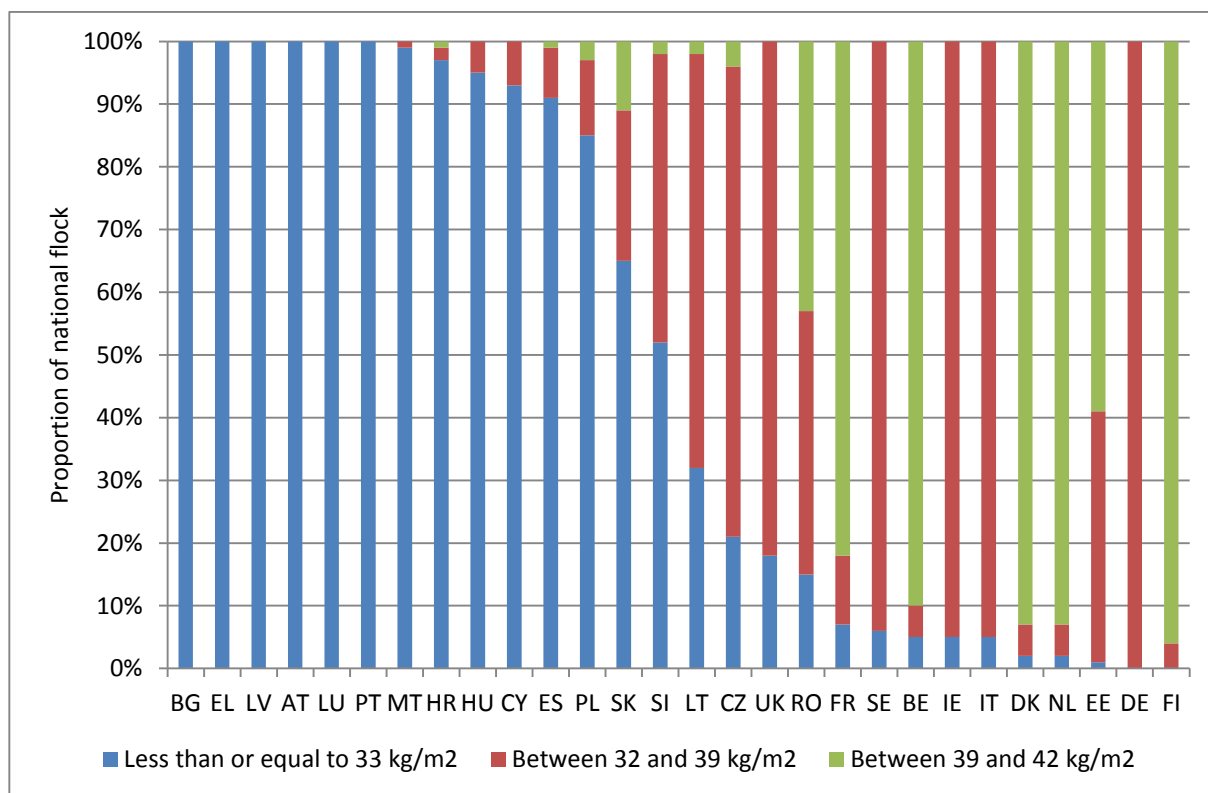


Figure A3.1: Proportion of national broiler flock by stocking density

The average production cycle (from birth to slaughter) ranged from 32-35 days in **Ireland** to 56 days in **Italy** and 55 days in **Hungary**. Whilst there was general coherence between the view of the competent authority and that of the industry (see section A4.4), industry figures for **Italy** and **Hungary** were 45 and 40 days respectively; the competent authority figures may also include the empty period between batches. The competent authority in **Luxembourg** stated that the average production cycle was 86 days, but this may reflect the small scale of national production²⁸. Taking the mid-point of ranges where these were provided, the data suggest an average production cycle of 40.6 days (excluding **Luxembourg**), which is close to the average derived from the industry survey (38.5 days).

A3.3. Training courses

Only **Bulgaria, Hungary, Luxembourg, Spain, Sweden** and the **UK** offered training courses in accordance with Article 4 prior to implementation of the Directive in 2010; the conclusion is therefore that implementation resulted in the provision of training which was largely not present before. In **Luxembourg** this training applied to every farm manager doing vocational courses and in **Spain** some 135 people took part in these courses; data were not available from any other Member State.

Owners as well as keepers need to undertake courses under the Directive in 13 Member States (**Belgium, Bulgaria, France, Hungary, Ireland, Latvia, Netherlands, Poland, Portugal, Romania, Spain, Sweden** and the **UK**).

²⁸ The competent authority was invited to add a comment on this figure, but did not do so.

Competent authorities were asked how many training courses were offered under Article 4 of the Directive during the 2010-14 period, the average duration of these course, the number of people trained, the number of certificates issued and the number of certificates issued under Article 4.4 (equivalence or Grandfather rights). Figure A3.1 presents the information provided through the survey. Although the questions asked seem straightforward, the fact that training is often carried out by organisations other than the competent authority and/or that training under Article 4 of the Directive is sometimes offered as part of wider training courses means that the answers are not always especially clear.

A3.3.1. Number of training courses

The number of training courses offered will of course depend on the demand (a function of the scale of the national industry) and the extent to which a Member State has implemented this aspect of the Directive and their use of equivalence certificates. For example, no training courses were offered in **Estonia** in the 2010-14 period, but 23 equivalence certificates were issued. No training courses were offered in **Greece** and email discussions with the Greek competent authority revealed that this relates to the financial crisis and a resultant lack of personnel. As an alternative, officials from the competent authority have attended Better Training for Safer Food courses on animal welfare in broiler production and intend to use the training material provided as a basis for the future organisation of courses.

In some Member States, it appears as though training courses are offered annually (**Austria** for example), and there are Member States which have offered an average of more than one course over the five-year period under consideration (for example, **Bulgaria, France, Hungary, Spain**) which suggests that they run courses on demand.

A3.3.2. Duration of training courses

Training courses typically take up to a day where they are focused on the requirements of the Directive; courses are obviously longer where they cover additional topics or where the broiler element forms part of a wider training course (for example, **Belgium** and the **UK**). In some cases, courses appear to exceed a day in duration with courses in the **Netherlands** requiring 50 hours, **Spain** 20 hours and **Portugal** 18 hours; in **Bulgaria**, courses last between two and four days). The training forms part of a Diploma in the **UK** and this is a long-term course.

A3.3.3. Number of people trained

The number of people trained will depend ultimately on the scale of the national sector and the use (or not) of equivalence certificates. For example, in the **Czech Republic** 477 people underwent training between 2010 and 2014 and no equivalence certificates were issued whereas in **Finland** only 30 people underwent training, but 401 equivalence certificates were issued.

The greatest number of people were trained in **Spain**, the **UK** and **Italy** (3,423, 2,116 and 1,804 respectively). No people were trained in **Estonia** or **Greece**. As noted above, in the case of Estonia 23 equivalence certificates were issued which suggests that the reason for the lack of training was a lack of demand. In Greece, the lack of training was related to a lack of resources.

A3.3.4. Certificates issued

The number of certificates issued was usually the same or very similar to the number of people trained suggesting that certificates are awarded for attendance or that almost all people taking part in training were judged to have passed the course requirements. There were some exceptions to this rule. In **Cyprus**, only 40 certificates were awarded to the approximately 80 people trained and in **Germany**, where the training is followed by an examination, only 19 certificates were awarded whilst 97 people were trained. In **Finland**, more people received certificates than took training courses (30 c.f. 20); this was because it is possible to take the exam without following the course.

The total number of certificates issued following training was 9,266 which will be an under-estimation of the true total due to the lack of data in some Member States.

A3.3.5. Equivalence certificates issued

Many Member States use equivalence certificates to provide necessary qualifications to those that have been working in the industry without them having to follow a specific course. Where these certificates are used and where training courses have also been offered approximately half of the total number of certificates issued were via this route. For example, in **Denmark**, 167 equivalence certificates were issued and 170 following training courses; in **Lithuania** 146 equivalence certificates were issued compared to 114 following training courses. The ratio between the two forms of certificate will reflect the structure of the industry and the rules relating to the issuing of equivalence certificates.

The total number of equivalence certificates issued was 4,838. Again, this will be an under-estimation because the data set is not complete. Two-thirds of the total number of certificates issued followed training and one-third were equivalence certificates.

Table A3.1: Training courses offered, course duration, uptake and certificate award

	Number of training courses 2010-14	Average course duration	Number of people trained	Number of certificates issued	Number of equivalence certificates issued
Austria	10 courses/year	4-8 hours	No data	No data	No data
Belgium	There are no separate training courses for broiler keepers yet, but the topics from Annex 4 of the Directive have been integrated into the general starter course for agricultural producers	The total course takes 60 hours, but Article 4 is only a part of this course	No data	No data	~700
Bulgaria	1-4 per year	2-4 days	16	16	0
Croatia	0	-	0	0	No data
Cyprus	4	4 hours	~80	40	0
Czech Republic	8	6 hours	477	476	0
Denmark	7	8 hours	170	170	167
Estonia	0		0	0	23
Finland	1	9, there can be more hours of surplus courses in addition to the actual course depending on the participants' background	20, some people (adults, the qualification requirement system of vocational education and training) may have taken the exam without the course	30	401
France	24 (2011 and 2012)		302 (2011 and 2012)	302 (2011 and 2012)	No data
Germany	5	Varies, 4 hours to 2 days (1 day lessons, 2nd day test)	97	19	0
Greece	0	0	0	0	0
Hungary	At least 37 (these were organised by the	5-6 hours	No data (animal welfare officers for other species can	No data	No specific data (~4,700 animal

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	Number of training courses 2010-14	Average course duration	Number of people trained	Number of certificates issued	Number of equivalence certificates issued
	central competent authority) others have been organised by the regional authorities (no data)		participate in these courses too)		welfare officers)
Ireland	Two separate training courses carried out at multiple locations in 2012 and 2014	1 day	303	303	None
Italy	43	8 hours	1,804 (these are the data on record, but there are many more that have been conducted by the Associations and local veterinary Services throughout 2014 and that are still being communicated to the National reference centre)	1,804	1,113
Latvia	No data provided	Latvia	No data provided	Latvia	No data provided
Lithuania	9	Lithuania	9	Lithuania	9
Luxembourg	Training is provided on each holding by the official veterinarian	1 hour	6	There is no certification system	0
Malta	0	-	-	-	-
Netherlands	5	50 hours	13	2	645
Poland			No data provided		
Portugal	No data	18 hours	No data	No data	143
Romania		5 hours	343 (2014-15)	343	0
Slovakia	4	10 hours	71	71	0
Slovenia	5	4.5 hours (6 school hours)	331	331	0
Spain	180	20 hours	3,535	3,423	0
Sweden	1-5 / year	8 hours	No data (information held by	No data (information	No data

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	Number of training courses 2010-14	Average course duration	Number of people trained	Number of certificates issued	Number of equivalence certificates issued
			trainers)	held by trainers)	(information held by trainers)
UK	Two qualifications are offered – the Level 2 Diploma in work-based agriculture and the Level 3 Diploma in work-based agriculture. These are the minimum qualifications sufficient to comply with Article 4.	The Level 2 Diploma takes approximately 12 months to complete (20 weeks in Northern Ireland) and the Level 3 Diploma approximately 18 months (2 years in Northern Ireland).	As at July 2016, 4,193 farm managers and stockpersons are registered at Level 2 and 3. This is the number of people enrolled onto Poultry Passport, the meat industry’s training scheme, which is a requirement of the Red Tractor standard. Those registered may be partway through training or yet to enrol onto a Diploma, but have enrolled onto the scheme.	Of the above number, 2,116 have completed a Diploma, as at July 2016.	1,500

A3.3.6. Training providers

Training is provided by several different types of organisations including the Commission’s Better Training for Safer Food programme (animal welfare training), national competent authorities, agencies or other organs of the national competent authority, national (public) institutes, independent institutes, the private sector, the poultry industry organisation and universities/colleges as shown in Table A3.2. Training in **Austria, Bulgaria, Germany, Italy, Lithuania** and **Luxembourg** is available via more than one type of organisation (in **Germany** it depends on the Länder). The most common training provider is the private sector (15 Member States).

Table A3.2: Organisations providing training

Type of organisation	Member States
National competent authority	<ul style="list-style-type: none"> • Bulgaria • Croatia • Cyprus • France • Germany • Greece • Hungary (Central veterinary authority, regional veterinary authority) • Malta
Agency or other organ of the national competent authority	<ul style="list-style-type: none"> • Germany • Italy
National (public) institute	<ul style="list-style-type: none"> • Estonia (University of Life Sciences) • Finland • Germany • Lithuania • Luxembourg (Lycée Technique Agricole d'Ettelbrück) • Slovakia (Institute of Postgraduate Education of Veterinary Surgeons in Košice) • Slovenia (University of Ljubljana, Veterinary Faculty, Permanent Education Division) • Spain
Independent institute	<ul style="list-style-type: none"> • Austria (Ländliche Fortbildungsinstitute) • Belgium • Germany • Italy <p>Netherlands (Groenhorst college Barneveld)</p>
Private sector	<ul style="list-style-type: none"> • Austria (ARGE Huhn Co, Austrian poultry and egg association and slaughterhouses) • Bulgaria • Czech Republic (Czech Moravian Poultry Association) • Denmark (SEGES, which is under the Danish Food and Agriculture Council) • Ireland (Minster Veterinary Practice Ltd and St David's Poultry Team) • Italy • Latvia (Latvian Rural Advisory and Training Centre) • Lithuania • Luxembourg • Poland • Portugal • Romania (Best Smart Consulting) • Sweden (Swedish Poultry Association, updated and approved by the Swedish Board of Agriculture)

Type of organisation	Member States
	<ul style="list-style-type: none"> Spain (public companies authorised to provide training by the competent authority) UK (Diplomas are delivered by private sector colleges and training providers who have satisfied the requirements of the Awarding Body, in this case City and Guilds)

Notes: Training in the Czech Republic was classified by the survey respondent as an NGO. This was reclassified as a private organisation for consistency and because the intention of the question was that NGOs would refer to independent organisations such as animal welfare charities. The Estonian response was also reclassified from national (public) institution to Universities/colleges

In 24 Member States the competent authority checks whether the owner or keeper provides instructions and guidance on the relevant animal welfare requirements to persons employed or engaged by them to attend to chickens or to catch and load them (Article 4(6) of the Directive). The only Member States where these checks do not take place are **Belgium, France, Greece** and **Malta**.

A3.4. Inspections

Competent authority respondents were asked to identify the main difficulty encountered by inspectors in carrying out their inspections. The main problem, cited by 12 competent authorities (**Bulgaria, Czech Republic, Estonia, Finland, France, Hungary, Lithuania, Portugal, Romania, Slovakia, Slovenia** and the **UK**) was insufficient resources. Other priorities (which can be seen as a related problem) were cited by **Cyprus, Germany, Ireland** and **Spain**. An absence of appropriate records was cited as the main problem in **Germany, Greece, France, Malta** and the **Netherlands**, while technical difficulties were reported in **Belgium, France, Germany, Slovakia** and **Sweden**. **Germany** added problems resulting from missing feedback from slaughterhouses, verification of stocking density and the measurement of light intensity.

The competent authorities in **Austria, Denmark** and **Luxembourg** said that they do not encounter major difficulties.

Respondents were asked to identify the main broiler welfare problems identified in inspections on farm, at transport and in the slaughterhouse (Table A3.3, grey shading indicates no answer). A wide range of issues were recorded and these were of varying degrees of seriousness. For example, the problems identified on farm in **Finland** were said to have been addressed with the implementation of the Directive; this is also the case with respect to indicators reported in **Spanish** slaughterhouses.

Some of the issues identified on farm could be classified as administrative issues rather than necessarily indicating poor welfare, for example, cases where stocking densities are exceeded and where records are not ready to be inspected or are not adequate. It is assumed that where examples of poor animal welfare are identified in inspection that measures are then put in place to address these.

The main issues at transport injuries (typically to wings), dead on arrival and transport times; there are also some reported issues with the environment during transport. Many of the issues identified at the slaughterhouse actually relate to conditions on-farm such as FPD, ascites, emaciation, etc. Where the welfare issues relate specifically to the operation of the slaughterhouse, issues relating to stunning predominate.

Table A3.3: Main identified welfare problems

On farm	At transport	At slaughterhouse
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	On farm	At transport	At slaughterhouse
Austria	<ul style="list-style-type: none"> • Mortality • Ascites • Rejections due to growth rate 	<ul style="list-style-type: none"> • Wing fractures (minor problem) • Dead on arrival 	<ul style="list-style-type: none"> • Mortality • Ascites • Rejections
Belgium	<ul style="list-style-type: none"> • Light 	<ul style="list-style-type: none"> • Dead on arrival 	<ul style="list-style-type: none"> • Inadequate stunning
Bulgaria	<ul style="list-style-type: none"> • Lack of records/missing documents 	<ul style="list-style-type: none"> • Wing fractures 	<ul style="list-style-type: none"> • Foot pad dermatitis
Croatia			
Cyprus			
Czech Republic	<ul style="list-style-type: none"> • Overheating • Air quality 	<ul style="list-style-type: none"> • Wing fractures • Mortality 	<ul style="list-style-type: none"> • Acute and traumatic changes (contusions, fractures, soaking) • Ascites • Emaciation
Denmark	<ul style="list-style-type: none"> • Exceeding stocking density 	<ul style="list-style-type: none"> • Wing injuries 	<ul style="list-style-type: none"> • Foot pad dermatitis
Estonia	<ul style="list-style-type: none"> • Overcrowding in the end of rearing period • Bad microclimate • Dermatitis 	<ul style="list-style-type: none"> • Injuries (when birds weight is more than 2.3-2.5 kg) 	-
Finland	<ul style="list-style-type: none"> • Lighting levels • Litter quality • Exceeding stocking density • (These problems have now been addressed) 	<ul style="list-style-type: none"> • Nothing systemic 	<ul style="list-style-type: none"> • Wing fractures • Ascites • Trauma due to loading • Colibacillosis
France			<ul style="list-style-type: none"> • Dirty feathers • Cachexia • Congestion and not purulent skin lesions
Germany	<ul style="list-style-type: none"> • Genetics • Handling of sick or injured animals • Litter quality • Foot pad health • Heat stress • Exceeding stocking density 	<ul style="list-style-type: none"> • Handling/catching/loading • Temperature (too hot/cold) 	<ul style="list-style-type: none"> • Overloading on transporters • No drinking possibilities • Stunning methods
Greece	<ul style="list-style-type: none"> • Dead and sick animals 	<ul style="list-style-type: none"> • Transport conditions 	<ul style="list-style-type: none"> • Lesions of all types
Hungary			
Ireland	<ul style="list-style-type: none"> • Management and environment 	<ul style="list-style-type: none"> • Generally good systems in place 	<ul style="list-style-type: none"> • Foot-pad dermatitis • Breast burn • Hock burn • Inspection feedback
Italy			
Latvia			
Lithuania	<ul style="list-style-type: none"> • Seasonal humidity of litter due to weather conditions • Methods of catching birds 	<ul style="list-style-type: none"> • Stress during transportation 	<ul style="list-style-type: none"> • Catching and shackling of birds
Luxembourg	<ul style="list-style-type: none"> • No welfare problems 	<ul style="list-style-type: none"> • No welfare problems 	<ul style="list-style-type: none"> • No slaughterhouse in Luxembourg
Malta	<ul style="list-style-type: none"> • Quality of the litter used • Water spillage • Records not ready to be inspected 	<ul style="list-style-type: none"> • Transport times • Climatic conditions not suitable 	<ul style="list-style-type: none"> •

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	On farm	At transport	At slaughterhouse
Netherlands	<ul style="list-style-type: none"> • Compliance is low in general • Problems regarding light schemes and minimum amount of lux • Record keeping mistakes on daily mortality • High mortality • Wet litter • Exceeding stocking density • Late provision of FPD score 	<ul style="list-style-type: none"> • Death on arrival • Injuries 	<ul style="list-style-type: none"> • Injuries
Poland	<ul style="list-style-type: none"> • Record keeping • Exceeding stocking density 	<ul style="list-style-type: none"> • Exceeding transport time 	<ul style="list-style-type: none"> • Standard operation procedures
Portugal	<ul style="list-style-type: none"> • Litter management • Environmental control • Catching of birds 	<ul style="list-style-type: none"> • Environmental control 	<ul style="list-style-type: none"> • Foot pad dermatitis
Romania			
Slovakia	<ul style="list-style-type: none"> • Emaciation • Ascites • Walking problems 	<ul style="list-style-type: none"> • Dead on arrival 	<ul style="list-style-type: none"> • Total rejections • Emaciation • Ascites/edema disease
Slovenia	<ul style="list-style-type: none"> • Litter availability (decline in saw dust availability due to pellet fuel production rise) • Old buildings, equipment and keepers 	<ul style="list-style-type: none"> • Cage design 	<ul style="list-style-type: none"> • Electrical waterbath stunning
Spain	<ul style="list-style-type: none"> • Record keeping • Personnel skill level 	<ul style="list-style-type: none"> • Loading and unloading • Care during the journey 	<ul style="list-style-type: none"> • Foot pad dermatitis (though situation improving) • Hock burns (though situation improving) • Dirty feathers (minor) • Breast blisters (minor) • Wing fractures (minor) • Bruising, cachexia, septicaemia (minor)
Sweden	<ul style="list-style-type: none"> • Ventilation 	<ul style="list-style-type: none"> • Ventilation 	<ul style="list-style-type: none"> • Identifying and taking care of unfit animals
UK	<ul style="list-style-type: none"> • Welfare problems which do not constitute non-compliance are not recorded in a manner that allows collection 	<ul style="list-style-type: none"> • Dead on Arrival 	<ul style="list-style-type: none"> • Foot pad dermatitis • Ascites/Oedema

A3.5. Impacts of the implementation of the Directive

Competent authorities were asked whether any estimations on the cost of the Directive had been completed in their Member State. Only six suggested that some form of cost estimate had been prepared²⁹:

- Czech Republic: basic estimations were prepared for the competent authorities which suggested costs for equipment for measuring parameters on-farm (purchase and operation) of CZK 1,100,000 (~€40,700) and staff costs for carrying out checks on-farm and in slaughterhouses of CZK 35,900,000 (~€1.3 million).
- Finland: the increase in annual costs for the growers was estimated to be 6%, i.e. €6 million per year. For the first two years the cost of meat inspections were estimated to increase by €166,000 per year, with annual costs estimated to be €96,000 higher than before from then on (these costs are charged to the industry). The increase in workload for the competent authorities (excluding meat inspection) was estimated to require an additional 3.8 full-time equivalents per year for the first two years (training, inspection, data systems). After that the increase was estimated to be 1.6 FTEs per year.
- Germany: when implementing the Directive into national law the financial implications and costs were estimated and revealed no significant investment costs for the industry, but some minor administrative costs were expected. These were calculated on a mixture of bases (per house/year, per batch, per bird) and it is not possible to derive a reliable total figure (see the German case study, section 1.1).
- Netherlands: the initial cost to the industry for implementation was estimated at €50,453 with annual administrative costs of €2,716,714. Costs to the Netherlands Enterprise Agency (RVO) for computer applications to register farmers were estimated at around €230,000. Administrative controls during the first year (no data are available for the following years) was estimated at €29,000. The cost to the competent authority in the education of official veterinarians amounted to €7,440 during the first year of implementation with audits and verifications in that year amounting to €43,840.
- Slovakia: the cost of equipment to measure environment parameters (both ammonia and carbon dioxide) amounted to approximately €2,000 for each competent authority.
- UK: an Impact Assessment (Defra, 2010) was completed before the Directive was implemented which estimated inspection and enforcement costs to the competent authority at £141,000 (€164,366 at ECB 2010 exchange rate³⁰) (one-off costs) plus £186,000 (€216,824) (annual costs) (see also the UK case study, section 1.1).

The cost of implementing the Directive in **Denmark** was not considered to be significant because national legislation had already been introduced and there was little further change as a result of the Directive (but see section A5.1 where cost estimates are set out within the case study).

Respondents were asked to comment on the main impacts of the implementation of the Directive in terms of the nature and extent of the impact against a number of possible areas where impact might be expected (Figure A3.2). The impact in all areas was generally moderate and predominantly positive, especially in relation to the impact of the *post-mortem* inspection on animal welfare on farm, the birds' environment, general

²⁹ Although the response from Denmark said that no cost estimates had been produced, the case study identified this not to be the case. Anticipated costs in Denmark are set out in section A5.1.

³⁰ €1:£0.85784: <http://sdw.ecb.europa.eu/browse.do?node=9691296>

animal welfare and training. There was not thought to have been an appreciable impact on slaughterhouse staff time or the time required by the official vet; here it is worth bearing in mind that the survey was completed by competent authorities, the survey of national AVEC members showed a greater impact (see section A4.5). There was little perceived impact on cross-border trade whether growers supplying slaughterhouses in other Member States or in terms of slaughterhouses sourcing live birds from other Member States. The only negative impact was in terms of the administrative burden on competent authorities. Scores by Member State are shown Table A3.4.

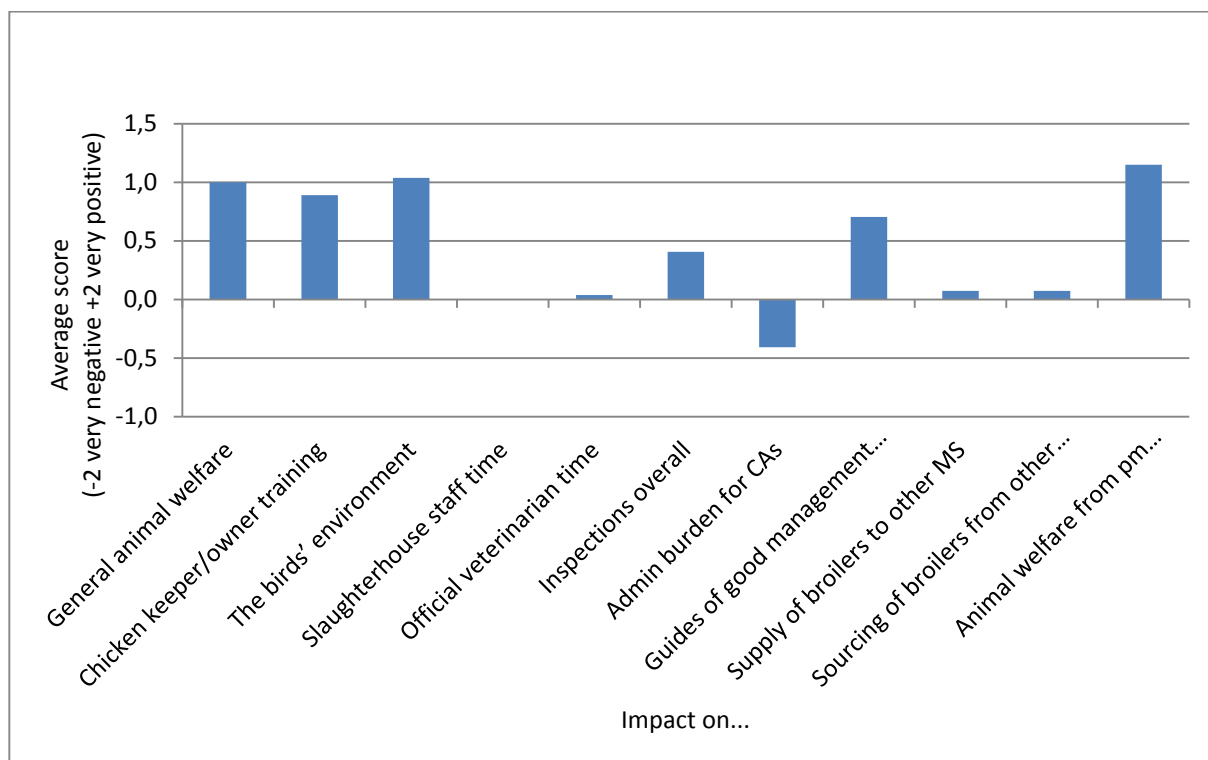


Figure A3.2: Average perceived impact of the Directive

Table A3.4: Perceived impact of the Directive by Member State

Impact on...										
	General animal welfare	Chicken keeper/owner training	The birds' environment	Slaughterhouse staff time	Official veterinarian time	Inspections overall	Admin burden for CAs	Guides of good management practices	Supply of broilers to other MS	Sourcing of broilers from other MS
Austria	1	1	1	1	1	1	1	1	-1	-1
Belgium	1	1	1	0	0	0	-1	0	0	0
Bulgaria	0	0	0	0	0	0	0	0	0	0
Croatia	1	1	1	-1	-1	-1	-1	1	0	0
Cyprus	1	1	1	-1	-1	-1	-1	0	0	0
Czech Republic	1	1	0	-1	-1	1	-1	1	0	0
Denmark	2	1	2	-1	-1	0	-1	0	0	0
Estonia	1	0	2	0	0	0	-1	0	0	0
Finland	1	1	1	-1	-1	1	-1	1	0	0
France	1	1	1	1	-1	0	0	1	0	0
Germany	1	1	0	0	0	0	0	1	0	0
Greece	1	0	1	1	2	2	-1	2	2	2
Hungary	1	1	1	1	1	1	1	1	1	1
Ireland	2	2	2	0	-1	0	-1	2	0	0
Italy	1	2	1	-1	1	1	2	2	-1	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	2	2	2	1	1	0	0	1	0	0
Luxembourg	0	0	0	0	0	0	0	0	0	0
Malta	1	0	2	0	2	2	1	2	1	0
Netherlands	1	1	1	1	-1	0	-1	0	0	0
Poland	2	1	2	1	2	2	1	0	0	0
Portugal	1	1	1	1	1	1	-1	1	0	0
Romania	1	1	2	0	0	1	0	1	0	0
Slovakia	1	2	1	0	1	1	-1	0	0	0
Slovenia	1	1	1	-1	-1	-1	-1	0	0	0
Spain	0	1	0	-1	-2	-1	-1	0	0	0
Sweden	0	0	0	0	0	0	-1	0	0	0
UK	1	0	1	0	0	1	-2	1	0	0

A3.6. Use of animal welfare indicators

A3.6.1. Mandatory indicators

Respondents were asked whether welfare indicators to be recorded at slaughterhouses/farms had been specified by law at national/regional level in their Member State in the 2010-14 period. The responses stated that indicators have been specified in 22 Member States, but not in six. The Member States where we were told that no indicators are specified in law are **Austria, Croatia, Czech Republic, Greece, Spain** (indicators are now specified in law, see case study, section A5.7.4) and the **UK**. However, the UK is a special case in that while the indicators have not themselves been specified, there is a legal requirement to record animal welfare indicators. The view of the competent authority is considered definitive on this matter; responses from national AVEC members were not always the same (see section A4.6 where this is explored further).

The indicators specified to be recorded in law are shown by Member State in Table A3.5 (marked "R"); indicators which are linked to targeted action are marked "RA". The most frequently recorded indicator is cumulative daily mortality (19 Member States); followed by FPD (18 Member States) and dead on arrival (15 Member States).

Respondents indicated that all the indicators must be recorded by law in **France, Ireland** and **Sweden**³¹. Removing these Member States and **Denmark**, which uses most indicators, from the analysis reveals a second core group of indicators comprising ascites, total rejections, medicine use, wing fractures and house environmental data which are used by several Member States. The other indicators are used only infrequently by most Member States.

In most cases the indicators which must be recorded by law are linked to follow-up action on farm. However, there are some notable exceptions. None of the indicators which must be recorded in **Cyprus, France, Hungary** or **Slovenia** appear to be linked to action on-farm, although, given that follow-up actions are then explained, this is probably an error in the case of France. In **Belgium**, only one of the three recorded indicators (dead on arrival) is linked to targeted action. While the incidence of ascites must be recorded in **Latvia**, this is not linked to follow-up action; neither are joint lesions in **Lithuania**; dead on arrival or medicine use in **Luxembourg**; hock burns, breast burns, breast blisters or ascites in **Bulgaria**; ascites, cumulative daily mortality or environmental parameters in **Malta**; or, total rejections in the **Netherlands**.

The following information was provided by respondents to explain follow-up actions that are taken:

- **Belgium:** if more than 1% of the animals are DOA an investigation takes place to try and determine the cause; subsequent measures would then be taken against the transporter or the keeper as appropriate.
- **Bulgaria:** indicators are analysed so that problems can be solved by changing feed, house temperature, humidity, ventilation, litter quality, water use or air quality.
- **Denmark:** if indicators show possible welfare problems in the flock this is followed-up by the veterinary control authority with the grower.

³¹ The evidence from France is problematic. The case study interviews revealed that FPD does not have to be recorded by law and this is an error in the survey. It is likely that this question was misunderstood and that the answer in France reveals the indicators that are often used by slaughterhouses rather than the ones that they must use according to law.

- **Estonia:** there is a requirement for better litter and additional instructions are provided to the catching team where this is required.
- **Finland:** the actions which need to be taken are set out in the Animal Welfare Act (247/1996), as amended 8 April, 2011/321). In essence, if the official veterinarian considers the welfare have been compromised on-farm then the grower and the Regional State Administrative Agency in whose area the holding is located are notified so that they can take appropriate steps. These steps can include a temporary enforced reduction in the stocking density. In considering high levels of mortality, factors outside the control of the grower, for example relating to the quality of day-old chicks or feed can be taken into account. Similarly, where the FPD score is high mitigating circumstances can be taken into account such as malfunctions in drinking equipment. Growers are also able to refer to action which they may already have taken in respect of specific issues. These could include repairs made to broken equipment and action taken on the advice of the farm veterinarian.
- **France:** where indicator levels are exceeded, slaughterhouses alert the official control services and send the information to growers to act on. The official control services carry out a more rigorous examination of the documentation and a physical inspection of the batch. The OV may decide to schedule an official inspection on farm.
- **Germany:** the OV communicates the results to the grower and the competent authority to take the necessary actions from a range of possibilities linked to the specific problem. This can include an enforced reduction in the stocking density.
- **Ireland:** follow-up actions, with or without additional sanctions, depend on the type and severity of the problems identified.
- **Italy:** follow-up action includes appropriate communication to the local veterinary authorities. The right to produce at higher stocking densities can be withdrawn.
- **Latvia:** follow-up action involves increased controls on farms.
- **Lithuania:** the grower is informed of any problems and is obliged to apply corrective measures.
- **Malta:** follow-up action begins with an inspection of the holding, from which other actions can be enforced as required.
- **Netherlands:** the action taken depends on the severity of the situation; a warning or a fine can be given. When the cumulative daily mortality is too high, or the post-mortem inspections show significant animal welfare problems, the grower needs to produce an action plan (which must be approved by the Minister) which sets out how the animal welfare will be improved. In extreme cases the grower can (temporarily) be forbidden to keep chickens or may have to reduce the stocking density.
- **Slovakia:** the competent authority may carry out an on-farm inspection and, depending on the results of this inspection, necessary measures may need to be taken.
- **Sweden:** breaches of the trigger levels for FPD are followed up within the Animal Care Programme and can result in enforced reductions in stocking density. High levels of DOA, etc. that are signs of bad animal welfare are reported to the by the OVs to the County Administrative Boards for follow up.

Respondents in most Member States indicated that where indicators to be used are specified in law the results of these are transmitted to the competent authority. Only **Hungary** said that they are not (of course where indicators are not specified in law there cannot be a requirement to report them).

Table A3.5: Mandatory indicators by Member State and whether they are linked to targeted action

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK	
FPD			RA		R		RA	RA	RA	R	RA		R	RA	RA	RA	RA		RA	RA	RA	RA	RA					RA	
Hock burn			R				RA			R				RA		RA												RA	
Breast burn			R				RA			R				RA		RA												RA	
Breast blisters			R				RA			R				RA		RA												RA	
Emaciation							RA			R				RA								RA		RA				RA	
Ascites			R				RA	RA		R				RA		R			R			RA		RA				RA	
Dehydration			RA				RA			R				RA								RA						RA	
Cellulitis										R				RA								RA						RA	
Joint lesions										R				RA			R					RA			R			RA	
Respiratory problems								RA		R				RA								RA		RA				RA	
Scratches			RA				RA			R				RA			RA											RA	
Wing fractures			RA				RA			R				RA			RA				RA		RA		RA			RA	
Dead on arrival		RA	RA		R			RA		R				RA	RA		RA	R	RA	RA		RA		RA	R			RA	
Cumulative daily mortality		R	RA		R		RA	RA	RA	R	RA			RA	RA		RA	RA	R	RA	RA	RA		RA	R			RA	
Total rejections		R								R				RA	RA					R		RA		RA				RA	
Medicine use			RA					RA		R				RA				R		RA				RA				RA	
Other (house temperature, humidity, ventilation, litter quality, water use, air quality, etc.)			RA				RA			R			R	RA					R	RA				RA				RA	

Note: R = indicator recorded by law; RA = recorded by law and linked to targeted action.

A3.6.2. Voluntary indicators

Respondents were asked to indicate whether animal welfare indicators are used as part of industry standards or voluntary schemes or other voluntary arrangements in their Member State. National AVEC members were asked to provide similar information (see section A4.6.2). The information in Table A3.6 was provided (Member States answering "don't know" have been excluded). Measures to assess animal welfare on-farm are used in a variety of industry standards and voluntary schemes. Schemes often contain mandatory indicators and, as is noted in section A4.6.2, it is not always obvious to actors in the industry which elements of schemes are mandatory and which are additional. It is also possible that schemes can use mandatory indicators, but tolerate less deviation from what are considered to be typical levels.

Table A3.6: Animal welfare indicators used as part of industry and/or voluntary schemes

	Indicators used	Industry standard(s)	Voluntary scheme(s)
Austria	Yes		Qualitätgeflügelvereinigung (QGV)
Belgium	Yes	Measures are taken for <i>post-mortem</i> inspection and quality control. FPD is scored when Dutch birds are slaughtered because the results have to be communicated to the Dutch competent authority.	
Bulgaria	Yes		State Aid is available for voluntary commitments to improve the welfare of birds.
Croatia	Yes		A scheme is described on the Ministry of Agriculture, Food and Veterinary Directorate website ³² .
Denmark	Yes	Slaughterhouses score FPD for quality reasons as well as to meet obligations.	
Finland	No		
France	Yes	No information provided	
Germany	Yes		Examples include: QS; Erlass zur Fußballengesundheit "kikok" (branded meat programme).
Greece	Yes	No information provided	
Ireland	Yes		An Bord Bia, the Irish Food Board
Netherlands	Yes	IKB (Integrated Chain Control), concepts from retail organisations such as Albert Heijn, Jumbo, Lidl a.o.	BLK (Better Life Label of the Dutch society for animal protection Dierenbescherming).
Romania	No		
Slovenia	Yes	Quality control, 100%	

³²

<http://www.veterinarstvo.hr/UserDocsImages/dobrobitZivotinja/DZfarme/uputa%20za%20obavljanje%20i%20procjenu%20rezultata%20post%20mortem%20pregleda%20u%20svrhu%20utvr%20utvr%C4%91ivanja%20mogu%C4%87ih%20znakova%20lo%C5%A1ih%20uvjeta%20dr%C5%BEanja%20s%20obzirom%20na%20dobrobit%20tovn%2017.09.2014.pdf>

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Spain	Yes	An agreement (rather than arrangements specified by law) sets out a procedure for the post-mortem detection of insufficient animal welfare on broiler farms.	
Sweden	Yes	Svensk Fagel's Animal Welfare Programme. This is a voluntary scheme which covers c. 99% of production.	
UK	Yes	Red Tractor farm assurance scheme (85% coverage).	RSPCA Farm Assured.

Respondents were asked to state which indicators are used in voluntary/industry schemes and whether these are linked to targeted action on-farm when breached. Table A3.7 presents the findings and shows that all indicators are monitored and linked to targeted action in **Austria** and **Sweden**. Although no information was provided by the **UK**, it is understood that indicators used within both the Red Tractor assurance scheme (industry standard) and the RSPCA Farm Assured scheme (voluntary standard) are linked to action where this is necessary. Other Member States use many of the indicators in industry/voluntary schemes and generally these are linked to targeted action where required (**Bulgaria, Croatia, Greece, Slovenia** and **Spain**). In **Germany**, only two indicators out of the set monitored are linked to specific feedback (FPD and cumulative daily mortality). In **Belgium** and the **Netherlands** the indicators recorded are not linked to targeted follow-up action. As a general point, it is considered unlikely that any indicators are monitored for the sake of it; even if not linked explicitly to follow-up action it is surely the case that some consequences flow from consistently producing flocks with indicator values which would be considered to be unacceptable. These consequences are likely to include the ability to sell under the label.

Table A3.7: Voluntary indicators by Member State and whether they are linked to targeted action

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK	
FPD	RA	R	RA	RA			R				RA	RA								R						RA	RA	RA	
Hock burn	RA	R		RA							R	RA								R						RA	RA	RA	
Breast burn	RA	R									R									R						RA		RA	
Breast blisters	RA	R									R									R						RA		RA	
Emaciation	RA	R		RA							R															RA	RA	RA	
Ascites	RA	R	RA	RA							R	RA															RA	RA	
Dehydration	RA		RA	RA																									RA
Cellulitis	RA	R	RA									RA								R							RA	RA	RA
Joint lesions	RA			RA								R														RA	RA	RA	
Respiratory problems	RA		RA	RA																									RA
Scratches	RA		RA								R									R						RA	RA	RA	
Wing fractures	RA	R	RA								R									R						RA	RA	RA	
Dead on arrival	RA	R	RA	RA							R	RA								R						RA	RA	RA	
Cumulative daily mortality	RA			RA							RA									R							R	RA	
Total rejections	RA	R										R								R						RA		RA	
Medicine use	RA		RA								R									R								RA	
Other (house temperature, humidity, ventilation, litter quality, water use, air quality, etc.)	RA										R									R									RA

A3.7. Perceived suitability of animal welfare indicators

Respondents were asked to indicate, in their opinion, the extent to which individual indicators are suitable for assessing welfare on farm. Suitability should be interpreted as a balance between how good a predictor of welfare the indicator is and how easy it is to measure. The average score for each indicator is presented in Figure A3.3. The first point to note is that all indicators are, on average, considered useful (although some respondents did state that certain indicators were unsuitable, see (Table A3.8).

The indicator which is most widely perceived to be useful is FPD score. This is followed by cumulative daily mortality, hock burn and breast burn. The indicator perceived to be least useful is cellulitis. Respiratory problems, medicine use, other (house environmental parameters), scratches, wing fractures and dehydration are also considered to be of low utility in indicating the animal welfare conditions on-farm.

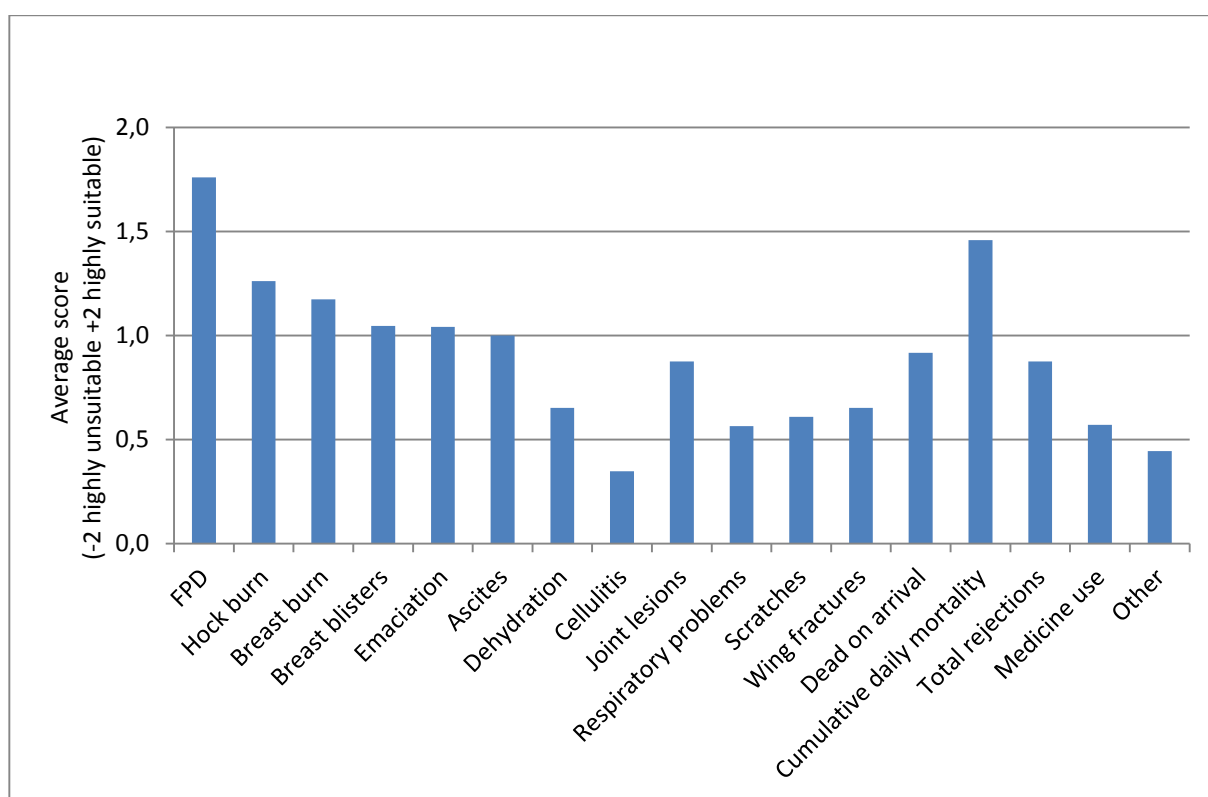


Figure A3.3: Average perceived suitability of indicators for assessing welfare on farm

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Table A3.8: Perceived suitability of indicators for assessing welfare on farm (-2 highly unsuitable, +2 highly suitable)

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK	
FPD	2	2	2	2	2	0	2	2	2		2	2	2	2	2		2		1	2	2	2	1	2	1	2	2	2	1
Hock burn	2	2	-1	2	2	1	2	2	1		2	2		2	-1		2		0	2	2	1	-1	1	1	1	2		
Breast burn	2	2	-1	1	-1	1	2	2	2		2	2	2	2			2		1	0	2	-1	0	0	2	1	2		
Breast blisters	2	2	-1	1	-2	1	2	0	1		2	2	2	2			2			0	2	-1	0	1	2	1	2		
Emaciation	2	2	2	2	-2	1	1	0	0		2	0	1	2			1		1	2	1	1	-1	0	1	2	2	2	2
Ascites	2	2	2	2	-2	0	1	1	0		1	2	0	2			2		-1	2	1	1	0	1	1	1	2	2	1
Dehydration	2	2	2	2	-2	-1	1	1	0		0	0	1	2			1		1	2	0	1	0	0	-1	0	1		
Cellulitis	2	1	0	1	-2	-1		1	0		0	0	0	2			0		-1	2	1	1	0	0	-1	1	0	1	
Joint lesions	2	0	1	2	-2	1	1	1	-1		0	2	2	2			2		0	2	2	1	0	1	0	0	1	1	
Respiratory problems	-2	0	2	2	-2	0		0	0		1	0	2	2			1		1	2	1	1	0	0	-1	0	2	1	
Scratches	2	1	2	1	-2	0	1	0	0		0	0	2	2			2		0	2	1	-1	1	1	1	-1	-1		
Wing fractures	2	2	2	2	-2	2	1	2	-2		0	2	0	2			2		0	-1	0	1	1	1	1	-1	-2		
Dead on arrival	2	2	2	1	1	2	0	2	0		-1	2	-1	2			2		1	0	0	2	2	1	1	1	-1	-1	
Cumulative daily mortality	2	1	2	2	-1	1	0	2	1		2	1	2	2			2		1	2	2	2	2	1	1	2	2	1	
Total rejections	2	2	0	2	1	2	0	1	0		1	2	0	2			2		0	-1	1	2	0	0	0	0	0	2	
Medicine use	2	1	2	2	-2	0		1	-1		1	0	-1	2			1		0	-1	2		2	-1	1	-1	2		
Other (house temperature, humidity, ventilation, litter quality, water use, air quality, etc.)	-2	0	0		-2	2		0	0		2	1	-1	0			-1				0	2		2	1	2		2	

APPENDIX 4: SURVEY OF NATIONAL AVEC MEMBERS

In accordance with our proposal, the key features of the survey are as follow:

- Method: online survey
- Target: national members of AVEC
- Coverage: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Spain, Sweden and the UK.

Twelve (largely) completed survey responses were received from the 16 national AVEC members³³. The results are analysed below.

A4.1. Industry structure

The broiler industry is generally vertically integrated in **Austria, France, Germany, Italy, Spain** and the **UK**. The industry is typically not vertically integrated in **Belgium, Finland, Netherlands** and **Sweden**. A mixture of both approaches is typical in **Denmark** and **Hungary**. The greatest degree of vertical integration is seen in **Austria, France, Italy** and **Spain** (91-100%) while between 81% and 90% of the industry is integrated in **Germany** and the **UK**.

The broiler industry is typically very concentrated with the largest four firms (CR-4) accounting for at least 91% of production in **Austria, Denmark, Finland, Sweden** and the **UK**. The CR-4 is between 81% and 90% in **Italy** and between 71% and 80% in **France** and **Germany**. There are rather more poultry processors in **Belgium** and **Hungary** (CR-4, 51-60%) and **Netherlands** and **Spain** (CR-4, 41-50%). Only in **Hungary, Netherlands** and **Spain** do the largest eight processors (CR-8) account for less than 91% of the market.

In summary, the broiler industry in those Member States responding to the survey is generally mixed in terms of the degree of vertical integration, but is in any case concentrated with a relatively small number of large processors. There is no clear cut relationship between the degree of vertical integration and concentration, with the least concentrated industry (**Spain**) being generally vertically integrated.

A4.2. Stocking densities

In six Member States a maximum stocking density was set before the implementation of the Directive (**Austria, Denmark, Germany, Spain, Sweden** and the **UK**). There was no legal maximum stocking density prior to implementation in the other Member States which responded to the survey. Maximum stocking densities used before and after the implementation of the Directive are shown in Table A4.1.

In **Austria, Denmark, France, Spain, Sweden** and the **UK** the stocking densities actually used before and after implementation of the Directive did not change. In **Belgium** the stocking density post-implementation is likely to be lower than previously³⁴; this is also the case, at least for some producers, in **Finland, Italy** and the **Netherlands**. Although no information was provided for **Hungary** it is likely that stocking densities were higher prior to the implementation of the Directive as if they

³³ The national members not returning completed questionnaires were Czech Republic, Poland, Portugal and Romania.

³⁴ Based on a weight of 40 grams per day old chick and an average finished live weight of 2.0 kg.

were lower this information would probably have been provided. **Germany** is the only Member State where the stocking density appears to have increased following the implementation of the Directive.

Table A4.1: Stocking densities before and after the implementation of the Broiler Directive

	Maximum stocking density prior to Directive	Stocking density used prior to Directive	Typical stocking density post-implementation
Austria	30 kg/m ²		30 kg/m ²
Belgium		24 one day-old chicks/m ²	42 kg/m ²
Denmark	40 kg/m ²		40 kg/m ² as average of 3 succeeding flocks, but never more than 42 kg/m ² in one flock
Finland		39-45 kg/m ²	42 kg/m ²
France	Not known if there was a legal maximum	42 kg/m ²	42 kg/m ²
Germany	Based on voluntary agreements	35 kg/m ²	39 kg/m ²
Hungary		no information provided	39 kg/m ²
Italy		30-39 kg/m ²	35 kg/m ²
Netherlands		~50 kg/m ²	42 kg/m ²
Spain	33 kg/m ²		33 kg/m ²
Sweden	36 kg/m ²		36 kg/m ²
UK:	34 kg/m ²	38 kg/m ² within the context of the red tractor assurance scheme	38 kg/m ² (maximum allowed is 39 kg/m ²)

A4.3. Breeds used

The most widely used breed in all Member States is Ross; in **Sweden** Ross accounts for 55% of bird and Cobb breeds for the remaining 45%. The breeds used have not changed in any Member State following the implementation of the Directive (France answered “don’t know”).

Six Member States use a definition for slower growing breeds. These tend to be based on daily weight gain although this varies from 27 grams to 50 grams per day as set out below:

- Austria: daily weight gain of 40 g (used in the organic sector)
- Denmark: growth rate average over 3 consecutive flocks does not exceed 35 g per animal per day (used in the organic sector)
- France: maximum average daily weight gain of 27 g (there are regulations for Label Rouge and Organic production, in the latter case birds cannot be slaughtered before 81 days)
- Germany: different organisations have different definitions, but all are based on daily growth rate
- Italy: the daily growth rate is defined in the regulations covering organic production
- Netherlands: several market concepts use their own definition. One of the most important is “De Kip van Morgen” (the chicken of tomorrow) which stipulates that daily growth should not exceed 50 g and that the bird should be 2.3 kg after 45 days
- Sweden: daily weight gain of 45 g

- UK: the breeding companies all have their own specifications

The market share accounted for by slower growing breeds (however defined) is typically low at less than 5%, but there are exceptions with the chicken of tomorrow in the **Netherlands** accounting for up to 30% of the market; a similar proportion of the market is taken by slower growing breeds in **France** and market share in **Austria** is up to 10% (Table A4.2). The Table also highlights the recent (ten year) growth rate. Only **Austria** and the **Netherlands** have experienced a large percentage increase in market share which reveals that the large market for slower growth breeds in **France** has been established for some time. Generally this market is growing slowly or not at all.

Table A4.2: Market share of slower growing breeds and growth trend

	Market share taken by slower growing breeds	Growth trend (past ten years)
Austria	6-10%	Large percentage increase
Belgium	1% or under	No change
Denmark	2-5%	Small percentage increase
Finland	1% or under	No change
France	21-30%	Small percentage increase
Germany	1% or under	Small percentage increase
Hungary	2-5%	Small percentage increase
Italy	1% or under	No change
Netherlands	21-30%	Large percentage increase
Spain	2-5%	No change
Sweden	1% or under	Small percentage increase
UK	2-5%	Small percentage increase

A4.4. Production cycle

The production cycle for standard broilers (i.e. the main commercial breeds) ranges from 34.5 days in **Austria** to up to 45 days in **Italy** and **Spain** (these figures are typical for the industry and there will be small differences for some growers) (Table A4.3). The average production cycle across those Member States responding to the survey is 38.5 (taking the mid-point where ranges were provided). This is a little lower than the figure derived from the survey of competent authorities (40.5 days) reported in section A3.2).

The typical empty period between batches varies from 5-7 days in Sweden to 19 days in **Finland** with an average of 11 days (again taking the mid-point where ranges were provided).

In most Member States there had been no change since the implementation of the Directive, although in **Denmark** and **Sweden** the cycle has shortened to meet increased demand; in **Spain** the production cycle has been shortened to provide better health. Implementation of the Directive was not cited as a factor in any of the reported changes.

Table A4.3: Typical production cycles

	Production cycle (days)	Empty period (days)
Austria	34.5	12
Belgium	40	7
Denmark	35	Only a few days
Finland	37	19
France	35	14

	Production cycle (days)	Empty period (days)
Germany	38-41	8
Hungary	40	14
Italy	45	10-15
Netherlands	42	7
Spain	42-45	15
Sweden	35	5-7
UK	35	7

A4.5. Impacts of the implementation of the Directive

The survey revealed that the only known investigation into the impact of the Directive is taking place in the **UK** where Bristol University are carrying out a long-term evaluation, the results of which are not yet publicly available (see the UK case study in section A5.9). Respondents did not identify any studies which have examined the costs of implementation.

Only respondents from **Denmark** and the **Netherlands** thought that the Directive had directly caused a reduction in production. In the case of Denmark this was said to be due to the impact on inspections, administrative obligations and reporting; in the Netherlands the reason was the reduction in the stocking density from 50 to 42 kg/m². The point was also made that the increased demand for slower growing breeds has been a factor in the reduction in production. Dutch slaughterhouses are though producing approximately the same volume of broilers with the shortfall in domestic production made up with live imports (see also the Danish case study in particular, section A5.1.2).

Respondents were asked to comment on the impact of the implementation of the Directive at the farm level and at the slaughterhouse level. The survey requested that the nature and extent of impact (positive/negative) be selected against a number of possible areas where impact might be expected.

A4.5.1. Farm level impact

Figure A4.1 shows the average perceived impact of the Directive on-farm across the Member States which responded to the survey. The first point to note is that all of the impacts were relatively moderate. The strongest positive impact was on the training provided to chicken keepers/owners, closely followed by the impact on guides of good management practice. This suggests that the Directive has helped to strengthen the foundations of skills and knowledge which should themselves lead to higher animal welfare. The direct impact on animal welfare was perceived to be less pronounced, although the impact on the birds' environment was perceived to have been slightly more positive. The main area of negative impact was perceived to be in terms of administrative obligations and reporting. Production costs were also seen to have been negatively affected, but there was no impact on cross-border trade in live chickens. Scores by Member State are shown in Table A4.4.

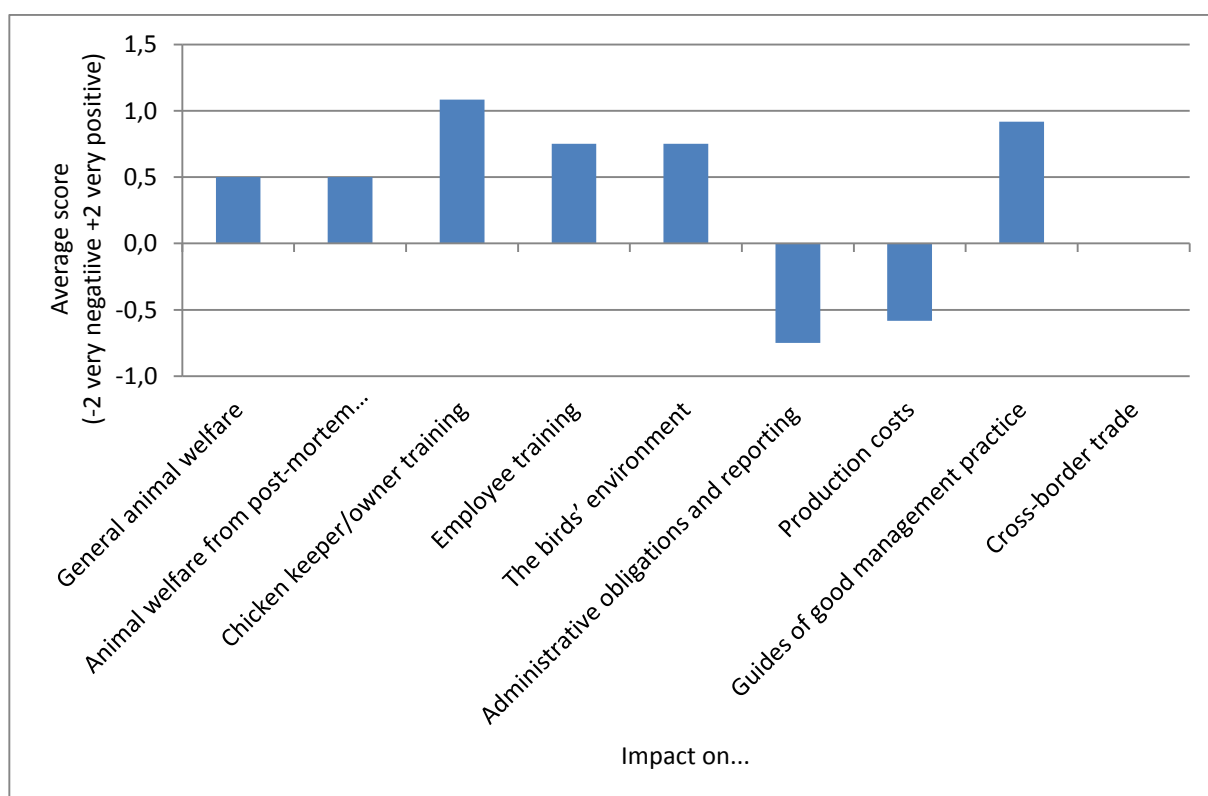


Figure A4.1: Average perceived impact of the Directive on-farm

A4.5.2. Slaughterhouse level impact

Figure A4.2 shows the average perceived impact of the Directive in slaughterhouses across the Member States which responded to the survey. A comparison with Figure A4.1 shows a far less positive picture, although this is a function of the areas in which the Directive is likely to have had an impact on slaughterhouses. Consistent with the impact noted above, a positive impact was perceived in relation to training and also in terms of animal welfare as would be expected. The main negative impact that survey respondents reported was in terms of administrative obligations and reporting. Less substantial negative impacts were perceived in relation to slaughterhouse costs. A relatively marginal, though still negative impact, was reported in relation to slaughterhouse and OV time (which presumably is a factor in the overall impact on costs); no impact on the cross-border trade in live chickens was perceived. Scores by Member State are shown in Table A4.5.

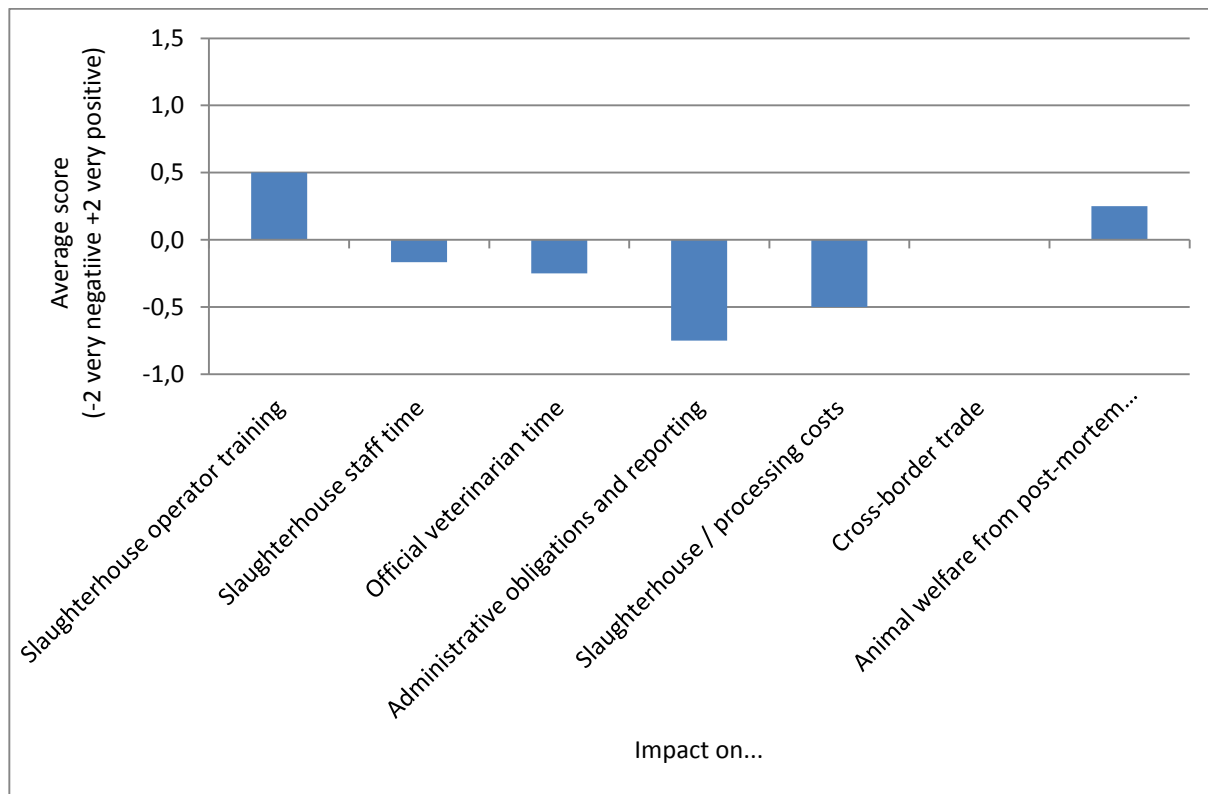


Figure A4.2: Average perceived impact of the Directive in slaughterhouses

Table A4.4: Perceived impact of the Directive on-farm by Member State

	General impact on animal welfare	Impact of slaughterhouse <i>post-mortem</i> inspection on animal welfare	Impact on chicken keeper/owner training	Impact on employee training	Impact on the birds' environment (housing, litter, access to water, etc.)	Impact on administrative obligations and reporting	Impact on production costs	Impact on guides of good management practice	Impact on ability to sell broilers to slaughterhouses in other Member States
Austria	0	0	1	1	0	0	0	1	0
Belgium	0	0	0	0	1	-1	0	0	0
Denmark	0	1	1	0	1	-2	-1	1	0
Finland	0	1	1	0	1	-1	-1	1	0
France	1	0	2	1	0	-1	0	2	0
Germany	0	0	1	1	0	-1	-1	0	0
Hungary	1	1	1	1	1	-1	-1	2	0
Italy	0	0	1	1	1	-1	0	1	
Netherlands	1	0	1	1	1	-2	-2	0	0
Spain	1	1	1	0	1	1	-1	1	0
Sweden	0	0	1	1	0	0	0	0	0
UK	2	2	2	2	2	0	0	2	0

Table A4.5: Perceived impact of the Directive in slaughterhouses by Member State

	Impact on slaughterhouse operator training	Impact on slaughterhouse staff time (including animal welfare officers)	Impact on official veterinarian time	Impact on administrative obligations and reporting	Impact on slaughterhouse / processing costs	Impact on ability to source broilers from growers in other Member States	Impact of <i>post-mortem</i> inspections on animal welfare on farm
Austria	1	0	0	0	0	0	0
Belgium	0	0	0	0	0	0	0
Denmark	1	-1	-1	-2	-1	0	1
Finland	0	-1	0	-1	-1	0	1
France	0	0	0	0	0	0	0
Germany	0	0	0	-1	-1	0	0
Hungary	1	-1	-1	-1	-1	0	1
Italy	0	0	-1	-2	0		-1
Netherlands	0	0	-1	-1	-1	0	0
Spain	1	1	1	-1	-1	0	1
Sweden	0	0	0	0	0	0	0
UK	2	0	0	0	0	0	0

A4.6. Use of animal welfare indicators

Before assessing responses to this set of questions it should be noted that it became apparent in the case study interviews that the origin of requirements is not always clear to operators, i.e. whether they are national law, national implementations of EU legislation or industry codes (especially where almost all the industry follows the codes). This should be borne in mind. An example of the potential for confusion is the situation in the **UK**. While there is a legal requirement to record animal welfare indicators, the legislation does not specify in law which indicators are to be used; this is a point of detail that is unlikely to be widely appreciated (see UK case study, section 1.1).

It should also be noted that the answers provided here do not always match those provided by the competent authorities (see section A3.6) which demonstrates the confusion in terms of what is required by law and what is actually done.

A4.6.1. Mandatory indicators

Respondents were asked whether the use of welfare indicators is required by law. This is the case in **Denmark, Finland, France, Germany, Hungary, Netherlands, Sweden** and the **UK**; only in **Austria, Belgium, Italy** and **Spain** are specific indicators **not** required (however, the competent authorities in **Belgium** and **Italy** said that indicators are specified in law, see section A3.6 and we feel that this is the more authoritative account; indicators have recently been specified in **Spain**, but after the 2010-14 period which is the focus of this study).

Where the use of indicators is specified in law, respondents were asked whether these had led to changes in management practices and, if so, what these changes were. Generally, the use of indicators has led to a greater awareness of, and focus on, animal welfare on-farm. Some respondents also noted specific improvements in housing conditions and animal welfare (**Hungary**) and some explained that the use of indicators allowed growers to make small, targeted adjustments to feed, water provision and litter to address problems (**Finland** and the **Netherlands**).

A4.6.2. Voluntary indicators

Both industry standards (for example, KIK in **Denmark**) and voluntary schemes promoted by independent organisations (RSPCA Farm Assured in the **UK**) can use animal welfare indicators. Respondents were asked whether such schemes use animal welfare indicators in their Member State. There was some confusion in terms of whether schemes should be categorised as industry or voluntary (largely because neither are obligatory). The two are therefore treated together below.

Industry and/or voluntary schemes make use of animal welfare indicators in all responding Member States with the exception of **Spain** (the situation in **France** is not known). Based on case study interviews, many of these voluntary schemes will also include the mandatory indicators and it is not always clear to actors in the industry which indicators are mandatory and which simply part of the industry scheme (for example, the KIK scheme in **Denmark**, see section A5.1). Table A4.6 presents the schemes identified. Coverage in many cases extends to all, or almost all, of the industry.

Table A4.6: Industry and voluntary schemes which use animal welfare indicators

	Scheme	Coverage
Austria	SFU	100%
Belgium	BELPUME	85%
	Retailer standards	25%
Denmark	KIK - Kvalitetssikring i Kyllingeproduktionen (Quality assurance in Chicken Production)	98%
Finland	National broiler welfare aid	Voluntary for farmers, but stipulated in national legislation
France	None identified, it is not known whether Label Rouge makes use of animal welfare indicators	
Germany	QS ³⁵ and IKB	98%
	Animal Welfare Initiative, Better Leven	Unknown
Hungary	There is a national subsidy for higher welfare requirements / 139/2007. (XI. 28.) FVM rendeleta baromfi ágazatban igénybe vehető állatjóléti támogatások feltételeiről	92%
Italy	QS	10%
	Other standards required by retailers	30%
Netherlands	IKB-KIP	90%
	Beter Leven	Unknown
	Several market concepts operated by specific retailers and which apply to their suppliers	Unknown
Spain	None identified	
Sweden	Animal welfare program	99%
UK	Red Tractor Assurance standards	85%
	Higher welfare retailer codes and RSPCA Farm Assured scheme.	14%

The use of animal welfare indicators in industry/voluntary schemes is set out in Table A4.7. Before considering the use of indicators it should be noted that those completing the survey may not have comprehensive knowledge of the schemes in use and so the findings should be considered indicative only. The Table shows that schemes in **Austria**, **Denmark** and **Finland** appear to make the most use of animal welfare indicators, although the Finnish response made the point that only FPD has a threshold which, when breached, leads to action; it is likely that this is the case in other Member States too.

The most commonly used indicator in industry/voluntary schemes (7 occurrences) is FPD, and it is known that this is also assessed in at least the RSPCA's Farm Assured scheme in the **UK** (see case study in section 1.1). Wing fractures and DOA are also widely used (6 occurrences), as are hock burn, medicine use and total rejects (5 occurrences).

If **Austria**, **Denmark** and **Finland** are removed from the analysis (because they use most or all of the indicators), then it can be seen that emaciation, ascites, dehydration and respiratory problems are not used in industry/voluntary schemes in any other Member States. Breast burns, cellulitis, joint lesions and scratches are only used in the

³⁵ QS: Quality and Security (control system): https://www.q-s.de/home_gb.html.

Netherlands. In summary, the core group of indicators used in industry/voluntary schemes can therefore be seen as FPD, wing fractures and DOA.

The indicators used in industry/voluntary schemes are linked to targeted action in **Austria, Denmark, Finland, Germany, Netherlands** and **Sweden** (this is also the case in the **UK**, although this question was not answered in the survey).

Table A4.7: Use of indicators in industry/voluntary schemes by Member State

	AT	BE	DK	FI	FR	DE	HU	IT	NL	SE	UK
FPD	X	X	X	X		X			X	X	
Hock burn	X	X	X	X					X		
Breast burn			X	X					X		
Breast blisters	X		X	X			X				
Emaciation	X		X	X							
Ascites	X		X	X							
Dehydration	X		X	X							
Cellulitis				X					X		
Joint lesions	X			X					X		
Respiratory problems	X			X							
Scratches	X		X	X					X		
Wing fracture	X		X	X			X		X	X	
Dead on arrival	X		X	X		X		X		X	
Cumulative daily mortality	X		X	X		X					
Total rejections	X		X	X		X		X			
Medicine use	X		X	X		X				X	
Other			X	X			X	X			

Note: this question was not answered in the UK and no schemes were identified in France. Spain is omitted because there are no industry/voluntary schemes using animal welfare indicators.

A4.7. Perceived usefulness of indicators to growers

Respondents were asked to indicate which of the potential suite of animal welfare indicators would be useful for growers. Table A4.8 shows first that respondents in some Member States find more indicators useful than respondents in other Member States. The indicator considered most useful was FPD (9 citations), followed by wing fractures and DOA (7 citations each) and cumulative daily mortality and total rejections (6 citations each). Breast burn, emaciation, dehydration, respiratory problems and cellulitis were considered the least useful (2 citations each). The **Austrian** response was the only one to mention an indicator not included in the list; this respondent thought that the number of birds culled would be useful for growers.

It was not possible in the context of the survey to investigate why specific indicators are considered useful to growers, although the usefulness of FPD incidence to growers is clear from interviews held during the case studies. The case study interviews also revealed that wing fractures and DOA are less useful for growers because wing fractures can occur during catching, loading and transport and DOA is related to transport (although birds with poorer welfare may be less likely to survive the journey). It is therefore not clear why respondents felt that these indicators would be useful to growers and it is possible that this question was interpreted more widely by respondents.

Table A4.8: Indicators perceived to be useful to growers

	AT	BE	DK	FI	FR	DE	HU	IT	NL	ES	SE	UK
Foot-pad dermatitis	X	X	X	X		X		X	X	X	X	
Hock burn	X	X							X			
Breast burn		X							X			
Breast blisters	X	X	X				X					
Emaciation	X				X							
Ascites	X		X	X						X		
Dehydration	X		X									
Cellulitis				X								
Joint lesions	X			X			X		X			
Respiratory problems	X		X									
Scratches	X		X	X								
Wing fractures	X	X	X	X	X		X		X			
Dead on arrival	X		X		X	X			X	X	X	
Cumulative daily mortality	X		X	X	X		X			X		
Total rejections	X		X	X	X			X	X			
Medicine use	X			X				X				
Other	X						X	X		X		

Note: this question was not answered by the UK.

APPENDIX 5: CASE STUDIES

Our case studies were used to examine the two study themes in greater detail than was possible in either the online surveys or through the use of literature. The first study theme, the state of play of the implementation of the Directive, was examined in France, Germany, Italy, Netherlands, Poland, Spain and the UK. The second study theme, the welfare indicators to be recorded at slaughterhouses and the structure of sending data from slaughterhouses to farms and competent authorities, was examined in the same seven countries and also in Denmark and Sweden. Denmark and Sweden are therefore partial case studies and are therefore structured differently.

Arranging case study visits was complicated by the time of the year with availability of interviewees problematic both in terms of arranging programmes in advance and also finding times when interviews could take place. The understanding of DG SANTE on this point was much appreciated.

As a result of these difficulties, case studies were undertaken over an extended period with the first interview taking place on 27 June, 2016 and the last on 22 September, 2016. Interviews were carried out individually with each organisation in most case study countries, but in some, group interviews were held. In most Member States the competent authority and the AVEC member were able to complete the online survey in advance of the case study interview.

Interview notes were produced and returned to interviewees for validation and the addition of any further points.

The timing of the case studies was as follows (all 2016):

- Denmark: August
- France: July
- Germany: July/August
- Italy: July/September
- Netherlands: July
- Poland: July
- Spain: July
- Sweden: June/August/September
- UK: June/July

Full case studies were carried out in the seven main poultry producing Member States (France, Germany, Italy, Netherlands, Poland, Spain and the UK); the case studies in Denmark and Sweden were partial and focused on Task 2: Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data. However, a limited investigation of the implementation of the Directive was carried out to provide context.

Case study monographs were written up from the interview notes and are presented below. Evidence from different sources was triangulated to highlight areas of agreement and disagreement.

A5.1. Denmark

A5.1.1. Introduction

The Danish competent authority kindly arranged a day of interviews on 26 August with the following actors:

- Danish Veterinary and Food Administration (two representatives)
- Danish Agricultural and Food Council (one representative)
- Broiler producers (one representative)
- Slaughter house representatives (three representatives from the two large slaughterhouses operating in Denmark)

The Directive is implemented in Denmark through the Act on the keeping of poultry/chickens (No. 687 of 2011) (*Bekendtgørelse af lov om hold af slagtekyllinger*)³⁶ and the Order on the keeping of chicken kept for meat production and production of eggs for hatching (Order No. 1591 of 11.12.2015) (*Bekendtgørelse om hold af slagtekyllinger og rugeægproduktion*)³⁷.

The key points of difference between the Danish legislation and the Directive are first that there are provisions for breeding stock which are excluded from the scope of the Directive; there are also special provisions to allow the stocking density on farm to be lowered if the level of FPD is too high; and, the stocking density is determined by using a rolling average of the current and previous two rotations. The national legislation sets out requirements for reacting to indicator data which goes beyond what is specified in the Directive (and, according to the competent authority and the industry, beyond what some other Member States do).

The basic maximum stocking density is 33 kg/m², with derogations to allow stocking at 39 kg/m² and at 42 kg/m². However, while stocking density can be up to 42 kg/m², the average stocking density (current batch and previous two batches) must at no time exceed 40 kg/m²; this is the level at which most producers stock. Growers can be told to reduce stocking densities if there are animal welfare problems. Growers have to register if they want to exceed the basic maximum stocking density, but there is no need for approval from the competent authority. Growers must though follow the additional requirements which apply at higher stocking densities. Approximately 93% of Danish growers are registered to stock at 42 kg/m², although many do not actually do so. Although most growers did originally stock at 42 kg/m², there is a recent tendency not to stock at this level because the requirements are seen as too stringent by some growers. Growers do not amend their registration to avoid the administration and fee involved (729 DKK). Special breeds are often grown at lower densities. Slaughterhouses tend to differentiate their product and one way they do this is by stocking density with the use of different densities determined by the market.

A5.1.2. Impact of the Directive

There have been no specific studies on the impact of the Directive in Denmark, partly because the national legal framework was first introduced in 2001 and the implementation of the Directive involved very little change. There is usually some estimation of the cost of national acts in Denmark and the legislation relating to broiler production was based on the report of a working group comprising the industry,

³⁶ <https://www.retsinformation.dk/forms/r0710.aspx?id=162872>

³⁷ <https://www.retsinformation.dk/Forms/R0710.aspx?id=176315>

competent authority, research scientists, the Animal Ethical Council and animal welfare organisations. The following key costs were kindly made available by the Danish competent authority:

- Lighting programmes: technical installation costs vary from a few thousand kroner to 80,000 DKK (€10,735 at the 2001 ECB exchange rate³⁸) for an automatic system with dimming/artificial dawn. The average cost was estimated at approximately 0.01 DKK (<€0.01) per kg.
- Stocking density limit to maximum of 40 kg/m² (average of three rotations): approximately 0.055 DKK (<€0.01) per kg.
- Grower daily inspections: 2,500 working hours at 680 DKK (€91.25) per hour = 1,700,000 DKK (€228,124).
- Inspection of farms (random control): approximately 1.8 hours per farm, altogether around 124 hours.
- Inspection following breach of FPD trigger threshold: approximately 25 visits per year, altogether (including transport and report writing) = 100 hours.
- Altogether, the control visits from the Danish Veterinary and Food Administration are expected to cost 152,000 DKK (€20,397) in the first year and 124,000 DKK (€16,640) annually after that. Some 55,400 DKK (€7,434) (of the ongoing annual cost) is expected to result from expenses related to the control of flocks where welfare problems have been shown to occur.
- Expenses for flock control and inspection at slaughterhouses are expected to be paid by each producer or by an association of producers.
- Injunctions to force stocking density down to 25 kg/m² is expected to be so costly that the producer will avoid this.
- There will be administrative costs for producers, hatcheries and slaughterhouses as well, but it was not possible to estimate these.

The industry representative thought that the implementation of the Directive resulted in lower levels of production due to the impact of inspections, administrative obligations and reporting, but the competent authority thought that there had been no discernible impact. The only new elements were the need to register intended stocking densities, a need to attend training and the need to record more data and make this available to the competent authority for inspections. There was also some tightening up of procedures. Prior to implementation birds were weighed and counted approximately; post-implementation it is necessary to count precisely to record mortality rates. Also, the post mortem welfare controls were increased; the process was systematised in that parameters of acceptability were set for a larger number of variables. There are now guidelines for the slaughterhouses which set out the parameter levels above which they have to act. There is also some increased administration for growers who are also liable for the cost of inspections (both on-farm and in the slaughterhouse).

One specific impact of the implementation of the Directive is that following mortality rates which exceed the maximum level the next flock is monitored and a second breach results in a visit from the regional vet, the cost of which must be met by the grower (1,220 DKK (€164) for a half hour visit³⁹). The slaughterhouse may also contact the grower if there has been a series of breaches which involves some additional administration. The way in which the mortality indicator is used is generally seen as problematic, see below.

³⁸ €1:7.4521 DKK: <http://sdw.ecb.europa.eu/browse.do?node=9691296>

³⁹ There is a flat fee of 330 DKK (€44) plus 445 DKK (€60) for every 15 minutes (half an hour is the shortest practical visit).

According to the grower interviewed, the inspection cost associated with the FPD indicator, for which the grower is liable, increased by 30-40% to ~€100 per flock delivered to the slaughterhouse post-implementation (from €71 to €77 per flock). The main cause of this increase was in terms of additional paperwork. Slaughterhouses also face additional costs relating to the inspection of the carcass. If a flock is thinned (not a common practice, see below), then both batches have to be assessed for FPD and the inspection cost is then incurred twice. Because the cost is per batch, this implies an incentive to increase scale to reduce the cost per bird. Slaughterhouse operatives made the point that these fees (which amount to around 26,000 DKK (€3,489) per year for a grower with three houses) are not incurred by growers in some other Member States and that this puts the Danish industry at a competitive disadvantage.

The spot checks on producers foreseen under Article 7 of the Directive are funded through a levy of 1,535 DKK (€206) paid by all producers with more than 2,000 birds. Under this regime around 50 of the 230 broiler farms are typically inspected. There is currently a move towards a more risk-based and more campaign-based approach.

Training courses (organised by the industry body) incur a fee of 1,250 DKK (€168) (including VAT) which is paid by the grower.

A less tangible impact is the time required by the grower to deal with administrative requirements. For example, both the grower and the slaughterhouse calculate mortality and the records do not always match up which requires explanation. Usually this is the result of a simple mistake; for example, mortality can be recorded as negative if the slaughterhouse mixes up data from different batches.

The slaughterhouse operatives explained that the *de facto* national limit on stocking density of 40 kg/m² means that Danish producers have a slight disadvantage over producers in Member States that allow higher stocking densities. However, this was the case prior to implementation of the Directive and therefore results from a national decision.

Danish slaughterhouses operate a bonus/malus system which penalises producers with poor FPD scores. There is some cross-border trade in live poultry (around 15%) with Germany and the Netherlands where Danish growers seek to avoid the consequence of poor FPD scores; producers exporting their chickens are thought to be ones with lower levels of animal welfare. Slaughterhouses in the Netherlands do not provide feedback routinely to the Danish authorities on FPD (although they do for their domestic producers and may do so to Danish producers); information is sent back in very serious cases. Chicken exported from Denmark for slaughter in the Netherlands or Germany is sold into catering and processing channels and therefore does not have to display any country of origin labelling under Regulation (EU) No 1169/2011.

However, whilst related to the implementation of the Directive, the live trade is actually the consequence of the Danish slaughterhouse bonus/malus system, the fact that for some growers the nearest slaughterhouse is in a different Member State and the relative prices offered by competing slaughterhouses. The fact that Danish slaughterhouses do not generally accept split flocks (following thinning) is also a factor in this trade.

A5.1.3. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.1.3.1. Recording of welfare indicators at slaughterhouses

Both FPD score and mortality are recorded routinely as a result of the Directive. A wide range of other indicators are also recorded and are used either by the slaughterhouse for their own purpose or because a problem has been identified and further information would be useful in establishing the cause.

Information is recorded by the Official Veterinarian (or a technician under the supervision of the Official Vet) in the slaughterhouse. Data are recorded electronically. Footpads are collected from 100 birds (one foot each- typically the feet are the same) and graded into three piles which are then counted and recorded.

The trigger for the use of the other indicators is the opinion of the Official Veterinarian. If the Official Veterinarian thinks that there may be an animal welfare problem, 100 birds from the beginning third of a batch and 100 from the last third are examined against the other indicators. If more than 5%, but less than 20% of the birds sampled show conditions which exceed the threshold levels then the grower is informed so that appropriate action can be taken. If a threshold is exceeded in more than 20% of cases the regional veterinarian is informed and will take action. There are written guidelines and supporting pictures for veterinarians to use for qualitative indicators (such as FPD). The other indicators are binary in that there is either a problem or not.

The thresholds for indicators other than FPD were set on the basis of expert knowledge drawn from the Official Veterinarians at the slaughterhouses. The competent authority and industry representative both felt that the indicators are not capable of being entirely objective, but they are based on expert opinion and experience and are therefore as objective as they can reasonably be. No other indicators were considered and then rejected.

The mortality indicator is an exception in that it is not considered to be objective. The point was made by all actors that it is better for overall animal welfare to cull birds that are in poor condition, but in doing this, mortality would increase (see below for further details).

The FPD system is the same system as used in Sweden (devised by Lotta Berg and Jan Svedberg). The scoring system is exactly the same, but the way in which the system is used is different; in Sweden growers have to earn the right to use higher stocking densities, whereas in Denmark growers can use higher stocking densities until it is demonstrated that they should not.

The importance of ensuring consistency in scoring between slaughterhouses is recognised by the industry. A calibration process takes place when required under the supervision of an academic veterinarian and through refresher training. A number of feet are then sent anonymously to this veterinarian to carry out an independent grading to test for consistency. Consistency is considered to be high and has improved since FPD was first measured. Ultimately growers would prefer a cheaper system, but the way in which the feet are categorised is generally accepted by the growers. Slaughterhouse operators explained that it is also very important that there is consistency between slaughterhouses in different Member States to avoid unfair competition; a difference in the reject rate of less than 1% makes a big economic difference.

A camera system to assess FPD has been trialled in Denmark, but it could not produce the same scores as manual scoring. The camera system tended to under report poor conditions, probably because of the image capture rather than the setting of threshold levels; it is sometimes necessary to look underneath the foot. On the other hand, a camera system can check all feet rather than just a sample and this could compensate

for not being able to assess a sample of feet in great detail. This did not seem to be the case though. The expectation of those interviewed is that camera systems will become accepted in the future in Denmark (probably around ten years); the competent authority is open to the use of cameras should the system be shown to work. Those interviewed felt that camera systems could work in Member States where it was not replacing a manual system (for example, Germany and the Netherlands).

FPD data is used by the slaughterhouses in a bonus/malus system to adjust payments to growers (a similar system is used for hock burn and breast blisters, but these conditions are now very rarely seen in Denmark). A bonus is paid for very good FPD scores and there are penalties for poor scores. The slaughterhouses also generate statistics on the performance of individual growers and benchmark against the performance of others. The data are also used to benchmark feed companies supplying individual growers, as well as different hatcheries. This means that systematic problems can be identified and dealt with and this has allowed early warning systems to be introduced to Kvalitetssikring I Kylling (KIK, the quality assurance scheme followed by the Danish industry, see below). The slaughterhouses calculate mortality rates for different feed mills, as well as other parameters such as the Feed Conversion Ratio. The slaughterhouses benefit economically from the use of these data, but it was not possible for them to quantify this. An added benefit is that the collection of these data drives competition between feed mills to provide feed which performs better. There has been a substantial improvement in FPD scores over the past ten years (Steenberg, 2014⁴⁰) and the impact that this has had economically has been noticeable, if not quantifiable.

The FPD indicator was thought to be the most useful indicator by all actors interviewed. It is considered to be a reliable and robust indicator that there is a problem with the litter on-farm and/or environmental factors. The knowledge and experience accumulated since the indicator has been in use has allowed subsequent investigations to identify the management practices and environmental conditions which have caused poor animal welfare. Increased knowledge, technological advancements and economic inducements have led to many more preventative measures than were possible before because the relationship between management practices and animal welfare outcomes is now clearer. This has meant a shift from "cure" to prevention and this has been accomplished without the use of antibiotics.

One area of improved understanding is that there is a seasonal aspect to FPD incidence. The increasing use of heat exchange systems is now reducing these seasonal spikes. Other management lessons learned include the need to heat the floor and select the right bedding.

This approach, the use of a reliable "iceberg" indicator followed by investigations between the grower and the advisory services, is considered preferable by all actors to the use of complicated and very specific indicators which are hard to use and which most of the time show no problem. Those interviewed did not feel that other indicators added much information to that revealed using the FPD indicator.

The slaughterhouse operatives interviewed explained that the focus on dry litter, which is an outcome of the use of the FPD indicator, has improved production economics through better Feed Conversion Ratios as well as animal welfare.

⁴⁰ The incidence of FPD scores below 40 has increased from 30% to 75% between 2003 and 2013 and the incidence of scores in excess of 80 has decreased from 35% to 8% over the same period (Steenberg, 2014).

The FPD indicator is considered to be so robust that environmental parameters are seldom measured in inspection because if the FPD indicator does not show a problem then it follows that there will be no issue with air quality, temperature, etc.

On the other hand, the problem with the FPD indicator is that it is retrospective and action can only be taken for the next flock (or sometimes the one after that). Another issue is that there has to have been a negative animal welfare impact before problems are identified.

The grower interviewed also considered information on scratches to be a useful indicator, although a distinction has to be made between fresh scratches, which are most likely to relate to transport or catching issues, and older scratches which indicate damage on-farm resulting from stress. Stress can be induced by poor feed, issues with ventilation and light and the actions of the grower during inspection (the extent to which inspections could be carried out calmly and quietly or in a hurry).

Some of the indicators do not report on conditions on-farm. For example, wing damage and scratches often occur during catching and transport and DOA is the result of transport. Plumage condition (dirty feathers) can result from transportation, but can be a useful indicator of welfare on farm and is positively correlated to FPD. Hock burns and breast blisters are also correlated with FPD, but as FPD will occur first, it is not considered that these indicators provide additional information. The competent authority and industry representative explained that hock burns were used to identify the worst cases of poor litter condition in the Netherlands, but FPD is now used as it is considered to be a more reliable indicator.

The competent authority, industry, growers and slaughterhouse operatives all raised the treatment of mortality rates under the Directive as being problematic. The fundamental issue is that all actors felt that mortality rate is composed of two elements, deaths and culling. Culling takes place for animal welfare reasons and including the impact of culling within the mortality measure is not considered to be appropriate (slaughterhouses are in favour of appropriate culling because it reduces the number of birds that would be rejected in any case); it is also considered that this creates moral hazard in that growers have an incentive not to cull to avoid higher mortality rates (this would have negative animal welfare consequences). Growers also see the mortality rate as not being entirely within their control (it is impacted by the genetics of the birds, the age at slaughter and the use (or not) of antibiotics in the first weeks) and they therefore resent reporting this and especially receiving official warning when limits are accidentally breached. The point was made that growers in some Member States use antibiotics prophylactically and this would reduce mortality, but would not necessarily be considered best practice; in Denmark antibiotics are only used when needed and on the recommendation of the veterinarian.

Most culling takes place in the first week and is largely the result of the condition of day old chicks rather than broiler farm management, although it is the grower who has to explain this and accept any consequences. There is no perceived relationship to on-farm animal welfare. The point was made that if reporting mortality brings animal welfare benefits then it should be a requirement at all stocking density levels and not just when stocking density exceeds 39 kg/m². That said, it was recognised by all actors that the **cause** of mortality was important.

Although growers are now more used to the system and no longer feel "criminalised" when they receive official letters (now sent via email which is seen as less significant), the competent authority does not think that the use of the mortality rate indicator adds

to the knowledge of animal welfare when the main cause of culling is leg damage resulting from bird genetics rather than management. In fact, growers face a double penalty in that culling birds could lead to a forced reduction in stocking density as well as the direct loss of revenue (although if there is a good reason for exceeding mortality levels, such as culling for poor leg condition, then the grower may not be forced to reduce stocking density). Reductions in stocking density also have implications for slaughterhouses in terms of a shortfall in supply. The level of mortality which farmers must respect is seen as arbitrary and the consensus view was that this requirement actually conflicts with good broiler management.

In the course of the interview with a grower, the industry and the competent authority it became apparent that growers registered to stock at more than 39 kg/m² are following this regime even if they are actually stocking below this level. This adds an additional burden and the competent authority agreed that some clarification was required on this point.

The slaughterhouse representatives explained that if a bird has multiple problems where thresholds are exceeded, only one indicator is recorded to demonstrate this. This is supposed to be the main problem, but it is likely that it will often be the first one identified. This may lead to some under reporting of conditions.

Slaughterhouse operatives explained that the measurement of hock burns, DOA and broken wings have been recorded for many years as a result of customer demand and these are not considered to be problematic.

However, one issue mentioned by the slaughterhouse operatives was the need for new entrants to broiler production to have attended training courses before they start production. Courses are run annually rather than on demand and other sectors have provisions to allow farmers to begin production as long as necessary training is undertaken within six months of the start of activity. The competent authority explained that they had approached the Commission to determine whether such an approach would be consistent with the Directive, but the Commission did not confirm that this would be in compliance with the Directive. Those interviewed stated that other Member States interpret the Directive differently in this regard. The Danish reading of the legislation therefore makes it harder for new entrants to enter the sector.

The indicators used, either as a result of the national implementation of the Directive or on the initiative of the slaughterhouses, are recorded and presented within the common quality assurance system (KIK)⁴¹ which is used by 98% of broiler producers who supply broilers to Danish slaughterhouses (see Steenberg, 2014 for details). This system includes the recording of a number of indicators which go beyond the legal requirements as follows:

- FPD
- Hock burn
- Breast burn
- Breast blisters
- Emaciation
- Ascites
- Dehydration
- Scratches
- Wing fractures

⁴¹ Kvalitetssikring i Kyllingeproduktionen (Quality assurance in Chicken Production).

- Dead on arrival
- Cumulative daily mortality
- Total rejections
- Medicine use
- Other (house temperature, humidity, ventilation, litter quality, water use, air quality, etc.)

A5.1.3.2. Transmission of information and its use on-farm

The grower receives an SMS setting out live weight, rejects and the FPD score on the day that the flock are sent to the slaughterhouse. A subsequent email provides more detailed information and all data are available in the KIK system (data are entered by the slaughterhouse) which growers (and the competent authority) can access online. Data on mortality are recorded by the grower on paper and then entered into the KIK system one week before slaughter (these data are then cross-checked at the slaughterhouse and any discrepancies are resolved).

The information is provided within one or two days. This means that there is time to make any changes to the environment or management practice before the next flock enters the house (normally the empty period is seven days). The transmission of data to the grower is always successful and in any case comes via three distinct routes.

Only mortality, FPD and DOA (important to check the plausibility of mortality) are routinely checked, the other indicators are only recorded if the Official Veterinarian identifies that there is a problem with a specific batch.

The grower interviewed as part of this case study explained that the FPD score is the most useful indicator in terms of understanding whether action is required to improve animal welfare. In the opinion of slaughterhouse operators, hock burns and ascites may not be capable of being as clearly linked to a specific problem as FPD, but they do indicate a problem on-farm and that further investigation of the problem should be undertaken. Information on scratches is also considered useful by the growers.

As set out above, mortality data is not considered useful as an indicator as it is currently used because it includes deaths and culling (see above); mortality could be a good indicator if it distinguished between culling for welfare reasons and deaths. That said, growers do use mortality as an indicator of general problems, it is just that its use within the context of the Directive is considered problematic. It is, for example, useful to know if there is a lot of early mortality because it might indicate a problem with day old chicks. So, recording this information is one thing, but linking it to enforced reductions in stocking density (and associated administration) is the problem. The grower spoken to indicated that plumage problems are extremely rare, but if they were evident they would be positively correlated with FPD and would not provide any additional information on the causes of animal welfare problems on-farm; catching conditions and transport conditions are important determinants of plumage condition.

Ascites was considered to be a useful indicator when the system was first introduced and it drew attention to the need to improve ventilation. However, ventilation in Denmark is now good and further changes seem to have little impact on the incidence of ascites. Genetics are now recognised as the root cause of ascites and this is now being taken into account in breeding programmes.

The DOA indicator is related to catching (automated in Denmark) and transport and has no relation to conditions on farm. Medicine use in Denmark is highly regulated,

inspected and reported. Medicine can only be used on the recommendation of a veterinarian (it cannot be used prophylactically). This indicator is not therefore considered especially useful.

There has been no feedback to the industry body to suggest that thresholds used with the indicators are either too high or too low. Slaughterhouse operators did not identify any problems in terms of using any of the indicators. From the competent authority point of view indicators need to be reliable, robust, repeatable and legally safe, i.e. can be used in court where necessary.

If threshold levels for specific indicators are breached, the competent authority simply informs the grower that she is in breach of the legislation and tells her that she needs to solve the problem. The slaughterhouses and the industry body will provide advice and support to the farmer to address the problem.

In the case of serious or repeated problems, the competent authority contacts the grower via a letter, telephone or through a farm visit. The authorities can issue an injunction, or, if the cause of the problems is not obvious, ask the farmer to prepare an action plan on how to solve the problem. If the farmer does not follow the instructions from the authorities, or if the problem cannot be solved by the actions taken, the authority may ask the farmer to lower the stocking density until it seems plausible that the problem has been solved and that restocking will not cause animal welfare problems.

A5.1.3.3. Structure of the data transmission

Data on animal welfare indicators make up a small proportion of the information contained within the KIK system and database which covers food safety and traceability as well as quality. The system's primary goal is to ensure meat production with a low level of zoonoses and a high level of animal welfare. All relevant data are recorded in a single database which allows production to be fully documented at all stages. The structure of the data transmitted on welfare indicators simply follows the fields that are reported.

A5.1.3.4. Impact of the use of welfare indicators and method of transmission

The FPD indicator is considered useful by growers and has led to an increase in animal welfare (see also Steenberg, 2014). Slaughterhouse operators explained (on the basis of the data that they have recorded over time) that hock burn incidence is now very rare, as are breast blisters; the rate of DOA has also fallen. The incidence of ascites may have increased, but this is thought to be the result of genetics rather than management practice or environmental conditions. The mortality rate has not changed much over time, but this needs to be seen against the background of the low use of antibiotics when comparing against mortality rates in other Member States. The total reject rate at the slaughterhouse has fallen. Data provided in Nygaard (2016) shows a decline in aggregate FPD score from between 80 and 120 in 2002 to between 15 and 30 in 2015 with year-on-year falls in score levels over this period. This improvement in scores has resulted from a focus on skilled management, including climate, feed, management of litter and drip-reducing water nipples and through the introduction of technological solutions such as heat exchanges in broiler houses. A free advisory service has also been offered to producers with serious problems with FPD.

Welfare indicators have also been used over the past ten years to improve aspects of management and environmental conditions to improve animal welfare on-farm. The

grower interviewed considered that the process had not been easy, but that it had been worthwhile.

Slaughterhouse operators stated that the use of the welfare indicators has resulted in some unquantifiable economic benefit to the slaughterhouses. That said, it is hard to isolate the impact of the Directive because its requirements form part of an integrated approach to broiler production. It should also be noted that the industry believes that those growers exporting live birds for slaughter in other Member States are generally those with poorer levels of animal welfare.

The slaughterhouse operators summarised the development of the sector over the last 10-15 years as a dramatic increase in productivity while stocking density and mortality have not increased; in their opinion, the genetic performance of the birds has increased without any negative impact on animal welfare.

However, none of the actors interviewed thought that consumers were aware that indicators had been used to improve animal welfare on-farm. There was, for example, no expectation that consumers would know what FPD is. In fact, the general public perception of poultry production in Denmark is not thought by the industry to be good, although this perception is not based on current fact. That said, there is not too much expressed general consumer concern about Danish poultry production. It was noted that consumption of chicken is increasing, so it can be inferred that the positive attributes of the product outweigh any negative perception related to production. The industry believes that there is a consumer perception that the competent authority regulates the industry appropriately.

The perception of those interviewed was that consumers are interested in animal welfare as they understand it, i.e. they draw a distinction between barn and free range production, conventional and organic production, but they are not aware of the details or what these production systems really mean in terms of animal welfare (outside access can lead to higher FPD scores, zoonoses, etc.). Consumers might also be aware that growth speed is an issue and that, as a result, birds are unable to move around, but this is based on perceptions from 20 years ago and the situation is much better now. There is a trend towards the use of slower growth birds in Denmark, although these birds have more thigh and leg meat and less breast meat and the meat is also differently flavoured and is not always to consumer taste. The big challenge for the industry in this respect is matching slow growth to breast meat yield. Consumers are though reluctant to pay higher prices for poultry. Slow growth can also have negative animal welfare impacts because food intake may have to be restricted to meet the growth requirements.

While slaughterhouse operators stated that the impact of the implementation of the Directive on administrative costs/burdens was marginal because the impact came from the introduction of national legislation with effect from 2002, the grower interviewed estimated an increase in the cost of administrative costs of approximately €25 per batch sent to the slaughterhouse.

The speed with which data are returned to the grower via SMS and then email is seen as a positive because it is easy to relate the management practices to the specific flock which makes it easy to trace any problems. The speed is also good for the competent authority because they can investigate problems quickly. However, although this system allows animal welfare to be improved for subsequent flocks it is not capable of addressing animal welfare problems in real time (this is though addressed through the grower's daily inspections).

A5.2. France

A5.2.1. Introduction

Interviews were held with the Federation of Poultry Industries (Fédération des Industries Avicoles-FIA) and Inter-professional Committee of the French Poultry (Committee Interprofessionnelle de la Dinde Française – CIDEF), representing the industry, on 11 July, 2016. The interviews with the competent authority (Direction générale de l'alimentation - DGAL) and with an animal welfare NGO Compassion in World Farming (CIWP), were held on 12 July, 2016.

The Directive has been transposed into national law by the Decree on the Establishment of the Minimal Rules for the Protection of Broiler Welfare (2010). The Directive is fully implemented in France and there are no provisions in the national legislation which go beyond its requirements. As stated in the Directive, the maximum stocking density can be exceeded by way of derogation, if the additional conditions in Annexes II and V are met.

Besides the legislation, farmers often comply with technical specifications ("*cahier des charges*") which set out additional environmental, animal welfare and other requirements for poultry farms and which are developed by the industry. A guide of good management practice developed by the Technical Institute of Poultry (Institute Technique de l'Aviculture – ITAVI) is also available for growers.

A5.2.2. State of play of the implementation of the Directive

A5.2.2.1. Broiler production in France

The structure of the French broiler industry

France is the fourth largest broiler producer in the EU (Figure A5.1), accounting for around 10% of total EU broiler production in 2014. The output of the broiler industry in France and its share in total EU broiler production fluctuated between 2009 and 2014. Although poultry production increased slightly in France from 1.0 million to 1.1 million tonnes during the period 2009-2014, its share in total EU production decreased by around 1%.

Broiler production in France is oriented to the domestic market. However, 18% of broiler meat is exported, mainly to Gulf countries. Commercial broiler production in France is generally vertically integrated (95% of production). As a result, the industry is highly concentrated with the largest four operators accounting for 71-80% of total production and the largest eight accounting for 91-100% of total production.

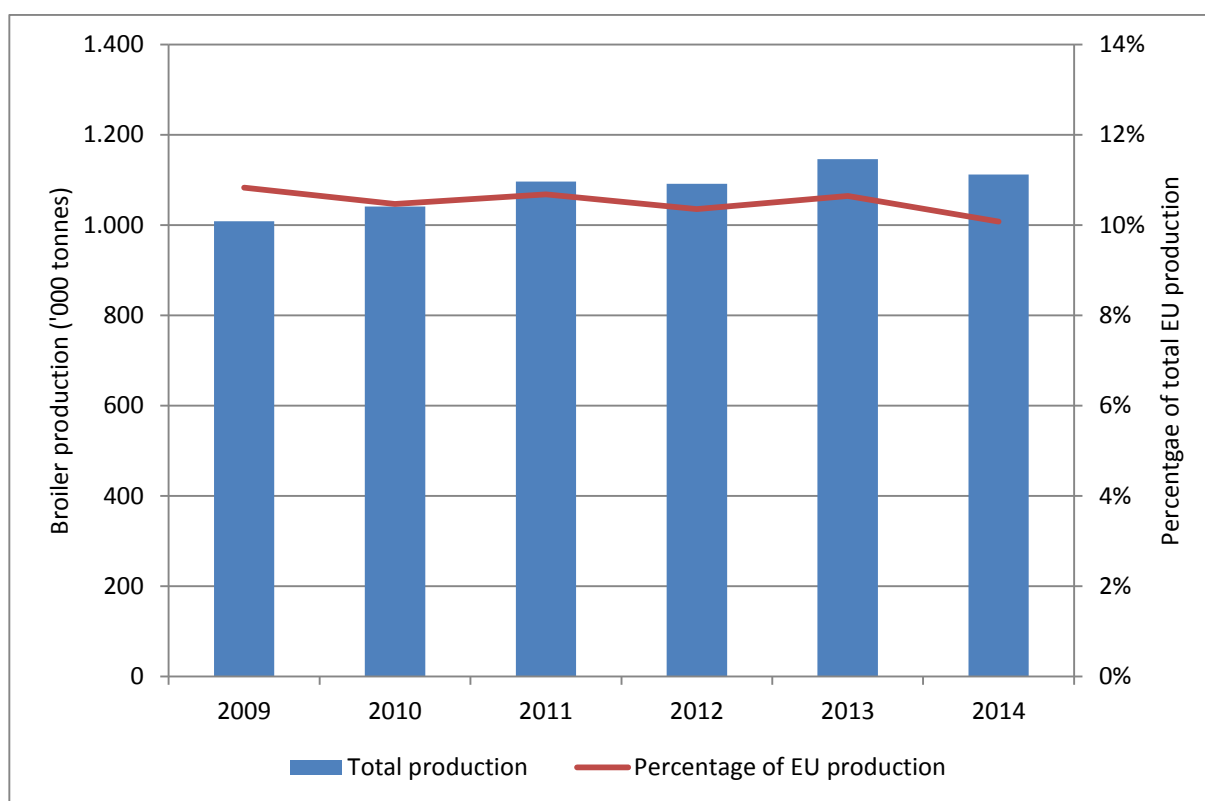


Figure A5.1: Broiler production in France and share of total EU production (source: Eurostat, 2016)

The industry interviewees and the competent authority felt that the Directive has had little or no impact on the development of the sector.

PEST analysis reveals the following influences over the sector:

- **Political:** there are some difficulties in renovating old farm buildings or to build new ones due to the ICPE regulation (Installations Classées pour la Protection de l'Environnement). This regulation sets additional requirements for the renovation or building of farm buildings which hold over 40,000 birds. To obtain building permission farmers must carry out a public consultation and need to submit additional technical documents. Farmers almost always need to hire an external consultant to do this, which is expensive. In addition, in nitrate vulnerable zones farmers find it more difficult to dispose of manure due to the requirements set in the EU Nitrates Directive.
- **Economic:** the demand for poultry meat in France is increasing, however, around 45% of chicken meat is imported from other EU and non-EU countries, and the share of non-domestic production has grown over the period from 2008-2014. The main exporters of poultry to France are the Netherlands, Belgium, Germany and most recently, Poland and Spain. French broiler producers find it difficult to compete with producers from Poland and non-EU countries because labour costs are lower and the rate of Value Added Tax (VAT) is lower for agricultural production. Poultry production in non-EU countries is also cheaper due to the absence of the same level of animal welfare requirements.
- **Social:** the interest in animal welfare issues has been growing in France in recent years. As a result, more and more consumers opt for poultry reared under

alternative quality schemes, such as Label Rouge, which set higher quality and animal welfare requirements. Consumer demands are also becoming more sophisticated in terms of taste and the demand for higher quality poultry production is growing.

- **Technological:** in recent years farms have invested in new heating and ventilation systems. The competent authority and industry noted that the surface areas inside poultry houses covered with concrete have increased in recent years. French poultry farmers were almost the last in Europe to use clay floors in poultry houses and the majority of them still had clay floors in 2010. However, the industry noted that investments in new technologies in the broiler sector in France have not been strong, mainly due to the price competition from cheap imports.

Broiler management on commercial farms

Poultry farming largely remains a family business in France and is therefore conducted at a small scale than is generally the case in other Member States. A farm for standard broiler production normally consists of two buildings of around 1,200 m² each. The quality of installations (e.g. heating and cooling, ventilation systems) varies from farm to farm, depending mainly on the age of the farm. Newer farms have dynamic ventilation systems with changing air flows depending on the ambient temperature; these systems also provide lower levels of humidity, as well as a larger concreted surface area. However, many of the farm buildings still in use were built around 1990 when French poultry exports were expanding. Cheaper installations were used in these farms in order to reduce production costs and therefore to be more competitive on foreign markets. As a result, these farms need to invest more to improve their facilities and to be able to comply with production and animal welfare standards.

The majority of growers in France opt to use the highest stocking density permitted by the Directive; 82% of the national flock is stocked at between 39 kg/m² and 42 kg/m². Some 11% is stocked at between 33 kg/m² and 39 kg/m² with the remaining 7% stocked at 33 kg/m² or lower. There was no maximum stocking density in France before the implementation of the Directive, but the industry noted that the majority of growers used to stock broilers at around 42 kg/m².

The typical commercial broiler production cycle in France is 35 days. Depopulation is followed by an empty period of 14 days during which cleaning takes places.

Light intensity is kept at a minimum of 20 lux at bird eye level illuminating 80% of the house in accordance with the provisions in Annex I of the Directive. However, the national legislation lists the particular cases when the light can be temporarily decreased. These include the extreme cases of cannibalism, feather pecking or deaths resulting from fighting; it is necessary to consultation with a veterinarian before such a temporary decrease in light levels is enacted.

Air quality is measured in accordance with the requirements for the use of higher stocking densities set in Annex II of the Directive. The concentration of ammonia (NH₃) does not exceed 20 ppm and the concentration of carbon dioxide (CO₂) does not exceed 3,000 ppm measured at the level of the chickens' heads. The temperature does not exceed the outside temperature by more than 3°C when the outside temperature exceeds 30°C.

Farmers inspect the poultry house 2-3 times per day and identify chickens which have walking difficulties, severe ascites or severe malformations; birds that cannot be treated are culled so that they do not suffer.

Farm records are kept for at least three years as required under Annex I of the Directive. These records are kept increasingly in electronic form (e.g. data is recorded using tablets) and checked during on-farm inspections.

Beak trimming is permitted in accordance with the national legislation. However, this procedure is not generally carried out for broilers due to the absence of the feather pecking problems seen in laying hen flocks. Castration is permitted in France and has to be carried out by a trained worker under the supervision of a veterinarian, as indicated in the Directive. The practice of castration is limited, because birds are mostly castrated to supply a special type of chicken (capon) to the market before the Christmas period.

All interviewees noted that there has been little change in management practice during the period from 2008 to 2014. The competent authority thinks that the ventilation and heating systems have slightly improved and that these changes have been driven both by technological developments and by the requirements set out in the Directive. Although the industry agreed that heating and ventilation systems have improved during the period, they indicated the usage of heavier breeds as the main driver for such changes.

The industry also noted that before the implementation of the Directive, French farmers used to maintain high animal welfare conditions in order to maximise production and to comply with technical specifications set by the industry. Overall, the requirements of the Directive have not had much impact on the prevailing practices in poultry farming.

Breeds used

Standard broiler production accounted for just over half (around 56%) of total chicken meat production in France in 2014. Ross is the main commercial breed used in France and this accounts for more than 80% of standard chicken production. The use of Ross birds has increased over the 2008 to 2014 period while the share of Hubbard birds has declined.

In total, slower grower breeds account for 21-30% of total broiler production in France. The main breeds used as slower growing breeds are Cobb Sasso and Hubbard; the latter is the main breed used for exports.

Industry noted that the popularity of slower growing breeds increased only marginally during the 2008 to 2014 period. On the other hand, the popularity of heavier breeds has increased because heavier breeds produce a greater breast meat yield which is in high demand on the domestic market; demand for whole birds has decreased.

Employment on commercial farms

According to the industry, only around one fifth of poultry farms are specialists and the majority of farmers work across multiple enterprises. The industry bodies spoke to estimate that one farmer can take care of around 80,000 birds. Since an average farm holds around 50,000 birds, most farmers only spend part of the day on the poultry enterprise. Additional staff are hired for certain tasks that require more labour such as catching and loading chickens for transport.

The degree of automation varies from farm to farm depending mainly on the age of farm facilities. However, ventilation, food and water distribution are automated in the majority of farms. Around 15%-25% of holdings use automated catching.

A5.2.2.2. Implementation of the Directive

Requirements for keeping chickens

France implements all requirements of the Directive and there are no additional requirements in the national legislation. However, many farmers comply with the additional requirements set in good management guides or technical specifications produced by industry ("*cahier des charges*") and which relate to particular quality schemes.

Different quality schemes are operational in France and these set additional animal welfare requirements. These are set out below with estimations of the total share of production relating to 2014:

- The Label Rouge scheme (accredited in 2006) accounts for around 13% of poultry production in France. Producers of Label Rouge chickens have to comply with technical specifications. Label Rouge chickens must be at least 81 days old at slaughter and stocking densities are restricted to a maximum of 25 kg/m². There are also additional requirements related to lightening, ventilation, etc.
- The Certified Chicken Scheme covers around 12 % of chicken production. Certified chickens are reared indoors and must be at least 56 days old at slaughter. The maximum stocking density under this scheme is set at 36 kg/m².
- Organic chickens account for 1% of poultry production in France. These chickens must be reared for at least 81 days, must have natural light in houses and cannot be stocked at more than 25 kg/m². There are also additional requirements related to the feed and other rearing conditions.

Training and guidance for persons dealing with chickens

The competent authority noted that in 2011 and in 2012 a large number of chicken keepers expressed an interest in attending the training courses on broiler welfare. In 2011, five training bodies organised 14 training sessions, during which 175 participants were trained and received certificates. In 2012, three trainings bodies organised ten training sessions and granted certificates for 127 participants. The competent authority does not possess data on the number of certificates issued during the following years.

The training courses on broiler welfare have to last at least seven hours and must follow the topic guide set out in Annex 4 of the Directive and therefore include physiology, biology, broiler welfare, careful handling, emergency care and preventive biosecurity measures. Certificates are awarded on completion of training and examination.

Organisations delivering the courses have to be approved by the DGAL and also the Ministry of Education. The list of training bodies is valid for five years. Organisations have to submit the following information in order to obtain an approval to provide a training course for chicken keepers:

- CVs of teachers which prove their competencies and expertise in the field of poultry production and animal welfare;
- a detailed course programme (including the training hours); and,
- the training materials which will be supplied and the organisational details of the course.

The competent authority recognised the experience of chicken keepers who kept broilers before July, 2010 and granted certificates under Article 4(4) of the Directive. However,

the central competent authority does not possess a complete dataset on the numbers of these certificates issued.

Farm owners do not have to undertake training as chicken keepers. According to the competent authority, inspectors usually do not check whether growers or owners provide instructions or guidance on animal welfare requirements for employees dealing with chickens and with the catching and loading process, as is envisaged under Article 4 of the Directive.

Inspections

DGAL sets targets for inspections which are carried out by the Direction départementale de la protection des populations (DDPPs) and the Veterinary Inspection Services (VIS). Each year inspectors check approximately 10% of chicken farms with stocking densities above 39 kg/ m² to ensure that conditions in these farms are in line with the additional requirements set in the Annex II and V of the Directive for the highest stocking densities. This corresponds to around 350 inspections per year. Inspectors evaluate the birds' environment (e.g. lighting, temperature) using a scale from A to D. Additional inspections are organised based on the analysis of the data on welfare indicators submitted to the competent authority by the slaughterhouses.

Furthermore, in 2013 a supplementary system of inspections was introduced. Each two years, a private veterinarian with a mandate from the competent authority inspects all poultry farms with more than 250 birds, regardless of their stocking densities. During these inspections, both sanitary aspects and welfare conditions are investigated.

According to the competent authority, one of the most common problems detected during inspections is incomplete documentation, especially regarding daily mortality rates. Another common issue is insufficient lighting in houses.

Guides to good management practices

In France, poultry producers comply with technical specifications ("*cahier des charges*") produced by industry that are linked to different quality schemes. These list additional requirements for chicken production including maximum stocking densities, environmental conditions on-farm and animal welfare requirements. These are effectively guides to good management practice.

The competent authority noted that the guide of good management practice produced by the Institute Technique de l'Aviculture (ITAVI) is also available for growers. According to the animal welfare NGO interviewed, there are some guides which have been developed by the industry in cooperation with animal welfare NGOs such as the TIBENA smart phone application which allows the farmer to check broiler welfare levels, especially behavioural aspects. The NGO noted that consumer demand for higher animal welfare standards is an important factor in the development of good practice guides.

Penalties

The competent authority issues warnings and asks growers to take necessary corrective action before penalties are issued and, as a result, generally the number of penalties issued is low. Some 42 warnings were issued between 2008 and 2014. In cases where a grower does not take necessary actions to improve the situation, an administrative penalty may be applied. This starts from €750. Repeat infringements can lead to the closure of the farm. In extreme cases when animals are injured or kept without food,

farmers can be penalised under criminal law with fines up to €7,500 and ultimately imprisonment for six months.

The competent authority believes that generally sanctions are effective because they have financial implications for the grower and may lead to the closure of the farm; growers are willing to take appropriate actions to avoid these negative consequences.

A5.2.3. Impact and costs of implementing the Directive

A5.2.3.1. Impact of implementation

There have been no impact assessment studies on the implementation of the Directive in France. The competent authority and the industry agree that the Directive has had no major impacts. The competent authority believes that the main impact of the Directive is related to the introduction of obligatory training for chicken keepers, which has increased the awareness of animal welfare issues on farm and consequently contributed to the improvement of animal treatment. This opinion was corroborated by the industry representatives, who noted that the Directive has had a very positive impact on the training of farm staff and some positive impact on animal welfare on-farm.

The competent authority is of the opinion that there have been some improvements in the management conditions on farm related to improved lighting and air quality as the Directive set minimum standards for these environmental aspects. However, the industry noted that some changes in management practices were related more to the usage of heavier breeds, rather than driven by the Directive. The industry representatives noted that many requirements listed in the Directive were already applied by industry in order to provide good animal welfare conditions on farm and to maximise production. Furthermore, many producers had to comply with technical specifications related to quality schemes which set additional animal welfare requirements such as reduced stocking densities.

According to the industry the Directive has not had a significant impact on production levels because prior to implementation the majority of farmers stocked at densities around 42 kg/m² and most still do (see above).

Nevertheless, the industry noted that certain requirements in the Directive, for example the measuring of CO₂ levels may have had a negative impact on the outcome of inspections because it is difficult for growers to perform these measurements accurately.

The industry interviewees said that there have been no significant impacts of the Directive on the cross-border trade in live birds. Historically, there has been little trade in live birds and then only with Belgium and Germany. This trade has been driven by the limited slaughterhouse capacity in France.

The animal welfare NGO did not provide any concrete evidence of the impact of the Directive, although the interviewee believed that it is helpful to have minimum welfare requirements which are adapted to the physiology of particular animal species as these can better guide producers.

A5.2.3.2. Costs of implementation

The competent authority said that the administrative costs which it must bear following the implementation of the Directive have not been substantial. Animal welfare checks

are perceived as being complementary to veterinary and sanitary checks and it is difficult to distinguish specific impacts or costs resulting from the Directive.

According to the industry, theoretically, the Directive could have had an impact on the cost of production, but this has been offset by progress in other areas. For example, the lower stocking density may have led to lower rates of mortality, better animal health and, overall higher quality production.

The industry interviewees noted that although documentation requirements for farms might pose a certain administrative burden, the data produced also allows farmers to track conditions and better monitor any changes. In other words, there are benefits which offset the (fairly minimal) costs.

A5.2.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.2.4.1. Recording of welfare indicators at slaughterhouses

Welfare indicators are monitored based on the documents⁴² submitted by the grower to the slaughterhouse and the ante-mortem and *post-mortem* animal welfare checks carried out by slaughterhouse staff under the supervision of the OV.

The anti-mortem animal welfare indicators do not have specific quantitative trigger levels. These are assessed in a visual check before the beginning of slaughter operations on the basis of a sample of birds. The ante-mortem indicators are as follows:

- clinical signs of shortness of breath;
- paralysis or other neurological symptoms;
- whether the livestock density in transport crates was higher than set in the legislation;
- dirty feathers.

If one or more of these alert criteria are in evidence the slaughterhouse operator sends a letter to the grower and contacts VIS no later than on the day of slaughter. Following receipt of this information VIS chooses the appropriate action to take which is either to conduct reinforced documentary and physical checks of the batch, plan an on-farm inspection or send a notification to DDPP.

Other welfare indicators recorded at slaughterhouses which have trigger levels are as follows:

- total mortality rate from the day 0 to day 10 (for standard, certified chickens and chickens for exports);
- total mortality rate during the 15 days before slaughter;
- mortality rate on the date when the Food Chain Information sheet (FCI) was submitted to the slaughterhouse;
- DOA;
- percentage of total rejections when the principal reason is one of the following: generalised congestion, emaciation, airsacculitis, multiple arthritis, tumoral process or other visceral anomaly;

⁴² DOCUMENT DE TRANSMISSION DE L'INFORMATION SUR LA CHAÎNE ALIMENTAIRE –FCI has to indicate the mortality rates and other information, such as number of birds, time of the withdrawal of the medicated feed.

- the percentage of total rejections when the principal reason is one of the following: leg deformations, fractures, bruises, skin lesions (breast blisters, purulent lesions and other skin lesions).

A visual *post-mortem* inspection is carried out by slaughterhouse staff under the supervision of the OV. The evaluation of the post-mortem indicators set out above is done using a guide with pictures and descriptions of anomalies. This picture guide has been developed by a working group of competent authorities and veterinarians and is based on scientific research conducted in slaughterhouses.

The threshold values for the indicators are based on scientific research and have been set by the French Agency for Food, Environmental and Occupation Health and Safety (ANSES) (see Table A5.1). If any of these threshold values are exceeded the slaughterhouse has to contact the grower and VIS, as envisaged by Point 3 of Annex III of the Directive. VIS chooses which actions are the most appropriate for the situation and may conduct reinforced documentary and physical checks of the batch, organise a veterinary inspection on-farm or send the notification to the DDPP.

Even if the threshold values indicated above have not been exceeded, the slaughterhouse always communicates the number of rejections to the grower with explanations and may provide other information related to animal welfare indicators even if trigger levels have not been exceeded. This communication of additional information varies from slaughterhouse to slaughterhouse.

Table A5.1: Trigger levels used by indicator

Welfare indicator	Trigger level (%)
Dead on Arrival (DOA)	≥2%*
Mortality rate from the day 0 to day 10 (for standard, certified and export chickens only)	≥5%
Total mortality rate on the date when FCI was submitted to the slaughterhouse	≥5%
Total mortality rate in 15 days preceding the submission of FCI	≥3 %
Total percentage of rejections due to animal welfare reasons (including partial eliminations) when the principal reason is one of the following: leg deformation, fractures, bruises, skin lesions(breast blisters, purulent lesions and other skin lesions)	≥2%
Total percentage of rejections due to sanitary reasons (including partial eliminations) when the principal reason is one of the following: generalized congestion, emaciation, airsacculitis, multiple arthritis, tumoral process or other visceral anomaly.	≥1%

* If DOA exceeds 10%, VIS has to be contacted immediately.

The competent authority believes that the incidence of FPD could be a useful indicator to monitor broiler welfare because research (including government supported research by ANSES in 2012-2013) shows that FPD levels are related to high stocking densities and bad management practices on-farm. Nevertheless, according to the competent authority, slaughterhouses may face some difficulties while putting the monitoring system for FPD in place, mainly due to the speed of the processing line. These views were corroborated by the industry which also said that FPD could be useful as a broiler welfare indicator. It was thought that monitoring FPD levels poses significant challenges to slaughterhouses as they would have to hire additional personnel or invest in camera systems to perform these checks. Such investments could be made only in large

slaughterhouses, while the majority of slaughterhouses in France are very small and would not be able to afford to make these investments.

Both the competent authority and the industry noted that a limited number of slaughterhouses that slaughter birds for export to Asian countries have introduced voluntarily a system to monitor FPD because feet are an economic product and high levels of FPD would reduce the quality and hence value.

The competent authority noted that the recording of welfare indicators is useful because farmers receive feedback from slaughterhouses where problems related to animal welfare are detected in a batch. The monitoring of *post-mortem* indicators at slaughterhouses also has some advantages when compared to the use of ante-mortem indicators as these are difficult to measure because the birds are alive and need to be sampled from the full flock; this is not easy for workers to do.

All interviewees consider the monitoring of welfare indicators in slaughterhouses to be a useful tool to track animal welfare conditions on-farm. However, the competent authority and industry also pointed out that monitoring is a difficult process due to the speed of the processing line as most slaughterhouses process 6,000-7,000 birds per hour. Furthermore, the majority of slaughterhouses in France are very small and usually employ a small number of people.

The competent authority noted that growers do not communicate daily mortality rates to the slaughterhouses because it is not clear in which format this information could be transmitted and how this information would be used at the slaughterhouse. The competent authority concluded that the collection of information on daily mortality rates would be an unnecessary administrative burden for both growers and slaughterhouses.

The competent authority noted that although welfare and sanitary indicators are different things, in practice they are inter-related and a welfare indicator can also be a sanitary indicator.

The animal welfare NGO interviewed noted that although monitoring welfare indicators in slaughterhouses is important, only on-farm inspections can give a full picture of animal living conditions. The NGO also noted some disadvantages related to the recording of certain welfare indicators such as injuries (e.g. broken wings), because it is not clear when this injury happened (e.g. during catching, transport or stunning).

A5.2.4.2. Transmission of information and its use on-farm

Slaughterhouses record the three main reasons for any rejections and always transmit this data to the grower in a form of a payment sheet. The sheet is generally transmitted electronically and the process of transmission takes a few days. Where indicator trigger levels have been exceeded the slaughterhouse sends a letter to farmer and contacts VIS on the same day of slaughter; transmission is immediate if serious problems are detected with a batch, for example, exceptionally high levels of DOA (see above). The competent authority noted that some slaughterhouses communicate data related to animal welfare indicators to growers even if the trigger levels have not been exceeded. Whether this happens or not depends on the practices established at individual slaughterhouses or following a special agreement with a grower.

A5.2.4.3. Structure of the data transmission

According to the industry, the data from slaughterhouses is usually transmitted electronically, but its structure varies from slaughterhouse to slaughterhouse and there is no one approved format. The fields covered have been described above.

A5.2.4.4. Impact of the use of welfare indicators and method of transmission

The competent authority is of the opinion that the use of animal welfare indicators has contributed to some extent to the improvement of management practices on farms. The data on welfare indicators transmitted from slaughterhouses may inform growers about certain problems with their flock and which they were unaware of. Growers are also motivated to improve management conditions in order to avoid financial sanctions. This view was corroborated by industry interviewees who believe that the introduction of animal welfare indicators allow farmers to track the management conditions at their farms and to produce better quality birds in terms of higher animal welfare.

The competent authority noted that there is a strong interest from consumers and society in animal welfare. As a result, both growers and slaughterhouses are interested in welfare indicators in order to meet this societal demand.

According to the industry, although the monitoring of welfare indicators can be a burdensome process for slaughterhouses, their operators can compare the quality of production from different growers and choose the best supplier in the area which ought to provide them with an economic advantage.

The competent authority stated that checks of welfare indicators at slaughterhouses are well integrated with sanitary controls and as a result, it is difficult to estimate the additional burden for slaughterhouses related specifically to the welfare indicators. The industry also noted that the idea of welfare indicators is not entirely new; some indicators which can be related to poor management conditions on farm (e.g. scratches, although these can also relate to problems during transport) used to be checked anyway for sanitary reasons.

The competent authority believes that overall the transmission of data from slaughterhouses to growers and the competent authority works well. However, this data transmission process could be more harmonised between slaughterhouses both in terms of structure and content.

A5.3. Germany

A5.3.1. Introduction

Interviews were held with the following parties on the dates indicated below:

- National competent authority for animal welfare (BMEL) and competent authority of Nordrhein-Westfalen: 17th August, 2016
- Poultry sector representative: Zentralverband der Deutschen Geflügelwirtschaft e.V (ZDG): 27th July, 2016
- Two poultry growers (also regional representatives of growers): 27th July, 2016
- One poultry slaughterhouse: 27th July, 2016
- Animal welfare NGO Deutscher Tierschutzbund: 19th July, 2016.

It should be noted that the distribution of competences in Germany (with the national ministries responsible for the transposition of the Directive and co-ordination, but individual states (so-called 'Länder') responsible for the implementation and inspections) is a peculiarity of the German case study which posed some organisational challenges.

The Directive is implemented in Germany through the "*Tierschutz-Nutztierhaltungsverordnung*" (TierSchNutzTV), originally of 25th October, 2001 and subsequently amended several times including following the introduction of the Directive. The TierSchNutzTV covers the on-farm welfare of eight species of farmed animal. Part 4 contains the provisions for broilers. The TierSchutzNutzTV applies throughout Germany. The majority of provisions should be uniformly implemented, but there are certain aspects that may vary a bit between German States (see section below).

A5.3.2. State of play of the implementation of the Directive

A5.3.2.1. Broiler production in Germany

The structure of the German broiler industry

Germany is the third largest producer of poultry meat in the EU. Production steadily increased over the 2009-14 period, both in absolute terms and as a percentage of total EU production (see Figure A5.2).

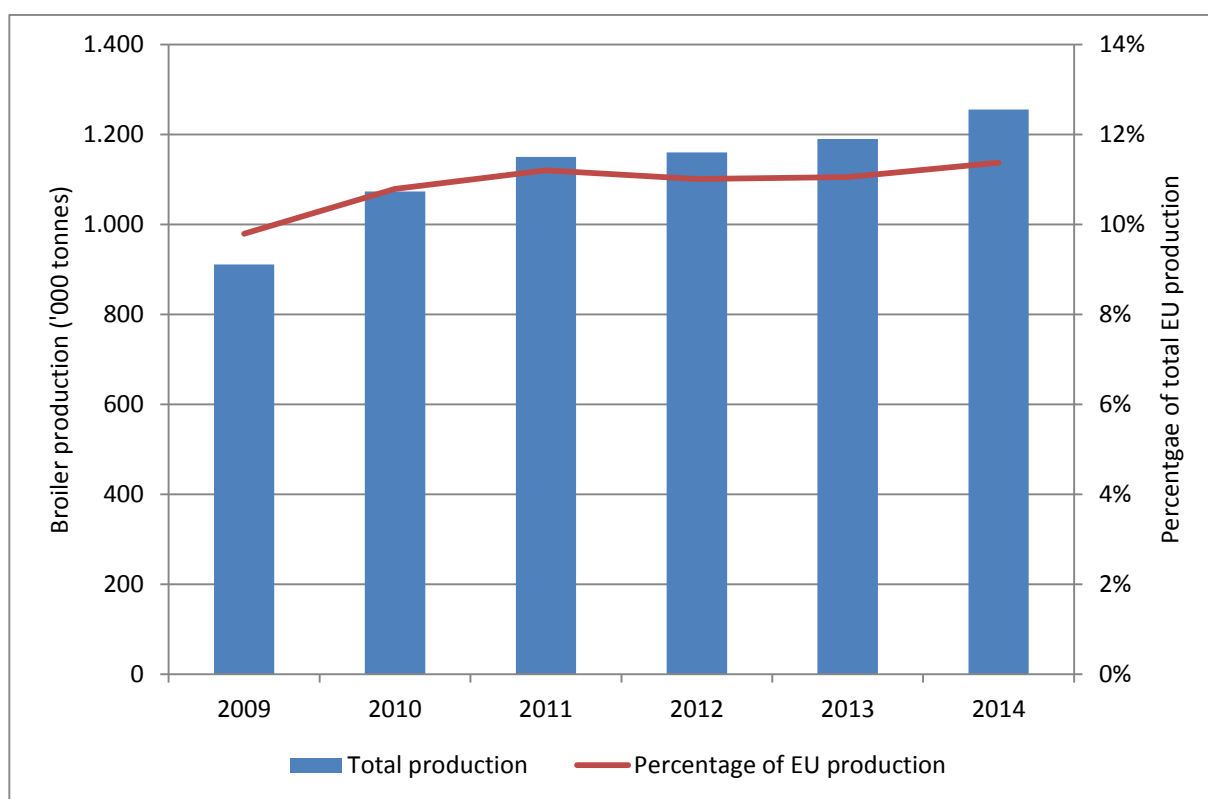


Figure A5.2: Broiler production in Germany and share of total EU production (source: Eurostat, 2016)

According to interviewees, the German industry is 85-90% integrated. There are two levels of integration:

- **Full integration:** hatcheries, chick provision and feed mills are all owned by the same company.
- **Long-term contracts:** slaughterhouses make contracts with feed mills and hatcheries to provide inputs to the required standards. This arrangement predominates and accounts for upwards of three-quarters of German production.

It was noted that in both cases growers are independent businesses; they are not outsourced services effectively paid a management fee by slaughterhouses as is the practice in some other Member States (this practice is in fact forbidden by law in Germany). Growers have medium to long-term (1-5 year) contracts with slaughterhouses. This contract length is thought to provide certainty for operators through preventing slaughterhouses from frequently changing their suppliers.

Interviewees confirmed that the industry is quite concentrated in Germany. There are two very large companies and two moderately large companies which together account for 80% of production. There has been no real change since 2008 in terms of the level of integration or industry concentration.

Interviewees held slightly differing views on the political, economic, social and technological factors affecting the sector. A PEST analysis based on their inputs is below.

- **Political:** public discussions and political party pledges (for example regarding meat consumption and rearing conditions) were perceived to have placed political pressures on the sector. However, this does not necessarily translate into legislative pressure. Indeed, one interviewee believed that the industry generally had a strong influence on the legal provisions affecting the sector. Certain precise legislative provisions were identified by certain interviewees as having adversely impacted the sector:
 - Antibiotic legislation (Arzneimittelgesetz) which operates a two-level threshold system under which official intervention is required if the second level is breached.
 - Planning regulations in Germany have made it difficult to build new buildings for broiler production in recent years. These regulations mean that between three and five years are needed for planning approval and this causes business and planning uncertainty for growers as their contracts only run for five years.
 - Minimum wages were introduced in Germany in 2015 and this has had an impact on slaughterhouse labour costs.

Finally, it was noted that ammonia emissions are likely to be a significant political issue in Germany in the future. Emissions in 2010 were high and will have to be reduced to meet the emissions ceiling at the next milestone in 2020. This will require a re-examination of practices.

- **Economic:** one interviewee reported significant pressure from multiple retailers and end clients. German consumers are considered to be strongly focused on price leading to supply chain pressure from multiple retailers, in particular discounters. While there is a law banning the sale of agricultural products below the cost of production, it was felt that some operators may push the limits of this law. Pressure from multiple retailers (both domestic and foreign) was also reported in the form of additional production requirements which go beyond what is required by law and what is included in the QS industry standard. These extra requirements, which can cover areas including animal welfare, were considered to place additional economic pressure on operators due to the need for compliance.

Exports were considered a significant issue for the German poultry sector. There are a lot of sub-issues with exports, most of which affect all EU Member States (not just Germany), but Germany's position as a net exporter with a 12% surplus over domestic demand accentuates these; one interviewee noted that German companies are particularly affected by high customs duties as a consequence. Other issues include, for example, the Russia trade embargo which has removed a market; South Africa has invoked its agricultural safeguard on poultry imports from the EU; exports to countries in, for example, West Africa, can be controversial as they compete with local production; and, fresh/frozen imports from, for example, Brazil and Thailand affects supply. Finding markets for some cuts (e.g. feet) can be difficult. Germany disapproves of the use of export refunds for agricultural products, including poultry.

Domestic poultry demand has been increasing, driven mainly by its position as a relatively cheap source of protein and partly by its health profile. Despite this, German per capita consumption is still below the EU average.

Finally, one interviewee reported that the industry is focused on putting in place high performance production systems using, for example, fast growing breeds, which in turn results in animal welfare problems.

- **Social:** a notable issue in German agriculture in general is the difficulty in attracting young people to work in the sector; poultry is no exception. This was considered to result from (primarily national) policy issues/failures rather than issues of profitability. In the work place there are issues around working conditions and codes of conduct, meaning attention must be paid to both. Finally, several interviewees noted a medium to long-term increase in consumer interest in animal welfare and the production methods of foodstuffs. This has caused both industry and political discussions on the issues.
- **Technological:** no specific obligatory pressures resulting from technology were identified. Some voluntary issues connected to the use of technology in the production process were though reported. The use of camera systems in association with welfare indicators in the slaughterhouse could be considered an example of this (see below).

Broiler management on commercial farms

According to interviewees, the average broiler households between 30,000 and 40,000 birds and farms normally have two or three houses meaning total capacity in a single location is generally in the range of 60,000-90,000 birds. Holdings are slighter larger in the north of Germany. Growers generally do not own farms in multiple locations. Estimates based on data from the Federal Statistical Office (Statistisches Bundesamt, Destatis) suggest that the majority of birds are kept on farms with capacities slightly over 90,000 (i.e. around 120,000), with the average pulled down by numerous smaller farms.

Broiler houses were reported to be typically 15 to 20 years old. While many date from the 1990s, there are also some very old (40-50 years) houses, including some of the larger ones. One interviewee noted that it is difficult to build new broiler houses due to planning regulations (see also below); consequently, buildings (and their fittings) are generally upgraded rather than re-built.

The requirement for windows in broiler houses is governed by national laws. Under the TierSchNutztV, buildings built after 2009 are required to have openings providing natural light equal to 3% of the floored area (though due to the age of buildings this affects only a minority of installations). Fire regulations were reported as also possibly requiring the presence of windows in structures including poultry houses (interviewees were unclear on this point). Windows are designed to avoid the light being concentrated on certain parts of the floor area (the concentration of light would lead to birds gathering in certain areas of the house). Natural light is supplemented by artificial light which is suitable for the birds; flickering lights are not permitted by law.

Ventilation in broiler houses is standard as there are legal requirements (see below). There are implicit requirements for heating in the TierSchNutztV, although one interviewee thought heating was not always available. Gas cannon heating systems are used in older houses while newer houses are more likely to have centralised systems with closed heating installations for fire protection.

Following the entry in to force of the TierSchNutztV, alarms and an electrical backup system (i.e. a battery) to ensure the continued provision of food and water are also required in broiler houses.

Interviewees reported that the vast majority of the German broiler production (as much as 98%) is covered by the QS industry standards⁴³. The requirements of the QS system are broadly similar to those of the TierSchNutzTV with some specific details which are identified below. It should be noted that there are two significant higher welfare production schemes in Germany:

- **QS animal welfare initiative.** This was developed collaboratively by the industry and retailers based on the principle that there would be a small premium for higher welfare poultry. This initiative involves a lower stocking density (35kg/m²) and enhanced environmental enrichment. This relatively recent initiative is still under development and there remains work to be done to arrive at an agreement on financing and promoting the scheme to the industry.
- **Tierschutzlabel.** This standard was developed by the Deutscher Tierschutzbund and was introduced in 2012. It contains a basic and advanced level. Key features include: a significantly lower stocking density (29 kg/m² for the basic level, 25 kg/m² for the advanced level⁴⁴; the requirement for the use of slower growing breeds⁴⁵; a maximum flock size of 30,000 birds (with up to two flocks at a time); enhanced environmental enrichment; transport and slaughter provisions; and, animal welfare indicators. While Germany's largest poultry producer has decided to use the basic level for part of its poultry production, no producer has yet signed up to the advanced level.

Interviewees were uncertain what market share these schemes account for, but thought it would not exceed 5%.

Taking into account the above industry and private standards, and based on further evidence provided by interviewees, typical production parameters are as follow:

- **Production cycle:** between 38 and 41 days. Depopulation is followed by an average empty period of 8 days.
- **Stocking density:** 39 kg/m².
- **Lighting:** above the minimum 20 lux required by law; non-flickering artificial lighting may be used to supplement natural light.
- **Ventilation:** mechanical ventilation, with a minimum air replacement rate of 4.5 m³ per hour for each kilogram of liveweight as required by the TierSchNutzTV.
- **Temperature:** there is no typical temperature used; temperatures will be around 3 degrees above the outside temperature and also within the ranges required by the law (i.e. will not exceed 3 degrees above the exterior temperature if the latter is 30 degrees; humidity will not exceed 70% if the temperature is under 10 degrees, and the latter requires the use of heating which will ensure a certain temperature).
- **Air quality:** this must be controlled by law with limits of 20 cm³ per 1 m³ for ammonia and 3,000 cm³ per 1 m³ for CO₂.
- **Access to food and water:** as set out in the TierSchNutzTV, there will be a minimum of 0.66 cm per kg liveweight of round feeding or drinking tray; or 1.5 cm per kg liveweight of linear feeding or drinking tray; or a maximum of 15 birds per

⁴³ All poultry produced for sale through retailers, etc. in Germany was reported to be QS certified as it is required by them. It is less clear in the case of food service use. It was noted that the borderline is blurred given that different cuts can go to different markets, so to ensure the possibility to sell to the widest range of markets poultry will generally be QS certified.

⁴⁴ This assumes there is a separate cold scratching area; if not the density falls further to 25 kg/m² and 21 kg/m² respectively.

⁴⁵ Defined as not gaining more than 45g/day

water nipple. Feeding trays will be within 3 m of every point of the broiler house, and water supply within 2 m of the feeding trays (additional requirements of QS).

- **Inspections:** these occur 2-4 times per day. Climatic factors, ventilation, the availability of water and feed and that the vitality of the birds are checked. It was noted by one interviewee that checks will focus primarily on issues with an economic impact rather than animal welfare issues, although another interviewee noted that it is in the grower's interests to avoid animal welfare problems. Due to the training required by law, holding owners were reported as being able to recognise the issues and the appropriate action or call their veterinarian for a second opinion⁴⁶. It is in the holder's interest to take the best course of action to avoid problems with birds. Official state veterinarians will also check every flock in every holding prior to transport (see section below).

Records are kept by the farmer as required by the TierSchutzNutzTV and also by the private veterinarian employed by the farmer. Veterinarians are required to keep records whenever they treat animals. Growers keep records for at least three years as required by law. Both sets of records are checked by state veterinarians during pre-transport inspections.

Prior to the entry in force of the TierSchNutzTV, there was a voluntary agreement system (*Bundeseinheitliche Eckwerte für eine freiwillige Vereinbarung zur Haltung von Jungmasthühnern (Broiler, Masthähnchen) und Mastputen*)⁴⁷ which contained a lower stocking density of 35 kg/m² and limited provisions in other areas (some of which were maintained in the TierSchNutzTV)⁴⁸. This was introduced in 1999, and adherence to this system was based on an agreement between producer and the competent authority; the system was enforced by the competent authority. While interviewees agreed that the majority of the industry had signed up to this voluntary system, there were diverging views on the extent to which the industry subsequently adhered to this production standard. As a result, there were slightly differing views on the extent to which management practices had changed following the amendment of the TierSchNutzTV to implement the Directive. One interviewee believed changes had been limited, while another believed them to be major. Consolidating these conflicting views is difficult; however on balance the following changes appear likely:

- **An increase in stocking density:** it is generally accepted that the industry previously produced at 35 kg/m² and that this has subsequently increased to 39 kg/m².
- **Some changes to ventilation and air quality:** in accordance with the requirements of the TierSchNutzTV regarding air exchange rates and levels of ammonia and CO₂. Provisions on heat induced stress may also have had an impact on ventilation and temperature.
- **Changes in the use of litter material:** in order to manage the incidence of FPD.

⁴⁶ Each holding has a contract with a vet; this hired veterinarian normally comes to the farm twice per production cycle to check on the birds, plus according to need. This veterinarian is employed by the holding owner, not the slaughterhouse.

⁴⁷ This was based on a provision in the Tierschutzgesetz specifying that livestock farmers should take care of the animals with appropriate feeding, care and behaviour. This provides the theoretical basis for the introduction of such voluntary agreement systems which while not officially legally-binding are to all effects and purposes to be binding instruments.

⁴⁸ Provisions for food and drink installations with minimum access requirements per kg liveweight; the air replacement requirement of 4.5 m³ per kg liveweight per hour, and the 20 lux lighting requirement all existed under this system and were maintained in the TierSchNutzTV. Less specific provisions (compared to the TierSchNutzTV) on the qualifications of holding owners, methods of care and records were included in this system.

- **Slightly closer attention paid to overall welfare:** in order to avoid issues with the indicators of cumulative mortality and mortality in transport.

The requirements of the TierSchNutzTV also impacted the installations in broiler houses; for example, the requirement for backup systems (see section 3.1.2.1).

Breeds used

According to interviewees, the main breeds in Germany are Ross (80%+ of production) and Cobb. Among the Ross breeds, there are two main sub-breeds: 308 (80%+ of Ross breeds) and 708 (most of the remainder). There have been no significant changes in the use of breeds or sub-breeds since the entry into force of the Directive.

Slower growing breeds account for around 1% of total production with no changes in this share in recent years. While there is no single national definition for slower growing breeds, there are definitions by different organisations based on daily growth rates (for example, that of the Tierschutzlabel; see below).

Employment on commercial farms

According to interviewees, between 180 and 200 man hours are required for the rearing of 30,000 birds. This includes an estimated 48 hours of external/contracted help (8 x 3 = 24 hours for capture, 24 man hours for cleaning) and the time for administrative requirements as well as the daily keeping activities. Based on a production cycle of seven weeks (including the empty period) this translates to a total of 0.024 full time equivalents (FTEs) per 1,000 birds (based on a standard 38 hour working week), or 0.018 FTEs per 1,000 birds if the external/contracted operations are excluded.

Whilst daily operations such as feeding, providing water, etc. are automated, catching and loading remains a manual task in Germany.

A5.3.2.2. Implementation of the Directive

Requirements for keeping chickens

Germany is generally required to transpose EU Directives on a one-for-one basis unless there are justifiable grounds for introducing further measures which go beyond the Directive. An impact analysis was performed prior to the transposition of the Directive and this contained the justification for the areas where measures in the TierSchutzNutzTV ultimately went beyond what required in the Directive (listed below):

- **Stocking density.** There is a two-tier system restricting stocking densities to 39 kg/m² for birds over 1.6 kg (almost all of German production⁴⁹) or 35 kg/m² for birds under 1.6 kg. One interviewee said that the adoption of the 39 kg/m² limit was based on studies which showed stocking densities of 42kg/m² to have significantly negative impacts on bird welfare such as Spindler (2009). Another interviewee believed that the 35 kg/m² limit for birds less than 1.6 kg was introduced as the authorities wanted to maintain some consistency with what was required under the previous voluntary agreement system which implies that the adoption of these limits was a form of compromise.
- **Broiler house design / installations.** There are various additional provisions:

⁴⁹ The standard slaughter weight in Germany is around 2.2 kg.

- New houses built after October 2009 need to have windows equal to 3% of the floor surface area.
 - Ventilation: 4.5 m³ of air must be changed in each hour for each kilogram of animal in a broiler house (also in the previous voluntary system).
 - Minimum provisions for supply of feed and water are included: 0.66 cm of round feed and drinking trays for every 1 kg of liveweight; or 1.5 cm per of linear feeding or drinking tray; or a maximum of 15 birds per water nipple (also in the previous voluntary system).
 - The mandatory installation of backup electrical and alarm systems (also in the previous voluntary system).
- **Training.** There is a clearer definition of what is required for holding owners. Training must cover legal provisions for animal welfare and measures to take in the case of disease outbreaks and epidemics. There is also an additional training requirement for personnel who perform catching and depopulation.
 - There are also **minor modifications** which build on the Directive. For example, documentation on broiler house design should include information on the technical control of the ventilation and alarm systems.

Finally, the requirements of Annex II of the Directive (for higher stocking densities) relating to house design and environmental parameters apply to all stocking densities in Germany, including those under 33 kg/m².

Certain aspects vary between German Länder:

- Inspections are performed by the Länder. These should be relatively uniform across Germany. Mechanisms such as the Ausfühungshinweise assist with a uniform interpretation of the provisions of the TierSchutzNutzTV. These Ausfühungshinweise are constantly updated working documents of the working group on animal welfare (which comprises representatives from the competent authorities of the Länder).
- Training is the responsibility of the Länder and consequently there may be some minor differences.
- The self-inspection obligation may vary slightly between Länder.

As already noted, the vast majority of production is produced to the QS standard which, while identical to the TierSchNutzTV in the vast majority of areas, does introduce some extra provisions (see above).

No provisions for beak trimming and castration are included in the TierSchNutzTV. In the TierSchutzGesetz these practises are only permitted for parent stock, meaning that they are effectively banned for broilers.

Training and guidance for persons dealing with chickens

As required by Article 4 of the Directive, all farmers operating farms with more than 500 broilers would have received basic training as they would need to prove that they were competent to run a farm as required by §17 of the TierSchNutzTV. Farmers with previous professional training⁵⁰, or with three years' experience of operating a farm with more than 500 broilers without any animal welfare issues arising, were exempt from the need

⁵⁰ A full list of qualifying training is set out in article 17 (5); it includes, for example, certain formal education studies in animal rearing, veterinary medicine and agricultural studies.

for further specific training. Persons holding certificates from other EU Member States, EEA countries or Turkey are also exempt from the need for training.

As noted above, in addition to the topics specified by the Directive, legal provisions for animal welfare and measures to take in the case of disease outbreaks and epidemics are also covered by the training.

The organisation and subsequent control of courses is the responsibility of the Länder. Different Länder take different approaches. Some organise training courses themselves, others use an agency/agricultural chamber of commerce or an institute). Not all Länder organise courses. In some cases, owners attend courses in other Länder if there is not enough local demand for training. Courses appear to vary in length with some interviewees stating they last for one or two days while others said courses lasted a week; there are no specific requirements for course length in the TierSchNutzTV.

Interviewees confirmed that participants have to pay for their own training, although this is often partially subsidised by the competent authority via grants to the organisation providing the training; cost will vary between Länder and no concrete data were provided by interviewees. The trainee must take a test at the end of the course and must repeat the course if this is failed.

There were only five courses between 2010 and 2014 on which 97 people were trained; the vast majority of holding owners qualified for one or more of the exemptions from courses mentioned above, usually via more than three years' experience. Courses have therefore only been held for new holding owners⁵¹. One interviewee noted that inspectors have the power to order holding owners to attend courses if it becomes apparent during an inspection that the holding owner does not have the necessary knowledge/level of education.

There is no provision for the issuing of certificates for holding owners which qualify for the exemption based on three years' experience in the TierSchNutzTV; therefore there should be no certificates issued under grandfather rights.

Inspections

Two forms of inspection are performed in Germany.

1. **Inspections at depopulation.** These inspections occur during depopulation and prior to the loading of animals for transport to the slaughterhouse. State veterinarians visit the farm to check the following:

- records;
- the healthiness of the animals (including that they are fit for transport);
- losses during the production cycle; and,
- the use of medication.

These inspections are performed on every farm and every flock. These inspections fulfil the requirements of the hygiene package regulations (Regulations (EC) Nos 853/2004 and 854/2004).

⁵¹ Holding owners have to register their holding by hygiene law (*Gesundheitsrecht*) and so it is possible to confirm whether or not an owner qualifies for the exception by checking if they have been registered as the holding owner for three years before 2010.

2. Sample inspections (in accordance with Regulation (EC) No 882/2004).

These inspections are risk-based. The proportion of flocks checked is in accordance with the sampling requirements of the Regulation; about 5-10% of flocks are checked. The risk analysis used for determining the farms to check includes the results of welfare indicators (mortality, FPD), with higher risk holdings more likely to be visited. These controls are thorough and include the following:

- competence of the holding owner (prior to the visit the inspectors will check if the owner qualifies for the pre-2010 three-year exception to the certificate of competence. If not, the certificate of equivalent qualifications will be checked during inspection);
- stocking density (calculated from the number of animals and surface area of the house);
- vaccine documentation;
- water disinfection;
- lighting levels;
- climatic factors, heating and ventilation;
- feed; and,
- health of the birds through a closer inspection of a sample of the birds (checks for FPD, breast burns, overall development of the birds, etc.).

The plans for these controls and reports on their outcome can be found on the competent authority homepage (BMEL). While the focus of inspections is published in advance on the homepage, the inspections themselves are unannounced. Holdings which have received poor scores from indicators will be aware that they are likely to be inspected in the near future, but will not know the exact date and time of this inspection in advance.

The inspection authorities may bring experts from the chamber of commerce of agriculture (*Landwirtschaftskammer*) to thoroughly measure light and feed quality if the initial investigation by inspectors suggests that there is a problem with either of these.

According to interviewees, problems identified during inspections are primarily related to:

- heat stress during times of high temperatures (sometimes it is technically difficult to control the temperature as required if the weather is particularly hot);
- poor handling by catchers/transporters. This lead in turn to damage and broken wings which can be found in slaughterhouses;
- damage to feet (FPD).

It was noted that following the entry into force of the Directive there are fewer problems with stocking density being exceeded.

Guides to good management practices

A comprehensive guide of good practice was published by the Federal competent authority in June, 2012. The 31-page document titled "*Bundeseinheitliche Leitlinien für die gute betriebliche Praxis zur Haltung von Masthühnern*" covers all aspects of keeping birds, with explanations of the legal provisions in more accessible language and recommendations in some cases.

As explained above, there are also interpretation guidelines intended for competent authorities (*Ausführungshinweise*).

Penalties

Sanctions are uniform across Germany: criminal convictions carry a term of up to three years in jail while administrative convictions carry a fine of up to €25,000. The level of the sanctions depends on the details of the infringement itself including its seriousness, whether it is a first infringement or a repeat, whether it was intentional or unintentional, etc.

There is no central source of data on the sanctions issued between 2008 and 2014.

A5.3.3. Impact and costs of implementing the Directive

A5.3.3.1. Impact of implementation

Interviewee views on the impact of implementation of the Directive in terms of animal welfare were mixed. Various points were made by those interviewed. Notably, one interviewee reported that cumulative daily mortality rates (CDMR) during the whole cycle have fallen. According to industry figures these are now 2.3-2.5% compared to 3.5-3.6% in 2007, suggesting that on-farm conditions have improved (although this does not distinguish between deaths and culling and so could potentially be misleading). The sanctions available were thought to have been an important driver in achieving CDMR figures which are consistently well below the requirements of the legislation. Similarly, DOA was reported to have fallen from 0.3% to 0.15%. This was thought to be partly due to better air quality in transport and better handling and catching, but also due to healthier birds leaving farms due to higher on-farm animal welfare. This higher animal welfare may result from the changes in management practices outlined above. Another interviewee broadly corroborated this, and noted that a generally higher awareness of the importance of animal welfare and the use of animal welfare indicators had contributed to this.

On the other hand, another interviewee said that stocking density had increased and long-standing genetic issues related to fast growth (which can lead to problems with legs) and the need to provide enrichment material had not been addressed. Consequently, animal welfare improvements have been marginal, and related to issues such as heat stress which have been successfully addressed by the Directive.

In summary, some animal welfare indicators imply that there has been some increase in animal welfare and the Directive is likely to have played a role in this. However, certain issues which may cause poor animal welfare issues have not been addressed.

A5.3.3.2. Costs of implementation

Evidence regarding the impact of the Directive on costs is also mixed. The Federal competent authority calculated the expected cost of implementation of the TierSchutzNutzTV prior to its introduction (as required by German law)⁵². Key conclusions of this *ex-ante* analysis were:

- No significant investment costs for the industry.
- Minor administrative costs for the industry as follows:
 - certificate of competence (€8,345.58 industry wide excluding possible training measures);

⁵² This calculation is required by German law. The calculation is performed by working out the extra time needed for tasks based on the category/ability of the workers in question and then converting it to monetary values using the standard rates provided in an official document.

- record keeping (€26.06 per broiler house per year);
- sending of records with flock to the slaughterhouse (€2.48 per flock);
- notification of changes to stocking density to the competent authority (€2.48 per case; but this would not affect all holdings; only 120 cases were foreseen); and,
- notification to the competent authority of changes to the broiler house that could affect animal welfare (€2.48 per case; but this would not affect all holdings; only 100 cases were foreseen).

However, one interview reported that, *ex-post*, there had been various costs which may add up to an extra €0.005-0.01 per kg liveweight (which is a substantial figure in an industry operating with tight margins). These are:

- investment in management practices to prevent FPD (higher cost litter material such as straw pellets);
- investment in technical equipment to fulfil the air replacement parameters. This also impacts on heating costs when in use (i.e. fresh air has to be heated). A commentary paper (Anonymous, 2015) on the avoidance of heat induced stress concluded that support air fans are generally required for higher rates of air change, and that 67 kJ of energy are required per 1 kg for this; and,
- higher costs for day old chicks, transport and for private veterinarians.

Finally, interviewees noted that the higher stocking density permitted since the entry into force of the Directive had a positive financial impact on the industry. However, one interviewee noted that while this higher stocking density had resulted in higher production and revenue, this was offset by the costs outlined above.

The implementation of the Directive was considered to have had a positive impact on the competent authorities. The use of indicators has been important in prioritising inspections. Together with other information sources, indicators allow inspectors to better target inspections and this consequently allows them to be more effective and efficient. Due to the exception from certificates of competence for holding keepers with over three years' experience (which covered the vast majority of holding owners), there was not a significant burden from the training requirements.

According to interviewees there has been no impact on the cross-border trade in live animals; around 20% of live animals have always been sent to other Member States such as the Netherlands and this has not changed due to the Directive. Neither has there been an impact on cross-border trade in poultry meat. No societal impacts were identified by interviewees.

A5.3.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.3.4.1. Recording of welfare indicators at slaughterhouses

Article 19 of the TierSchNutzTV contains specific provisions for the indicators of mortality rate and death in transport. An indicator for FPD has subsequently been formally included through decrees at state level and interviewees confirmed that consequently FPD is now systematically checked. The provisions are relatively consistent between Länder, though it should be noted that some states use the three grade system while others use a four grade system. These three indicators are also included in the QS industry standard. The thresholds for the indicators are set out in Table A5.2 below.

Table A5.2: Indicators and thresholds

Indicator	Threshold
Cumulative daily mortality rate	(1% + 0.06% * number of days) * 1.5
DOA	0.5%
FPD (100 bird sample per flock of 30,000)	20% from level 2 (high grade) or 60% from levels 1 and 2

Source: Federal guidelines, BVEL 2012.

Interviewees reported that the final choice of these three indicators for legal use was made following discussion between the industry and the competent authorities. The Association of German Turkey Producers (*Verband Deutscher Putenerzeuger, VDP*) commissioned a study from Hochschule Osnabrück on a wide range of welfare indicators in the case of turkeys, and identified the three indicators shown in Table A5.2 as the most relevant, easily identifiable, feasible and consistently comparable (i.e. objective); the industry considered the results relevant for broilers as well. The competent authorities had made some previous considerations in the area of indicators based on research such as that completed by the Friedrich Loeffler Institute. Thresholds were set based on such scientific research and following discussions between the competent authorities and the industry. The classification for FPD is based on the two-level Swedish system (which is also used in Denmark, from where the German system derives; this system was originally devised by Lotta Berg and is science-based).

One interviewee noted that the FPD indicator was not introduced initially in the TierSchutzNutzTV for several reasons:

- as noted above, there must be justifiable grounds for introducing any measures which go beyond a Directive at the moment of transposition;
- while there had been research into the use of FPD as an indicator for many years, further advances were made after the entry into force of the Directive showing it as a clearly relevant and linkable indicator; and,
- technical advances made it possible to provide a more cost-effective check for FPD; most notably the development of cameras.

Both levels of the Tierschutzlabel contain additional indicators for ability to walk, use of medicine, injuries and damages. Interviewees reported that slaughterhouses may on their own initiative use other indicators as well for quality control/improvement reasons. However, industry interviewees expressed the strong desire to keep the use of other indicators entirely voluntary given that some other Member States and third countries are using fewer or no indicators at present leading to distorted competition.

Several interviewees believed that animal welfare indicators need to be feasible, relevant, and linkable to causes (i.e. there needs to be clear causality).

Hochschule Osnabrück (2013) concluded that the FPD indicator fulfilled the above criteria and was therefore a suitable indicator. One interviewee explained that FPD is easy to measure with camera systems and is clearly related to a specific on-farm problem (feed quality, stocking density or litter quality), although genetics may also play a role. Indicators connected to slaughterhouse rejects due to damage (e.g. scratches) were considered by Hochschule Osnabrück (2013) to have several possible causes including catching/handling and transport (this was also corroborated by another interviewee, who added that they are consequently of limited use for identifying on farm problems). Breast burns, while a relevant indicator of a problem on-farm, were considered by Hochschule Osnabrück (2013) to be difficult to clarify.

Relevance for animal welfare was considered by one interviewee to be particularly important for indicators. Some indicators will be effectively checked for by slaughterhouses for economic reasons. For example, birds with ascites will have been removed before slaughter anyway as they are dead (plus establishing causality may be difficult). Similarly, birds with breast burns have a significant economic impact so are likely to have been identified.

It was noted by a couple of interviewees that mortality can also be influenced by factors outside the control of the farmer, for example, heat stress due to unexpected temperature changes, or issues with the day-old chicks can lead to high mortality. However, one of these interviewees believed that mortality is an important indicator as it provides a starting point from which to identify issues.

In view of the above issues and the current non-level playing field across the EU in terms of animal welfare indicators, the inclusion of FPD as an indicator at EU level would be seen favourably by several interviewees. Most interviewees felt that other indicators are not relevant or should not be introduced at EU level. However, one interviewee did feel that a wider range of indicators, including further slaughterhouse sanitary indicators, plus on-farm indicators such as gait score and behavioural monitoring should be introduced to improve animal welfare.

A5.3.4.2. Transmission of information and its use on-farm

According to article 19 of the TierSchNutzTV, a written record of the CDMR must accompany the flock to the slaughterhouse along with other information including the daily mortality rates and the breed/sub-breed of the birds. The competent authority is responsible for calculating DOA based on the number of birds arriving at the slaughterhouse.

In terms of FPD, while legal provisions generally foresee that sampling is used (both feet of 100 birds from every flock of circa 30,000 birds), camera systems are used in all large slaughterhouses in Germany and these assess every bird (these account for almost all conventional production; costs prohibit the use of this system in smaller slaughterhouses). The use of cameras, which were installed around 2012, has two main advantages:

- Representativeness: sampling 100 birds from a batch of 30,000 is not considered truly representative; the taken sample may have a higher or lower occurrence of FPD due to the part of the house the birds are from.
- Consistency: for manual checks the person performing controls should be the same person to ensure consistency. However, it is only possible to work 8-9 hours per day and breaks are needed meaning that there will always be some issues of consistency.

Interviewees reported that slaughterhouses keep the indicator data for 24 months. This allows them to check the history of birds from a farm if needed and hence to identify possible systemic problems.

A5.3.4.3. Structure of the data transmission

According to interviewees, in the specific case that threshold levels for indicators are exceeded, then the OV in the slaughterhouse informs the OV responsible for the farm in question (one interviewee reported that this was communicated electronically; another that it is communicated in writing). The OV responsible for the farm may then perform a

risk-based inspection and provide a set of measures that the grower must take to improve conditions; stocking density is also checked. If these measures are not taken by the grower, then the maximum density is reduced to 33 kg/m² until the farm veterinarian is in agreement that the situation has improved.

The administrative system and division of competences in Germany plays a significant role in the speed and facility of data transmission. Each district of a state has a competent veterinary authority which undertakes sampling and inspections. Complications may therefore arise if the slaughterhouse is in a different district from the farm (likely as there are 403 administrative districts in Germany), and communication may be further complicated if farm and slaughterhouse are not only in different districts, but also different states (Jasper, 2017). According to one interviewee, the length of the process for data transmission varies depending on both the Landkreis (district) and its connection to other districts; in the best case it takes one week, in the worst case five to six weeks or longer. The same interviewee noted that if the delay is too long then it becomes very difficult for holding owners to take appropriate action because they can no longer recall the management details for specific flocks.

Interviewees reported that growers will also receive a report from the slaughterhouse on the indicators for every flock sent, regardless of the results of the official checks on indicators. Consequently, growers should be aware if there is an issue prior to any contact from the OV. This transmission can be electronic and/or written (it is generally the former), and is received within 24 hours of slaughter.

A5.3.4.4. Impact of the use of welfare indicators and method of transmission

As previously noted, the use of indicators and the potential sanctions for infringement of these indicators are considered by some interviewees to have led to an improvement in animal welfare. However, as noted above, one interviewee felt that a wider range of indicators were necessary to really make a positive difference to animal welfare.

Interviewees reported the following impacts on growers:

- A higher investment in litter material is required to ensure that there are no problems with FPD.
- There is additional administrative burden with the obligation to enter information in respect of indicators (there are 1,084 entries for a 34 day growing cycle). That said, the ex-ante competent authority evaluation estimated this to be a low cost (see above).
- There are potential problems for growers where indicator thresholds are breached. Most notably there may be economic costs in terms of necessary changes to feed, stocking density or litter to address negative results, and economic sanctions (up to a fine of €20,000) for growers. If the stocking density is lowered as a result of breaching indicator thresholds then there are further economic losses. In the context of the latter, certain interviewees believed that the identification and resolution of the problem should occur before any fine is imposed, particularly given the difficulty in establishing the cause of problems which are indicated by higher mortality.
- Growers can benchmark their performance against other growers; this was considered a positive impact. The perceived positive impact of the indicators on animal welfare by some interviewees was also noted to potentially assist farmers with their productivity and economic performance.

At the slaughterhouse level, the use of indicators was not considered to have impacted on line speed, partly due to the use of camera systems to assess FPD scores. However, it was noted that a camera system and an operator are required, both of which incur costs. One interviewee estimated the cost of a camera system to be around €180,000 EUR per line, and the net cost of the assessment of the FPD indicator through slaughterhouse camera installation, operation and preventative/corrective on-farm measures to come to €0.02 per bird, which is offset by €0.005 per bird in resulting benefits⁵³.

One interviewee noted that slaughterhouses receive information to allow them to monitor grower performance and identify those which are performing less well. The uniform use of indicators across Germany was also noted to address the potential issue of "slaughterhouse tourism", though without unified indicators at EU level this remains a potential cross-border risk.

No negative impact for competent authorities was reported. Indeed, the use of indicators was seen positively by competent authorities as they receive useful information which informs the risk-based analysis for controls under Regulation (EC) No 882/2004 and which allows them to take suitable actions. Competent authorities already had the obligation to perform checks on farms and in slaughterhouses under the hygiene package and this has not changed.

Finally, certain interviewees felt that the use of indicators did present a potential risk as it may open the discussion to the public, hence facilitating uninformed/unfair criticism.

⁵³ This is an estimate; no official calculations of the cost to the industry of using indicators had been performed.

A5.4. Italy

A5.4.1. Introduction

The Directive is implemented in Italy through Legislative Decree N° 181 of 27 September 2010 which transposes the Directive into Italian legislation. As foreseen in the Decree, Articles 3, 4, 6, and 8, the Ministerial Decree of 4 February 2013 implements other requirements, including criteria for the determination of the stocking density; training; and, transmission of information about animal welfare indicators. Further elements for the implementation of the Legislative Decree are also contained in the National Programme on Animal Welfare 2015-2018 and in the National Annual Plans on Animal Welfare of 2013 and 2016, which are both focused on the broiler sector.

Interviews for this report were carried out between July and September, 2016 with the Italian Competent Authority (Ministry of health, Ministero della salute), the Italian association representing the sector business operators UNAITALIA; and the Italian branch of the NGO for animal welfare, Compassion in World Farming (CIWF). Some specific questions on technical aspects of indicators were also raised to the National Centre for Animal Welfare, which assists the CA on technical issues related to the implementation of the Directive in Italy.

A5.4.2. State of play of the implementation of the Directive

A5.4.2.1. Broiler production in Italy

The structure of the Italian broiler industry

Italy is one the most important producers of broiler meat in the EU; Italian production accounts for around 8% of total EU production (Figure A5.3). Between 2009 and 2014 production increased by 131,000 tonnes to a total of 0.875 million tonnes. The total sector turnover in 2013 was €4.6 billion (Nomisma).

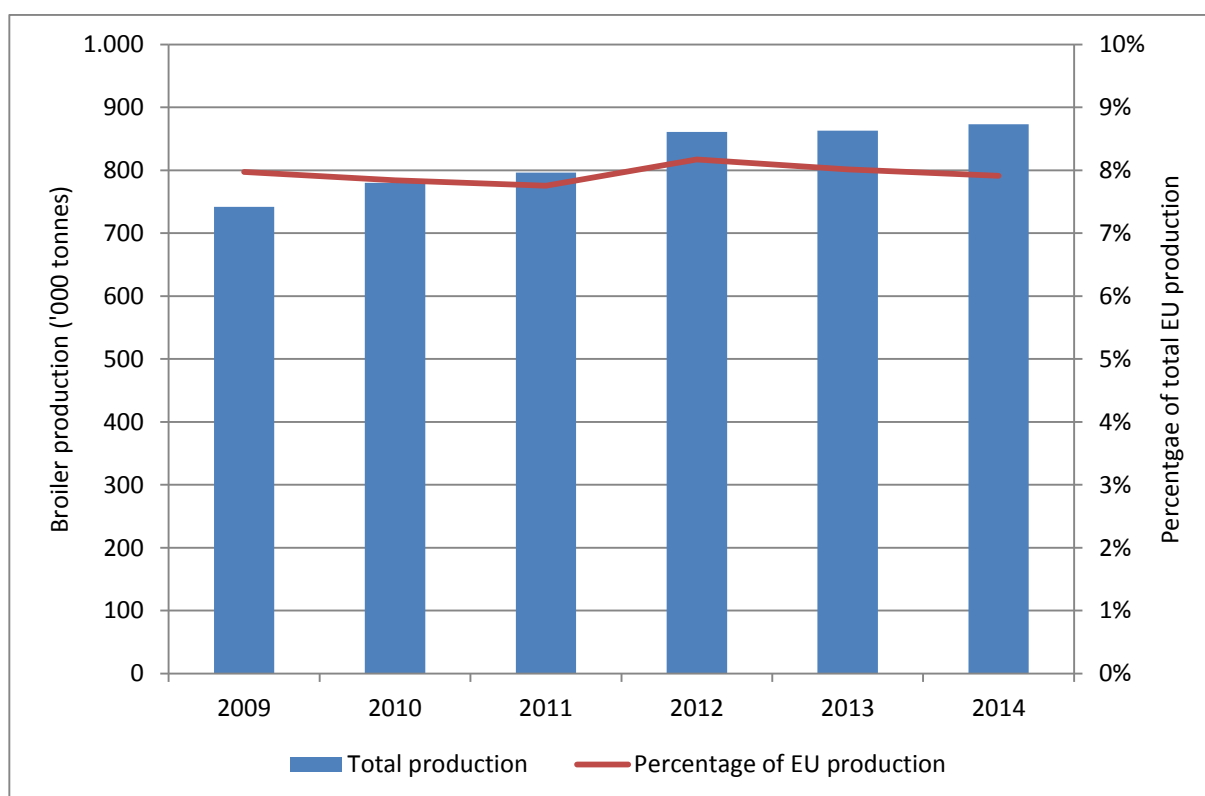


Figure A5.3: Broiler production in Italy and share of total EU production (source: Eurostat, 2016)

The Italian broiler sector is made up of 2,716 rearing facilities, 576 meat cutting facilities, 98 food processing facilities, 474 feed production facilities and 82 hatcheries⁵⁴ (Nomisma).

The Italy poultry sector is self-sufficient with an exportable surplus of 6.4% in 2014. Domestic consumption is increasing slowly (+0.7% between 2013 and 2014). Within the poultry category, the consumption of chicken meat increased by 2.1% while turkey consumption fell by 3.2% (UNAITALIA, 2014).

In term of structure, the sector is highly integrated and concentrated: the largest four operators have a share of 81-90% of total Italian broiler production. The two biggest firms (AIA - Veronesi and Amadori) have a combined market share of around two-thirds of total production. The supply chain is also vertically integrated: large and medium producers generally own feed facilities, hatcheries and meat cutting/food processing facilities. According to Nomisma, around 90% of holdings are linked to processors by "soccida" contracts, a contractual form where the processor ("soccidante") supplies all the production inputs to the growers ("soccidario") with the exception of labour and plant facilities (i.e. chicks, feed). Growers follow the rules of production set by the processors who, at the end of the production cycle, purchase the birds.

Production is geographically concentrated in three regions of Northern Italy: Veneto (43% of total Italian broiler production), Emilia Romagna (16%) and Lombardia (11%).

⁵⁴ Feed processing facilities include also facilities which produce feeds for other sectors while hatcheries can also be part of the laying hens production chain.

The implementation of the Directive is generally not considered to be a key driver of the evolution of the sector. The factors that do influence the sector are reported in the PEST analysis below.

- Political: the issue of antibiotic use is particularly relevant now and is likely to remain so in the near future. The strong relationship between high doses of antibiotics and a poor animal welfare environment has been highlighted by industry and by NGOs. In this light, the actions which will be undertaken at EU and Member State level on this issue will have a strong impact on the sector.
- Economic: the main economic driver is price. Strong, price-based competition is considered to be among the main obstacles to the introduction of (more expensive) voluntary higher animal welfare standards. According to an estimate by an animal welfare NGO, the price premium for products from animals raised to higher animal welfare standards is in the order of 10-15%, which is not considered high given that poultry is relatively cheap. However, consumers are not considered prepared to pay a premium for higher quality attributes, including higher animal welfare. Producers are able to sell higher welfare products under label, although only around 5% do because of perceived low consumer demand. Furthermore, the retail sector has not developed voluntary standards and schemes for its suppliers and does not plan to develop them in the short-term. The industry considers the poultry market to be saturated with only a small growth potential, mainly driven by the substitution of poultry for red meat protein sources.
- Another important driver of the sector is the development of an export strategy. Italian producers currently export only a small quantity of their product, mainly to Germany, and, while Italy is self-sufficient, the exportable surplus is relatively small. However, in order to develop their markets, Italian producers should be able to target exports more aggressively.
- Social: broilers do not raise among consumers the same level of empathy of other animal species. As a result, consumer concern for broiler welfare is relatively restricted. The market share of product certified with higher standards in terms of animal welfare (e.g. organic; voluntary label scheme) is still under 5% and is not expected to increase, at least in the short-term.
- Technological: technological drivers have not been identified.

Broiler management on commercial farms

There are no national guidelines or voluntary schemes or standards in Italy which differ from the provisions foreseen in the Directive.

The majority of Italian broiler operators stock at 39 kg/m², the first level of derogation to the density allowed by the Directive. The production cycle lasts around 40-60 days, depending on the model followed. In certain cases, when the maximum stocking density is almost achieved, the flock is thinned. Thinning only occurs once in the production cycle.

In relation to the other parameters, again the Italian law strictly follows the Directive in terms of heating, ventilation, light, etc. Annex I of Legislative Decree N° 181 lists all the rules applicable to rearing facilities, which are the same as included in the Directive. It is very unusual in Italy for broiler houses to have windows, but these are not foreseen in the Directive, nor the related transposition Decrees. Farm records are kept for three years and contain all the information foreseen in Annex I of the Directive: i.e., name of the keeper, number of heads, type of breed, mortality rate and causes of death of animals.

Beak trimming is allowed only under authorisation of the official vet, but is generally not carried out. Castration is allowed, but it is generally carried out only on capons, which represents a small proportion of total broilers (around 10,000 animals a year).

Breeds used

The main breed used in Italy is Ross and this has been the case for some time. One interviewee explained that the absence of a minimum length of production cycle in the Directive has exacerbated the diffusion of fast-growing breeds. Less than 1% of total production is accounted for by slower growing breeds in Italy.

Employment on commercial farms

The Italian poultry sector is not particularly automated when compared to other Member States (e.g. the Netherlands). However, automation is increasing, in particular during the slaughtering and post-slaughtering phases of the chain. At the level of rearing facilities, all activities related to feed distribution and water distribution are automatic, while loading/unloading of chickens for transport remain manual activities.

According to the industry, large broiler farms typically employ two workers and smaller farms just one. In both cases additional staff are employed for specific periods of the production cycle (depopulation, cleaning). From this basis it is possible to estimate that the 2,716 commercial broiler farms (i.e. those with more than 500 birds) employ between 5,000 and 6,000 workers. According to the industry, the post-slaughter phases employ around 18,000 workers. Amadori, one of the two largest Italian poultry processors, has over 7,200 employees. The other large producer, AIA-Veronesi, employs around 7,400 staff. Both these estimates include the number of employees in the directly controlled chain (e.g. hatcheries, feed production facilities, food processing facilities, local branches).

A5.4.2.2. Implementation of the Directive

Requirements for keeping chickens

In general, the implementation of the Directive did not lead to a change in management practices on holdings. Most of the provisions foreseen in the Directive, and in the related transposition Decree, were already in place before implementation.

According to the industry, the stocking density did not change post- implementation: a stocking density between 33 kg/m² and 39 kg/m² was common before 2010. However, according to the animal welfare association interviewed, and in line with information collected, now almost all growers stock at 39 kg/m², including those who used to stock slightly below this level. In conclusion, it is possible that stocking densities actually increased slightly following the implementation of the Directive.

Growers submit a request to stock above 33 kg/m² to the local veterinary authority (generally called Unità Sanitaria Locale, USL, but also Azienda Sanitaria Locale, ASL, or Azienda Unità Sanitaria Locale, AUSL, depending on the region). The following documents, listed in Annex 2 of the Ministerial Decree of 4 February 2013, should be included in the dossier for the request: a plan of the rearing facility; a technical report with information on the rearing methods; a technical report with the description of the environmental parameters of the facility; and, a flock-thinning programme which ensures the respect of the maximum allowed stocking density. The USL examines the documents and visits the rearing facility. If compliance with the requirements of Legislative Decree

N° 181 is verified, the derogation is approved. Generally, this is a quick process and requests are never rejected because growers present the dossier for the request of derogation when they are compliant with all the requirements. The USL informs the Ministry of Health of the approval of the derogation, but it is only a formal step which has no practical consequences.

The second level derogation of stocking density (between 39 kg/m² and 42 kg/m²) has never been requested. Stocking at this density is not considered to be efficient in the Italian production system. In fact, in the current production system, with production cycles lasting for up to 60 days, the use of the derogation leads to a higher mortality rate. This undermines the economic rationale for using the derogation. Furthermore, the criteria to obtain the second level derogation are considered to be quite burdensome by growers.

The majority of the requirements of the Directive in terms of light, feed, drinking, noise, ventilation and heating were generally already applied before 2010 and were considered as normal practice for Italian poultry farmers. The main difference identified since the implementation of the Directive is that more attention is now paid to the control of these parameters and there is greater awareness among growers, but despite this, the overall management system itself did not change. On the other hand, the practice of replacing all litter before a new flock is introduced was not widespread before 2010. The litter was replaced, but less frequently, and not after each production cycle. This practice is now mandatory and is implemented by all operators. According to the competent authority, the main reason for this decision is the importance of clean litter in preventing the spread of illness among the flock and between successive production cycles. Improved animal welfare was also an important factor, although the main determinant was the need to limit the biosecurity risks.

Training and guidance for persons dealing with chickens

Before the implementation of the Directive, keepers of the animals did not receive any training. Following the transposition of the Directive into Italian law, UNAITALIA, the main sector organisation, decided, in collaboration with the Ministry of Health, to take responsibility for the organisation of training and its funding. According to UNAITALIA this was considered the most efficient way to ensure access to training in the foreseen timeframe to avoid any non-conformity for companies and avoid the costs of training (both financial and in terms of time) for individual companies.

Provisions relating to training courses are mainly set out in the Ministerial Decree of 4 February, 2013 which regulates the length of the courses, the skills of the teachers, the organisation in charge of the management of the training and the rules concerning the final test which must be passed to receive a certificate.

A total number of 43 training courses have been organised since 2013, the first year of implementation. UNAITALIA directly organised 26 training courses itself and supported other sector associations (i.e. the farmers' association COLDIRETTI) in the organisation of courses in regions with a higher density of broiler growers. Sector associations transmit data on training courses to the National Centre for Animal Welfare which maintains the database with the number of courses carried out and of the training certificates issued.

UNAITALIA, and the other associations providing training, organise all the aspects of the training, i.e. selection of the teachers, venues and subscriptions. Since 2013, the year in which the requirements were set out in the Italian implementing legislation, around

2,000 growers have attended training courses and gained certificates following the test. Most of these, 1,804, were trained in the first year in which training was available (2013). Training courses are at least eight hours in duration and the topics covered include all the provisions of the Directive in terms of animal welfare, biosecurity, welfare indicators, culling, and other practical aspects for the management of a poultry farm. A further 1,113 certificates have been issued under Article 4.4 (equivalence or Grandfather rights), transposed in Italian law in Article 3 (7) of Ministerial Decree of 4 February, 2013.

The average national costs of participation in training courses is low at around €30. This estimate includes the cost of issuing the certificate, which varies regionally between €7 and €52, and all the other logistic costs. The Competent Authority does not bear any costs related to the training.

Inspections

According to Legislative Decree N° 181 of 27 September 2010, Annex I, section 8, keepers of birds should inspect the flock two times each day and should give particular attention to all the situations which can be considered to be a sign of poor animal welfare. The keepers also record the daily mortality rate and from this calculate the daily cumulative mortality rate. Records are kept by the holding for at least three years. A copy of the records forms part of the documentation which accompanies the flock to the slaughterhouse.

Inspection at the farm level is based on the National Programme on Animal Welfare, updated every four years and implemented at the local level by regional authorities through their local official veterinary services. During the inspections, official veterinaries monitor several parameters contained in the check list annexed to the National Annual Plan on Animal Welfare of 2013. These parameters are classified in the following categories: staff (e.g. training courses); animal visual inspections (e.g. presence of food pad lesions); farm records (e.g. keeping of records and accuracy of compilation); stocking density; environmental parameters (e.g. heat, ventilation, functioning of alarm); mutilations; and, litter. The parameters included in the check list do not include specific indicators of animal welfare, but the Official Veterinarian inspects the animals for signs of poor animal welfare conditions. In case of the identification of non-conformities, the Official Veterinarian is responsible for deciding the seriousness of each infraction and calculating the penalty. Within this framework, inspections at farm level can lead to three different types of infractions:

- Type A: light infraction, the grower/owner has three months to remedy the infraction then the system of penalties described in following paragraphs is applied.
- Type B: medium level infraction, the grower/owner has six months to remedy the infraction then the system of penalties described in following paragraphs is applied.
- Type C: severe infraction, the system of penalties described in following paragraphs is immediately applied.

Currently, the inspection regime is based on the National Programme of Animal Welfare of 2015-2018. According to the Programme, inspections of the Official Veterinary should be made in at least 10% of broiler farms which have more than 500 birds. However, generally around 25%-30% of broiler farms are inspected each year. Within the framework of the national objectives defined in the National Programme, local veterinary authorities define their inspection plan and carry out inspections. Hence, each region should ensure the inspection of at least 10% of the broiler farms which have more than 500 birds located in its territory. Regional authorities send an annual report containing a

description of the performed control activities and the results to the Ministry of Health. Each year the Ministry of Health publishes the results of the inspections in the Annual Relation to the National Programme.

In the 2015 report, the Official Veterinary inspected 668 farms, around 23% of total commercial broiler farms. Some 29 cases of non-compliance were recorded, followed by 9 measures following type A infractions, 17 following type B infractions and 3 following Type C infractions. The majority of infractions were related to irregularities in rearing facilities (i.e. in terms of light, feed, drinking, noise, ventilation and heating parameters) and in the management of staff.

During the inspection the Official Veterinary records all the relevant data. Documents setting out the results of the official inspection accompany the flock to the slaughterhouse. Inspections can result in the activation of the penalties regime described below.

A small number of inspections at farm level are carried out on the basis of reports of citizens or of animal welfare NGOs. In this case, the inspections can be carried out by the police departments in charge of food and health frauds (Nucleo Antisofisticazione e Sanità, NAS) or by local veterinary services or by a combination of the two, depending on the situation.

Guides to good management practices

Article 7 of the Legislative Decree foresees the development of guides to good management practices. According to the Decree, sector organisations should develop such guides and the Ministry has a role in the control of their contents. However, no national guidelines to good management practices have yet been approved. UNAITALIA is developing a handbook of good practices, but this is not yet finalised and, as consequence, not approved by the competent authority. Furthermore, there are no voluntary schemes in place, or specific requests from retailers or other end users for growers to develop and follow stricter animal welfare rules.

In collaboration with the Ministry of Health, UNAITALIA is also developing a check list for growers with the objective of monitoring and reducing the use of antibiotics during chicken rearing. The use of antibiotics is considered by industry and by the animal welfare NGO as related to wider animal welfare issues because a reduction in the use of antibiotics cannot be achieved without the implementation of good animal welfare standards. However, an animal welfare NGO reported that this check list has several limits. In particular, its implementation is voluntary and there is no monitoring system in place. In this light it is not possible to link the use of the check list on antibiotics with an improvement in animal welfare indicators. The Ministry of Health is also developing a centralised database to monitor the sales of antibiotics which should also allow the monitoring of their use.

Penalties

The use of penalties is not frequent in the Italian system. In most cases, the Official Veterinarian that identifies non-conformities during inspections sets a period during which the grower/keeper can remedy them (infractions of type A and type B). Only in cases of severe non-conformity (infractions of type C), are penalties immediately applied. In case of infraction of type C, or if the grower does not remedy the problem within the established timeframe (infractions of type A or B), a fine is levied. The level of the fine varies by severity of infraction from €400 to €9,300.

The Annual Relation to the National Programme does not report the outcome of the inspections in term of penalties and fines. The competent authority does not know, after the transitional period foreseen for type A and B infractions, how many fines were notified, because regional authorities are not requested to report this information. In 2015, at least three fines were notified (one for each type C infraction recorded). The industry association is only aware of two of these, notified for failing to take part in a training course.

As a form of penalty for poor animal welfare the competent authority can also revoke the right to use the stocking density derogation of up to 39 kg/m² for one year if one of the following situations occurs:

1. During an inspection of the holding by the competent authority, the environmental parameters required under the stocking density derogation are not in place.
2. Serious breaches of animal welfare are identified during the inspection.
3. Three reports of poor animal welfare are made by the slaughterhouse; there is no time limit within which these should be made (see also below).

In all these cases the derogation is revoked. The grower can submit a new request to use the derogation after one year following the same procedure (i.e. there are no special requirements for growers who have previously had the right to use the derogation revoked).

A5.4.3. Impact and costs of implementing the Directive

A5.4.3.1. Impact of implementation

In general, neither the industry nor the animal welfare NGO thought that the Directive had had an important impact on the evolution of the sector, or in terms of increasing the overall animal welfare on farms. However, according to the industry, the implementation of the Directive could have accelerated changes already in progress in the Italian sector, although it mainly confirmed the practices already used by Italian poultry farmers before 2010. Two main differences following implementation were reported:

- Practices which were followed, but which were not monitored are now implemented with more precision in order to avoid any non-conformity. For example, the light/darkness cycle is now strictly followed, while before 2010 this was not regulated, even though standard practice was very similar to the current requirements.
- The provision related to training had a strong positive impact on the skills of operators and almost all growers have now successfully completed training courses. In the last year the competent authority carried out a large number of inspections related to training and only two operators without suitable training were identified.

The animal welfare NGO interviewed explained that the Directive has had a very low impact in terms of consumer education and, as consequence, on their purchasing habits (there is though no provision within the Directive to inform consumers, so this is not a failure of the legislation). From their perspective, in terms of communication with consumers, the least technical parameter that can be understood is stocking density. However, this parameter is expressed in kg/m², a measure which is not understood by the general consumer (birds per area would be more intuitive). According to this NGO, compared to other EU legislation on animal welfare (i.e. Council Directive 1999/74/EC on laying hens), the Directive did not impact significantly on animal welfare. The Directive sets relatively low standards, in particular regarding the derogation of stocking density widely used in Italy (39 kg/m²) which is considered to be too high. Finally, the Directive does not include any requirements relating to environmental enrichment and does not regulate the use of the fast-growing breeds, the length of the production cycle or the practice of flock-thinning, which is considered to have negative animal welfare and animal health implications in terms of overall animal stress and of the introduction to the building of external factors potentially dangerous for animal health.

A5.4.3.2. Costs of implementation

In the light of the modest impact on management practices, the Directive also had a very low impact in term of implementation costs. Most Italian producers had already introduced the requirements foreseen in the Directive and faced the related costs before implementation in 2010, thus the Directive did not bring further costs of implementation for operators.

There have though been costs for the national Competent Authorities. Since 2013, the department in charge of farm animal welfare in the Ministry of Health has employed two, rather than one, full-time officers. However, this is not only the result of the implementation of the Directive, but also of other legislation on animal welfare. Furthermore, in 2003 the Ministry created the National Centre for Animal Welfare (*Centro di Referenza Nazionale per il Benessere Animale*, CRenBA) based in Brescia to support the Ministry on the technical aspects of animal welfare, which includes also the implementation of the Directive (i.e. developing animal welfare indicators). However, again, this cost is also partly driven by the needs of other implemented animal welfare legislation. According to the National Centre for Animal Welfare, there is currently one officer working exclusively on the poultry sector. However, even though this officer now deals mainly with aspects related to the implementation of the Directive, it should be noted that this person was hired in 2008, i.e. before the implementation of the Directive.

It is not possible to estimate the costs incurred by regional authorities or by the local veterinary authorities, because they do not report these to the Ministry. However, the Ministry of Health estimates generally high costs for hiring the necessary staff to handle the provisions on inspections introduced under the implementation of the Directive. There is also a need to train Official Veterinarians leading to increased costs for them.

A5.4.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.4.4.1. Recording of welfare indicators at slaughterhouses

The Italian process of recording indicators at slaughterhouses and of their transmission was described in general terms in the Legislative Decree N° 181 and in the Ministerial Decree of 4 February 2013. However, the Ministry of Health clarified many aspects,

including the list of indicators to be monitored and their trigger levels, in the National Plan on Animal Welfare of 2013 and in the National Plan on Animal Welfare of 2016.

Both at farm level and at slaughterhouse level, animal welfare indicators are monitored and recorded only if the stocking density derogation applies. In Italy, where the derogation to stock at up to 39 kg/m² is widely used, this means that all flocks are monitored.

The process has two components:

1. At **farm level**, growers record the following indicators/features of the batch: daily mortality rate; daily cumulative mortality rate; number of broilers which started the production cycle; total available area for animals in the building; type of breed; number of culled broilers and causes; and, number of broilers in the flock after each thinning process. These data are separately collected for each flock reared in the same building and in a shared space. A report containing all these data is part of the documentation sent to the slaughterhouse with the flock (accompanying documents). The 2016 National Plan on Animal Welfare introduced an additional, new provision: growers need to indicate on a specific document if the trigger level of CDMR was exceeded. The farm veterinarian also reports an explanation of the possible causes of the breach of indicator level. The records are generally in paper form and should be kept for three years.
2. At **slaughterhouse level**, the Official Vet, who is always present in the slaughterhouse, checks the CDMR level recorded on the accompanying documents and registers the number of broilers DOA. The Official Veterinarian also evaluates the general condition of the animals in terms of animal welfare. Only in cases where one or more of these three indicators (CDMR, DOA and overall animal condition) is/are considered as non-regular (see Table A5.3) will the Official Veterinarian proceed with the monitoring of two *post-mortem* indicators: FPD, classified using the Swedish system, and sanitary and hygienic waste, i.e. rejections not fit for human consumption.

The National Plan on Animal welfare of 2013 set initial trigger levels for each indicator, but these levels were revised (made stricter) in the National Plan on Animal Welfare of 2016. Current indicators and related trigger levels are shown in Table A5.3.

Table A5.3: Trigger levels used by indicator

	Indicator	Trigger level
1	CDMR	$\geq 2 + 0.12 \times \text{number of days } \%$
2	DOA	$\geq 1.5\%$
3	Overall condition of animals	
4	Sanitary and hygienic waste	2% of the number of slaughtered animals
5	Foot pad lesions	≥ 100 , checked on a sample of 200 feet with the following formula: $\left[\frac{(\text{Score "0"} \times 0 + \text{Score "1"} \times 0.5 + \text{Score "2"} \times 2)}{200} \right] = X^{55}$

Compared with the original levels set in 2013, there have been three main modifications:

⁵⁵ Foot-pad lesion score "0", slight discoloration; Foot-pad lesion score "1", scabs on less than 50% of the foot; Foot-pad lesion score "2", large scabs on more that 50% of the foot.

1. A slight change in the formula for the calculation of CDRM. The DG Health and Food Safety Audit Report carried out in 2014 in Italy (European Commission, 2014a) reported that the formula used to calculate the CDMR was as incorrect. The change of the formula addressed this point.
2. The trigger level associated with the DOA indicator was reduced from $\geq 3.0\%$ to $\geq 1.5\%$. Initially the trigger level for DOA was quite high. This was set high intentionally to provide a transitional period for growers and slaughterhouses following implementation of the provisions of the Directive.
3. The number of feet checked for the FPD indicator was increased from 100 to 200.

Where trigger levels for any indicator are exceeded for the first or second time (without time limit), the Official Veterinarian informs the local competent authorities (local offices of official veterinary) and the grower/owner. If a trigger level is exceeded for a third time the Official Veterinarian again informs the competent authority and the grower/owner, but on this occasion the right to use the stocking density derogation is revoked for one year.

A5.4.4.2. Transmission of information and its use on-farm

The process of transmission of data was described in the National Plan on Animal Welfare of 2013 and then clarified through a flow diagram in the National Plan on Animal Welfare of 2016.

The Official Veterinarian identifies poor animal welfare in the slaughterhouse only if both of the following two conditions occur:

1. The OV identifies no-compliance with the trigger levels in one or more of the following indicators: CDMR, DOA, overall condition of animals.
2. The OV identifies non-compliance with trigger levels in at least one of the two indicators on animal welfare monitored through the *post-mortem* inspection: FPD and sanitary and hygienic waste.

Where these conditions are met the OV sends a report containing this information to the growers/owners of the batch and to the local Official Veterinary services.

A5.4.4.3. Structure of the data transmission

The Official Veterinarian generally sends information to growers/owners by email and records them through an informatics system in the database of the local authorities. The transmission of information takes place generally within a few hours from the conclusion of the inspection in the slaughterhouse. However, each local authority implemented its own specific method for the transmission and the recording of information and this cannot be generalised at the national level.

A5.4.4.4. Impact of the use of welfare indicators and method of transmission

Clear impacts of the use of welfare indicators and method of transmission on animal welfare have not been identified. The main reason for this is that the link between the identification of poor animal welfare at the slaughterhouse, the transmission of related data to the growers and to the competent authorities and their use to change the management practices is not clear. The only clear effect is where the right to use stocking density derogations is revoked where poor on-farm animal welfare is identified at the slaughterhouse on three separate occasions. At the moment, it has not been

possible to identify how many times this situation has occurred or whether the implementation of the Directive has had any impact on this. According to the Ministry of Health, this is not a common occurrence, however there is no centralized system for monitoring these data. Only local competent authorities have a clear view of the situation in their area and record the violation of trigger levels. Official inspections of holdings are not influenced by the results of the transmission of this information to the local competent authorities. Finally, according to the NGO, the inspections system itself has had no impact on animal welfare on-farm, mainly because of the absence of clear indicators and related thresholds to be measured during the monitoring process.

In terms of costs/burdens on growers resulting from the use of indicators, the industry association and the competent authority pointed out that the calculation of the CDMR represents a strong negative administrative burden for growers. According to the industry the calculation of the CDMR is considered over complicated and not useful in improving animal welfare. The National Centre for Animal Welfare, on the basis of a request of the Ministry of Health, developed an Excel file to facilitate the calculation of the CDMR. However, many growers do not have basic IT skills and the ability to use this calculation is still a barrier. Furthermore, there is a physical burden caused by the use of paper accompanying documents. In fact, a report of numerous pages (at least one for each day of the production cycle) is sent with each flock to the slaughterhouse. Growers have some difficulties in handling all these paper documents. This limit is more evident in case of capons, which have a longer production cycle. At the moment, there is no centralised national database in which to record data against the indicators. As a result, the Ministry of Health does not have a complete overview of the situation at the regional level and cannot properly monitor the implementation of the Directive. However, the competent authority is developing a dedicated system which should be launched in 2017 in order to allow monitoring at the national level.

A5.5. Netherlands

A5.5.1. Introduction

Interviews were held with NEPLUVI, Nederlandse Vakbond Pluimveehouders and LTO Netherlands, representing the industry, on 14 July, 2016 and with the competent authority (Netherlands Consumer and Food Safety Authority (Nederlandse Voedselen Warenautoriteit – NVWA) and the Ministry of Economic Affairs) on 15 July. An interview with an animal welfare NGO Dierenbescherming was held on 18 July, 2016.

The Directive has been transposed into national law by two pieces of legislation, a Broiler Decision (Vleeskuikenbesluit 2010) and a Broiler Regulation (Regeling Vleeskuikens, 2010), both of which entered into force on 1 February, 2011. The other pieces of relevant national legislation are the Animal Keepers Decree (Besluit houders van dieren, 2014) and the Animal Keepers Regulation (Regeling houders van dieren, 2015) which explain in more detail broiler welfare requirements.

The national legislation goes beyond the requirements of the Directive and aims to address the incidence of FPD in holdings with the highest stocking densities. If the stocking density is above 39 kg/m², a grower is obliged to monitor the average annual FPD score for each house and transfer this data to the database administered by the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland-RVO).

Furthermore, growers have to comply with a guide to good management practices when the stocking density is above 39 kg/ m². A manual of good practice has been developed by the Product Board for Poultry and Eggs (Produktschap Pluimvee en Eieren-PPE)⁵⁶ and is available for growers.

A5.5.2. State of play of the implementation of the Directive

A5.5.2.1. Broiler production in the Netherlands

The structure of the Netherlands broiler industry

The Netherlands is the sixth largest broiler producer in the EU (Figure A5.4Figure A5.4: Broiler production in the Netherlands and share of total EU production (s), accounting for 7% of total EU broiler production in 2014. Although the output of the broiler industry in the Netherlands increased slightly between 2009 and 2014, its share of total production in the EU remained almost the same, with a drop to 6.7% in 2010 and subsequent recovery.

There are around 650 commercial broiler farms in the Netherlands and broilers are kept primary in intensive conventional production systems. Commercial broiler production in the Netherlands is typically non-integrated with less than 10% of the poultry industry being vertically integrated. As a result, the industry is only moderately concentrated with the largest four operators accounting for 41-50% of total production and the largest eight accounting for 71-80% of total production. The Netherlands poultry industry is export-oriented and about 70% of broiler meat is exported.

⁵⁶ Both the industry and the competent authority noted that this guide would be re-written following the recent division of PPE into separate organisations.

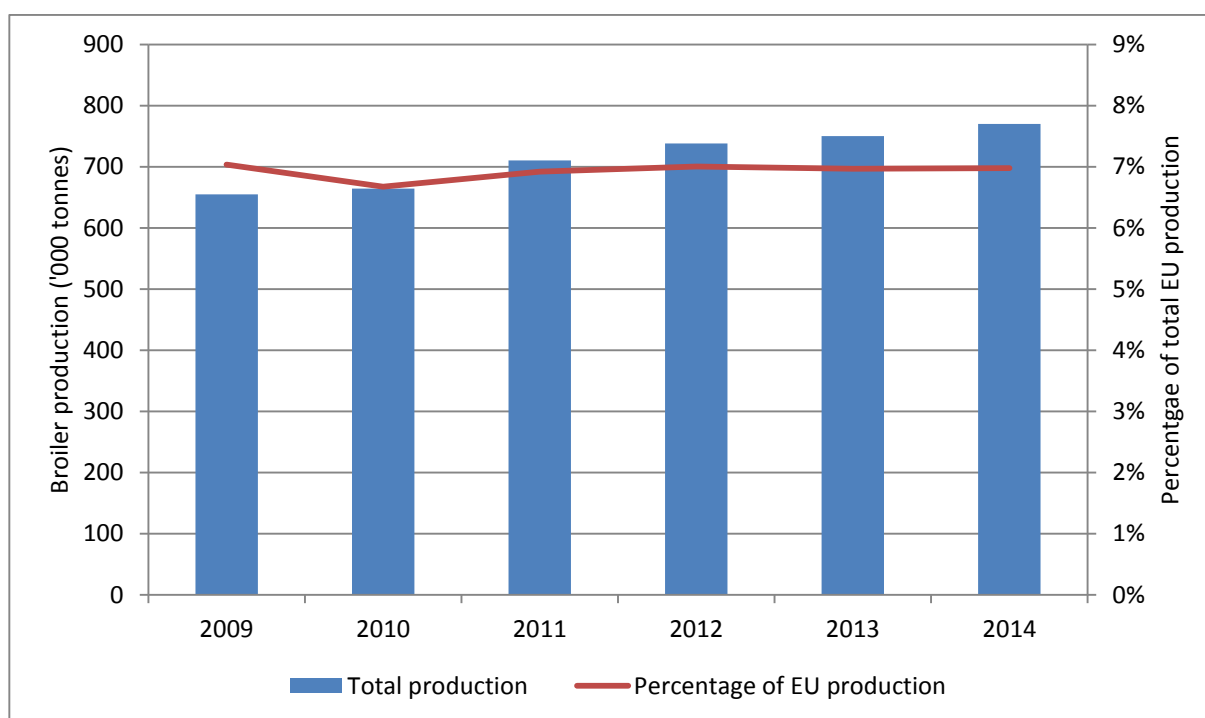


Figure A5.4: Broiler production in the Netherlands and share of total EU production (source: Eurostat, 2016)

The industry interviewees felt that the Directive has had some impact on the development of the sector including a reduction in productivity as a result of the decrease in stocking density from around 50 kg/m² to the maximum of 42 kg/m² permitted under derogation to the Directive⁵⁷.

PEST analysis reveals the following influences over the sector:

- **Political:** animal welfare is a political issue in the Netherlands and some political parties (e.g. the Animal Party) are leading the political discussion against intensive broiler farming.
- **Economic:** the Dutch broiler sector is highly competitive and profit margins are low. This increases downward pressure on costs to remain competitive, particularly on the global market; there is little possibility to extract a premium for higher welfare meat. The growth of the broiler industry is export driven and the global market is price driven and there is no global demand for meat from slower growing breeds.
- **Social:** animal welfare organisations lead an active campaign against intensive broiler industry and influence society views. Consequently, the popularity of quality schemes which have higher animal welfare requirements is growing. For example, there has been a significant increase in demand for the Better Life (Beter Leven) label developed by the NGO Dierenbescherming, which is sold under a higher welfare label. There is also a proliferation of other quality schemes with higher animal welfare requirement such as the slower growing chicken of tomorrow (Kip van Morgen). Some multiple retailers in the Netherlands no longer accept conventional broiler and the industry is therefore under some pressure to shift to the production of slower growing breeds for the domestic market.

⁵⁷ The competent authority thought that stocking densities were around 45 kg/m² prior to the implementation of the Directive.

- **Technological:** Investments in the broiler sector are generally strong, especially investments in the automated systems that regulate ventilation, temperature and water quality. A lot of important manufacturers of poultry equipment are Dutch companies (Marel, Meyn, Vencomatic, Janssen Poultry Equipment, etc.), so Dutch poultry producers have good access to the latest technologies and technical solutions.

Broiler management on commercial farms

The majority of growers in the Netherlands opt to use the highest stocking density permitted by the Directive; 93% of the national flock is stocked at 42 kg/m², 5% at a density between 33 kg/m² and 39kg/m² and only 2% of birds are stocked at 33 kg/m² or lower. There was no permitted maximum stocking density in the Netherlands before the implementation of the Directive, but both industry and the competent authority noted that the majority of growers used to stock broilers at around 50 kg/m².

The typical commercial broiler production cycle is 42 days. Depopulation is followed by an empty period of seven days during which cleaning takes places.

The quality of installations in slaughterhouses (e.g. heating and cooling, ventilation systems) varies from farm to farm, depending on the age of the farm and on the farm income. The competent authority noted that farm income is an important factor affecting broiler welfare because wealthier farmers can invest more to improve their facilities.

Light intensity is kept at least 20 lux at bird eye level illuminating 80% of the house in accordance with the provisions in Annex I of the Directive and in accordance with the guide to good management practices developed by PPE. The competent authority explained that many growers maintain darkness for more than six hours in order to limit the active behaviour of chickens and its negative consequences, such as scratching and feather pecking. The period of consecutive darkness is also longer under the quality scheme "Chicken of tomorrow", which foresees six hours of uninterrupted darkness rather than four.

Air quality is measured in accordance with the requirements for the use of higher stocking densities set in Annex II of the Directive. The concentration of ammonia (NH₃) does not exceed 20 ppm and the concentration of carbon dioxide (CO₂) does not exceed 3,000 ppm measured at the level of the chickens' heads.

Temperature usually ranges from 21 to 34°C and does not exceed the outside temperature by more than 3°C when the outside temperature exceeds 30°C.

There are no provisions in the national legislation informing chicken keepers how to deal with chickens which have walking difficulties, severe ascites or severe malformations. The decision is based on the grower's expertise and experience and these chickens are either treated or culled. The help of a veterinarian can also be sought, as indicated in the PPE guide to good management practice.

Farm records are kept for at least three years as required under Annex I of the Directive. These are kept either electronically or on paper and checked during on-farm inspections.

Beak trimming is permitted in accordance with the national legislation. However, this procedure is not generally carried out for broilers due to the absence of feather pecking problems seen in laying hen flocks. Castration is not permitted in the Netherlands.

All interviewees noted that there have been some changes in management practices during the period from 2008 to 2014. Farmers have started installing heated floors to keep litter dry and improving ventilation systems to reduce air humidity. These changes were driven by the requirement to keep the incidence of FPD below certain levels when using the highest stocking densities. The industry interviewee added that farmers have started experimenting with different types of litter and feed to reduce the incidence of FPD.

New types of houses (Patio houses) have gained some popularity in recent years⁵⁸. This system allows hatching and early rearing to be combined removing the need to transport day-old chicks from hatcheries and allowing immediate access to food and water; chicks are transported to rearing farms at 10 days, but the system can also be linked to rearing houses. The industry claims that this approach results in healthier and stronger chickens and optimises production while reducing the need for antibiotics. It is also possible that the incidence of FPD is lower in these houses, but this claim needs to be substantiated by further research.

Breeds used

Ross is the main commercial breed used in the Netherlands and accounts for 95% of production; Cobb birds account for the remaining 5%. Hubbard is the most popular slower growing broiler breed and accounts for around 90% of slower growth birds with Ross and Cobb lines accounting for the balance.

There has been a shift towards the use of slower growing breeds for the domestic market over the last five years. The share of slower growing breeds increased from a few percent in 2011 to around a fifth of the market in 2016.

Employment on commercial farms

According to the industry, there are around 600 commercial growers in the Netherlands working on their own farms. Another 500 chicken keepers are employed to work on these farms. Additional staff are hired to catch and load chickens for transport.

The degree of automation varies from farm to farm depending a lot on the age of farm facilities, for example, in more modern facilities heating and ventilation are automated. Feeding is almost always automated. However, less than 10% of holdings use automated catching.

A5.5.2.2. Implementation of the Directive

Requirements for keeping chickens

The Netherlands implements all requirements of the Directive. There are two additional requirements in the national legislation applicable for stocking of broilers at the highest densities i.e. above 39 kg/m². First, at the highest stocking densities growers have to monitor the levels of FPD and communicate the annual average score to the competent authorities. Second, growers stocking at this density must comply with the guide to good management practice.

Furthermore, different quality schemes are operational in the Netherlands and these set additional animal welfare requirements.

⁵⁸ See for example: <http://www.vencomaticgroup.com/en/products/broilers/housing-solutions/patio>

- IKB-KIP (accredited in 2008) covers around 90% of the Dutch broiler farms. The farmers who want to comply with this scheme have to apply its specific guide of good management practice.
- "De Kip van Morgen" (The Chicken of Tomorrow) label was introduced in 2013 following agreement between the processing industry and the multiple retailers about the production of broiler meat. The maximum stocking density under this scheme is set at 38 kg/m². The growth rate of chickens is limited to a maximum of 50 g per day, slaughter takes place at 46-47 days and the birds benefit from better living conditions such as better quality litter. Since this agreement entered into force the Dutch retailers stopped stocking meat from broilers not produced to this standard⁵⁹. This initiative was followed by similar schemes developed by specific retail chains (e.g. Jumbo chicken).
- The "Beter Leven" (Better Life) scheme was introduced in 2007 by the animal welfare organisation Dierenbescherming. To qualify for this scheme the stocking density cannot exceed 27 kg/m² and birds should benefit from better environmental conditions. A product is labelled using three star systems according to the quality of the birds' environment. According to the NGO interviewed, around 10% of chicken sold in Dutch supermarkets is sold under this label.

Training and guidance for persons dealing with chickens

The competent authority recognised the experience of chicken keepers who kept broilers before July 2010 and granted them 645 certificates necessary to comply with Article 4 of the Directive ("Grandfather rights"). In addition to this, Groenhorst College Barneveld provides courses for new keepers.

The course on broiler welfare, which complies with Article 4 of the Directive, forms part of the intermediate vocational training offered at Groenhorst college Barneveld and takes three to four years to complete. Some 13 people started this course in the 2010-2014 period and two received certificates.

Short-term courses are available for those not willing to follow this vocational course. These courses follow the topic guide set out in Annex 4 of the Directive and include physiology, biology, broiler welfare, careful handling, emergency care and preventive biosecurity measures. Following the completion of training and examination, chicken keepers receive certificates of competence which are valid indefinitely.

The quality of the course at Groenhorst College is supervised by the Inspectorate of Education. Short-term courses are paid for by keepers themselves (€ 2,000). Long-term courses are considered to be part of vocational training and are therefore subsidised by the government.

In addition, the competent authority indicated that broiler keepers had the opportunity to follow a short training course on FPD in 2011. Support towards the cost of this training was available if growers agreed to apply various measures to reduce the incidence of FPD on their farms.

Farm owners do not have to undertake training as chicken keepers. The competent authority noted that inspectors check whether growers or owners provide instructions or

⁵⁹ In 2015 the Dutch Consumers and Market authority ruled that this agreement distorts competition because there is little difference in the living conditions of chickens reared under the "De Kip van Morgen" scheme and other broilers. Based on this decision, the organisers behind "De Kip van Morgen" were advised to update the scheme.

guidance on animal welfare requirements for employees dealing with chickens and with the catching and loading process, as is envisaged under Article 4 of the Directive.

Inspections

The Netherlands Enterprise agency (Rijksdienst voor Ondernemend Nederland-RVO) registers farms and flocks and also maintains a database with scores of FPD transmitted by growers and slaughterhouses. RVO, together with NVWA, performs the analysis of this data for administrative enforcement and selects farms to be controlled by NVWA which performs the physical inspections. The RVO may undertake corrective actions when non-compliances are detected and may also organise administrative checks on farms and execute administrative penalties.

All new and renovated housing is inspected by NVWA and animal living and welfare conditions are checked as an integral part of these inspections. In addition to this, around 25 random inspections of farms are organised each year. The annual amount of random inspections is determined by taking the square root + 1 of the total number of farms in the Netherlands. Some inspections are also carried out each year based on the risk analysis of the data received by the competent authority from veterinarians and slaughterhouses.

In 2015, 111 farms were inspected, 17 of these were administrative inspections only; the others were also visited. These inspections covered around 17% of the national broiler flock. Sometimes farms receive a second inspection in the case of non-compliance.

One of the most common problems detected during inspections is incomplete documentation, especially regarding daily mortality rates. Another common issue is stocking densities which exceed the permitted level. According to the competent authority, growers also often fail to keep the minimum light of 20 lux in houses. Another issue relating to lighting is long periods of darkness. As the Directive states only the minimum period of darkness and not the maximum, farmers tend to keep the birds in darkness to keep them calm, although this inhibits natural behaviour.

The main problems in relation to transportation are dirty transport facilities and crates and insufficient crates size. As chickens are being slaughtered at higher weights the regular crates are becoming too small for them. There are also animal welfare problems related to the catching and loading of chickens; some catching techniques are stressful for chickens and also increase the risk of injuries. The numbers of DOA and incomplete certificates accompanying the batch are also common problems identified by inspectors.

There are many issues noticed during on-farm inspections that potentially have a negative effect on animal welfare. For example, a large proportion of the floor is wet, some chickens have limited access to litter, long periods of darkness. However, there are no specific references to action which should be taken in the EU or national legislation. In these situations, and in the absence of a legislative base for applying a penalty, inspectors discuss the problem with the grower and try to reach a solution.

Guides to good management practices

The most commonly used good practice guide was developed by the industry association PPE. This is linked to the IKB-KIP quality scheme which covers around 90% of Dutch broiler farms. This guide to good management practices is an integral part of training for chicken keepers and young farmers.

Penalties

Generally, the number of penalties issued is low. Growers usually receive a warning first and have to take a corrective action. In cases where a grower does not take necessary actions to improve the situation an administrative penalty may be applied. This starts from €1,500 and can be applied for more than one infringement and where infringements have been repeated. If the grower has other agricultural activities (for example, arable production), animal welfare infringements can lead to reductions in Pillar I payments under cross-compliance.

It is also possible to use administrative law to force a grower to take action on-farm, for example to repair something that is broken and which, through not operating correctly, impairs animal welfare. If the grower refuses, the RVO can order someone else to carry out a repair with the farmer liable for the cost. In practice, most inspectors choose to use this option rather than administer a fine which is not considered as effective in terms of addressing the problem.

When the FPD score exceeds a fixed threshold, growers have to prepare an improvement plan. If a second threshold is exceeded, the grower must reduce the stocking density to 39 kg/m².

The competent authority believes that the penalty regime is effective because €1,500 is a substantial amount when compared to farm incomes. The obligation to reduce the stocking density to 39 kg/m² is considered to be a financially tough penalty by growers. Despite this, the penalty regime is to be strengthened in 2016 by a measure to reduce farm profits in extreme cases. The competent authority also noted that there is a lack of enforcement personnel which might prevent more thorough investigations of on-farm problems and which might limit the number of inspections that can be carried out.

A5.5.3. Impact and costs of implementing the Directive

A5.5.3.1. Impact of implementation

There have been no impact assessment studies on the implementation of the Directive in the Netherlands. However, both the competent authority and the industry representatives noted that a key change brought about by the implementation of the Directive was a reduction in stocking densities (from around 45 kg/m² to 50 kg/m² depending on interviewee). Industry representatives also noted that this requirement had led to a decrease in the total volume of production, though exact figures were not provided to substantiate this. In general, the industry believes that the impact of the implementation of the Directive on production costs has been quite substantial.

The competent authority believes that certain management practices on farm have slightly improved due to the implementation of the Directive, for example, the lighting regimes. Although there are no records on lighting before the implementation of the Directive, one of the most common problems detected during inspections is insufficient lightening and it can therefore be concluded that it was darker in houses before requirements in the Directive were implemented.

Industry representatives do not believe that management practices on farm have changed substantially as a result of the implementation of the Directive. Even before 2010 growers followed good practices to maintain a high level of animal welfare on farms (e.g. keeping good quality litter). Different quality schemes, including IKB which has

been operational in the Netherlands since 2010, had already covered many animal welfare requirements before the Directive entered into force.

All interviewed parties agreed that the national legislation on Broiler Welfare and the requirement to monitor the levels of FPD has had more substantial impact on the management practices. Growers have been changing certain management practices to ensure that the levels of FPD are low. These changes have included improving ventilation systems, providing better litter for chickens, investing in heated floors and new types of houses. The animal welfare NGO spoken to and the competent authority agreed that the changes made had led to a decrease in FPD levels and had made an overall contribution to improved animal welfare.

The industry said that it is difficult to establish the cross-border trade in live birds before and after implementation of the Directive. However, a substantial proportion of birds slaughtered in the Netherlands are imported from other Member States, mostly Germany, and this is not thought to have changed over the last few years.

Both the competent authority and the industry agreed that there were some positive impacts on employees' training following the implementation of the Directive. Training programmes have been introduced not only for new poultry keepers, but also for the staff of slaughterhouses and veterinarians in terms of how to recognise FPD. However, the competent authority also pointed out that the added value of training is not clear because animal welfare conditions on farms are influenced more by farm incomes (as a determinant of investment levels) and the farmer's practical experience than they are by training.

A5.5.3.2. Costs of implementation

According to estimations made by the competent authority, the initial costs for the implementation of the Directive for the industry (growers and slaughterhouses) amounted to €50,456. Most of this cost was made up of time required for setting up systems to allow mortality to be registered twice a day for each house.

Annual administrative and production costs for the industry (growers and slaughterhouses) were estimated to be €2,716,714. The administrative costs are mostly related to the maintenance of records by farmers and also to the recording of animal welfare indicators by slaughterhouses. The competent authority noted that often a part of the batch is sent to the slaughterhouse earlier than the rest of the batch (as a result of thinning) and this practice results in additional administrative costs as the indicators must be recorded twice for the house in these cases. The annual cost also includes production costs related to the lower stocking density; these are estimated to be on average €5,367 per grower.

The costs incurred by the competent authority in 2010 are explained in Table A5.4 below (costs are only available for one year).

Table A5.4: Costs of implementing the Directive for the competent authority (2010)

Category	Cost
Registration of farmers and computer application for this purpose	€210,000
Administrative controls	€29,000
Education of official veterinarians	€7,440
Audits	€43,840

Total cost (2010)

€310,280

The competent authority noted that due to the requirement to collect the FPD scores (from 2013), it was necessary to create a database which is managed by RVO. Maintaining these data and analysing them represents an additional administrative burden for the competent authority not included above.

A5.5.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.5.4.1. Recording of welfare indicators at slaughterhouses

The competent authority has set up a system for the monitoring of welfare indicators at slaughterhouses as required by Point 2 of Annex III of the Directive. Welfare indicators recorded at slaughterhouses include: DOA, injuries, cumulative daily mortality rate, FPD, contact dermatitis such as breast blisters and hock burns and the number of birds rejected for animal welfare reasons.

The threshold values for these indicators are based on scientific research and have been set by the competent authority after consultation with industry representatives (see Table A5.5). If any of these threshold values are exceeded, a slaughterhouse has to contact the grower and the Intervention Bureau Animals (IBDier), as envisaged by Point 3 of Annex III of the Directive. The slaughterhouse also always informs the grower of the FPD score and the total number of rejections with explanations.

Table A5.5: Trigger levels used by indicator

Welfare indicator	Trigger level (%)
Dead on Arrival (DOA)	>0.5%
Daily cumulative mortality	>5%
Injured animals	>2%
Contact dermatitis (severe breast blisters, heel dermatitis, FPD)	At least two of these conditions detected in 50% of the entire batch
FPD score*	If the score is between 80 and 120, the grower has to develop an action plan to reduce the score. If the score is more than 120 the grower must reduce the stocking density. If the score exceeds 150, the slaughterhouse informs the inspection services
Rejections related to animal welfare	>3%

* FPD score is not a percentage but is a score of the severity and extent of lesions (0-200) based on scoring 100 feet.

The evaluation of FPD can be manual (50 feet after approximately the first third of the batch and another 50 feet from approximately after the second third of the batch) or automated using a camera system (at least 70% of the entire batch). If a manual assessment is made, each foot is scored on a scale from 0-2 depending on the extent and severity of FPD (where 0 means no FPD, 1 mild FPD and 2 severe FPD). The final score (calculated by multiplying all mild cases (scored 1) by 0.5 and severe cases (scored 2) by 2 to give a score ranging from 0-200 for manual samples, the score is adjusted for sample size where automated systems are used) is then communicated to growers. This scoring scale is based on research carried out by the Livestock Research department of Wageningen University.

It is important to note that the same checks to determine the levels of FPD are performed on farm by a trained worker if the chickens are to be exported live for slaughter in another Member State. This measure ensures that flocks which are stocked at the highest stocking density and intended for exports are also covered by the requirement to monitor the FPD levels irrespective of the framework in place in the destination Member State.

The slaughterhouse staff evaluate welfare indicators under the supervision of the OV. The evaluation for FPD is usually done manually using scoring cards and instructions attached to the Dutch Animal Keepers Regulation. The picture guides for how to measure FPD are provided in the IKB guide, which also provides instructions on how to measure other welfare indicators, such as breast blisters.

The severity and extent of FPD can be also identified by camera systems. The competent authority would prefer that all slaughterhouses use automated systems in order to ensure more objective evaluations. However, camera systems are currently only used by one slaughterhouse due to industry complaints that it records higher levels of FPD than manual scoring. This is an interesting contrast to the trial undertaken in Denmark where the camera system under recorded FPD (see section A5.1).

Hock burn was used as a welfare indicator in 2013, but it was concluded that FPD was a better indicator of welfare problems in higher stocking densities and this is also easier to measure and so hock burn is no longer assessed. Although the competent authority and the animal welfare NGO agree on the usefulness of FPD as a welfare indicator, the competent authority also noted that recent research shows that FPD can occur at lower stocking densities and also in free-range systems; certain limitations of this indicator have therefore to be recognised.

The competent authority stated that in its opinion collecting data on daily mortality rates and providing this to the slaughterhouse is a disproportionate burden on growers. However, these data are available if requested by the OV and this request is made where the data are considered potential of use. Furthermore, the competent authority suggested that cumulative daily mortality rates are seen as unnecessary by both inspectors and growers and these are in any case only marginally different from average mortality calculations over the whole period. This view was corroborated by the industry which also thinks that it would be better to calculate the average and not cumulative daily mortality rate.

Both industry and the competent authority noted that there are some disadvantages related to the recording of certain welfare indicators such as injuries (e.g. broken wings), because it is not clear when this injury happened (e.g. during catching, transport or stunning).

Overall, industry organisations consider the monitoring of welfare indicators in slaughterhouses to be a useful tool to track animal welfare conditions on-farm. However, industry also pointed out that this monitoring is a time-consuming and difficult process due to the speed of the processing line and due to the lack of personnel as usually only one person performs the welfare checks. The industry interviewees estimated that a few hours during the working day can be lost if several batches of birds arrive on the same day.

The competent authority noted that checking animal welfare indicators in slaughterhouse may be easier than on-farm. However, these checks are only useful when the results of on-farm inspections are taken into consideration as well because only inspections on-farm can provide a full picture of animal living conditions and well-being.

A5.5.4.2. Transmission of information and its use on-farm

Slaughterhouses keep the data on animal welfare indicators in electronic databases. The FPD score and the total number of rejections with explanations are always transmitted to growers within a few days of slaughter. The data on other welfare indicators is transmitted to growers only if trigger levels are exceeded. When this happens, the manager of the slaughterhouse will transfer the data both to the grower and the Intervention Bureau Animals (IBDier), as envisaged by Point 3 of Annex III of the Directive. IBDier will in turn notify the grower, request corrective action and warn about the possibility of on-farm inspection.

Growers enter the FPD score into the database maintained by RVO within thirty days of receiving the data from the slaughterhouse. If the annual average score, as calculated for seven flocks, is higher than 80, the grower has to prepare an improvement plan with a help of veterinarian. If the score exceeds 120, the grower needs to reduce stocking density to 39 kg/m² for the next year. The FPD measurements are still to be carried out following the reduction in stocking density even though this is not usually required at this stocking level.

A5.5.4.3. Structure of the data transmission

According to the industry, the data from slaughterhouses is usually transmitted electronically, but its structure varies from slaughterhouse to slaughterhouse and there is no one approved format. The fields covered have been described above.

A5.5.4.4. Impact of the use of welfare indicators and method of transmission

The competent authority is of the opinion that the use of animal welfare indicators has contributed to some extent to the improvement of management practices on farms. The data on welfare indicators transmitted from slaughterhouses may inform growers about certain problems with their flock, and which they were unaware of. Growers are also motivated to improve management conditions in order to avoid financial sanctions, including the reduction of stocking density if the levels of FPD are excessive. Industry representatives commented that although recording welfare indicators can be a time consuming process for slaughterhouses, their operators can compare the quality of production from different growers and choose the best supplier in the area; this also ought to provide upward pressure on animal welfare standards.

In terms of the impacts of specific indicators, the competent authority noted that overall FPD incidence is showing a downward trend in the Netherlands and this is thought to be the result of the pressure exerted through obligatory monitoring. Generally, all interviewees agreed that farmers adopt improved management techniques in order to avoid high levels of FPD.

The competent authority also added that it is useful to collect data on FPD because it allows better targeted risk-based inspections. Nevertheless, the competent authority emphasised that the creation and management of a database to store the FPD scores is a huge administrative burden. The limited number of staff makes it difficult to analyse and use all the available data.

According to industry representatives, farmers using the FPD database can benchmark their performance against other growers and between different houses on their own

holdings. However, entering FPD scores in the database can be time consuming, especially if the database is temporary off-line due to technical reasons.

The competent authority believes that overall the transmission of data from slaughterhouses to farmers and the competent authority works well. The database where the FPD score is recorded also allows the direct and quick contact between growers and the competent authority in case the FPD score suggests that there is a problem with animal welfare.

However, the data transmission system is not perfect because mistakes can be made on data entry, especially if there are intermediaries in the transmission chain. The findings of a recent investigation carried out by the competent authority revealed that in some cases the score recorded by growers in the database is not the same as recorded at the slaughterhouse.

According to all interviewees, the use of welfare indicators at slaughterhouses has had limited impacts on consumers. The majority of consumers have a general overview of animal welfare issues, but they are not aware of specific welfare indicators or what they would mean for general animal welfare.

A5.6. Poland

A5.6.1. Introduction

Interviews were held with the competent authority (the Ministry of Agriculture and Rural Development and the General Veterinary Inspectorate) on 20 July, 2016 and with the National Poultry Council-Chamber of Commerce (KRD-IG), representing the industry, on 26 July, 2016. The competences concerning the implementation of the Directive in Poland were divided between two official bodies, the Ministry of Agriculture and Rural Development which supervises the whole agro-food sector and the General Veterinary Inspectorate who is responsible for animal welfare. That is why two interviews with the competent authorities had to be conducted.

An interview with an animal welfare NGO ("Otwarte klatki") was held on 27 July, 2016. A discussion with the Association of Poultry Producers and Breeders, representing chicken keepers, were held on 28 July, 2016. The intention had been to hold this meeting together as a focus group with the poultry processing industry representatives on 26 July, but the interview had to be postponed due to availability in the holiday season.

The Directive is implemented in Poland through the Regulation of the Ministry of Agriculture and Rural Development of 15 February 2010 (Dz.U. nr 56 item 344) amended in chapter 5 § 34-38 by the Regulation of the Ministry of Agriculture and Rural Development of 7 September 2010 (Dz.U. nr 171 item 1157) on minimum requirements for maintaining broiler chickens⁶⁰ based on the Animal Protection Act of 21 August 1997⁶¹.

There are no differences between the Directive and Poland's implementation of it.

A5.6.2. State of play of the implementation of the Directive

A5.6.2.1. Broiler production in Poland

The structure of the Polish broiler industry

Poland is now the largest broiler meat producer in the EU. Its share in total EU production amounted to 19% in 2014, compared to 16% in 2009. The volume of output increased by 47% between 2009 and 2014, reaching just over 2 million tonnes (Figure A5.5). Broilers account for over 75% of total poultry production in Poland.

Broiler production in Poland is generally integrated with slaughterhouses, especially the large ones, controlling the whole chain including the supply of day old chicks and often also the feed from their own hatcheries and feed mills. The value of day old chicks and feed delivered to farms is deducted from the value of chickens sent to slaughter. In essence, the growers are paid a management fee which operates like free working credit for chicken producers who do not have to pay banks for commercial credit. On the other hand, the price for chickens for slaughter is established on the day of their delivery to slaughterhouse, so the price risk is mainly on the side of chicken producers who are, according to a long-term agreement with the slaughterhouse, obliged to deliver a certain number of chickens of agreed quality and on time.

⁶⁰ <http://www.dziennikustaw.gov.pl/DU/2010/s/56/344>

⁶¹ <http://www.dziennikustaw.gov.pl/2013/856/1>

The poultry industry in Poland shows an average level of concentration. According to industry information from 2014, the largest four processors (both the primary processing including slaughter and the secondary processing) account for 57% of annual production and the largest eight for 73%. The industry believes that concentration in the broiler sector may be slightly higher than in the poultry sector as a whole.

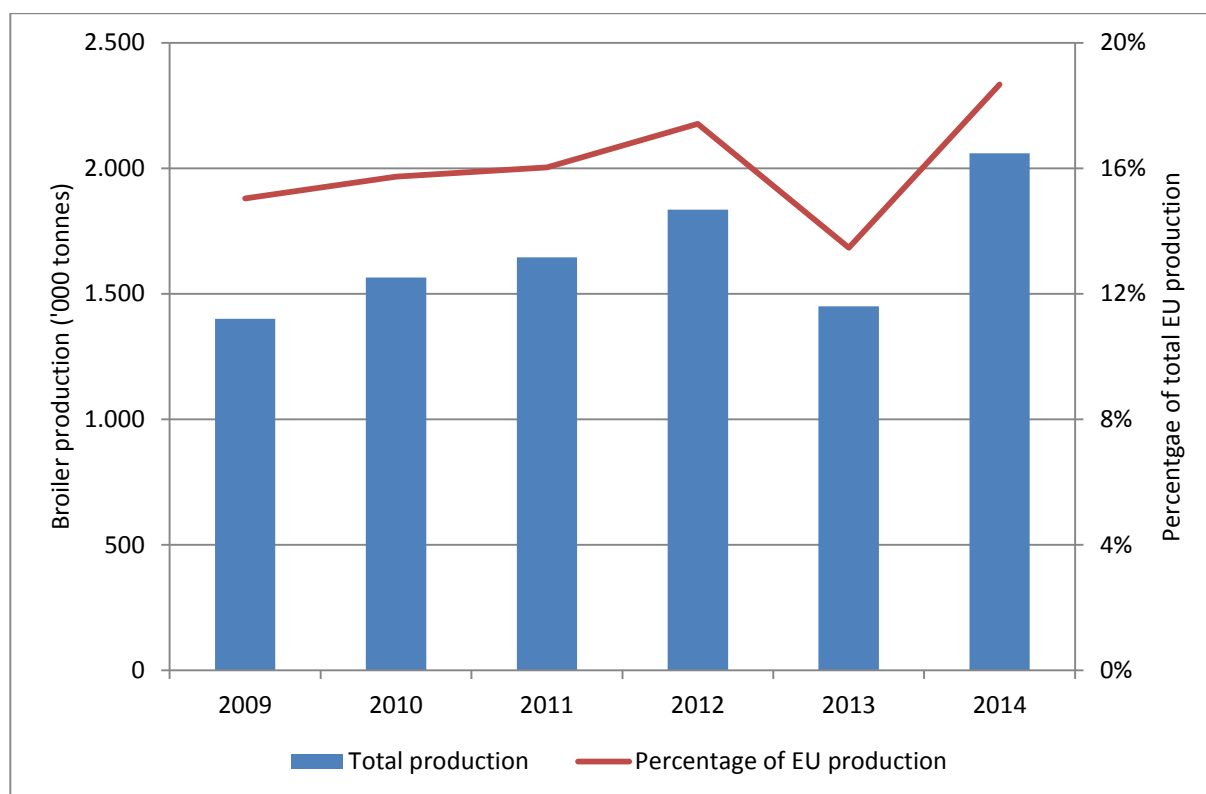


Figure A5.5: Broiler production in Poland and share of total EU production (source: Eurostat, 2016)

As Figure A5.5: Broiler production in Poland and share of total EU production (shows, the poultry industry in Poland has been growing steadily in terms of output. However, consolidation is expected to continue into the future. There are still many relatively small slaughterhouses and processing plants despite general competition to provide exports and to supply the major retailers. Dybowski (2014) states the general growth factors to be:

- continuously rising exports;
- increasing domestic demand;
- changes in structure and strategies of the poultry industry;
- high degree of competitiveness;
- high quality standards of market offer;
- comparative advantages based on the lower production and processing costs (mainly costs of hired labour and indirect costs) and lower margins; and,
- modernisation of the sector during the adjustment process leading up to EU accession and during the second investment wave after gaining the leader position on the EU market.

Interviewees did not feel that the implementation of the Directive had been a factor in the evolution of the industry.

PEST analysis reveals the following factors influencing the development of the sector:

- **Political:** political decisions related to first the transition from a centrally planned economy to a market-based economy and then related to accession to the EU have created new conditions for the poultry industry which, since 2004, has been developing within the framework of EU rules and standards. Many political aspects have influenced this sector but restrictions on the use of GMO feed, problems related to obligatory stunning before slaughter and renewed negotiations of agreements on free trade zones between the EU, the US and the Mercosur countries are thought to be the most important. The Polish poultry industry has more comparative advantages in European terms than in global terms and therefore will be subject to greater competition should there be greater exposure to world markets.

Domestic political decisions such as the implementation of a tax on turnover, the intention to limit trade on Sundays and future intentions on the use of GMO feed (GMOs are currently banned, but there is a derogation to allow their use as animal feed) will also have an impact on the poultry industry. It is difficult to assess the scale of the impact, but it is certainly the case that the political environment is much less stable than it was.

The Russian ban on Polish poultry meat has had a rather limited impact on the industry because exports to Russia are not substantial and are in any case low value compared to exports within the EU.

- **Economic:** the most important economic driver is the relatively low retail price of chickens in comparison to red meat. Consumer perception of chicken is also good with it widely perceived to be healthy and convenient in terms of preparation. Alongside the development of big retail networks, competition between poultry firms on the domestic market has been increasing. The retailers have gained economic power in the value chain and the important metric for them is turnover rather than price. As the main economic influence on production costs at farm level is the price of feed (which is often determined by big international feed companies), the whole chain must operate at relatively low margins defined by feed price on the one hand and retail price on the other. In 2015 the average gross sale profit margin in the poultry sector amounted to 2.89% and net (after taxation) to 2.61%. The coefficient of current financial liquidity amounted to 1.28 and investments rate to 1.41.

However, the main development driver of the whole industry has been exports, which have been growing at a much faster pace than domestic demand. The most important trade partners for Polish exporters are the EU Member States, but the industry is still looking for new foreign markets such as China, Hong Kong, Vietnam, Taiwan, South Africa, Benin, Saudi Arabia, Egypt, etc. EU support for promotional activities are very useful in this context.

- **Social:** the poultry industry, together with accompanying services, creates employment for around 37,000 employees (12% of the total EU poultry industry employment) of which 52% are in slaughterhouses and 33% on farms (birds owners or keepers included). Employment in the industry is very important regionally because much of the industry is located in areas with high unemployment.

In 2015 there were 6,828 commercial poultry farms in Poland (one third of the EU total) and 168 slaughterhouses. Only 11% of the all slaughterhouses employed more than 250 employees, but these processed 59% of the total value of poultry meat sales. Many slaughterhouses and processing plants also play an important

role in the social life of the regions in which they operate due to supporting educational, sporting and social events within a concept of social responsibility of business.

- **Technological:** the transition to a market economy and accession to the EU drove the technical development of the Polish poultry industry. Following accession the poultry industry has invested to increase production, trade and competitive capacities. Farms have invested in new buildings and equipment in order to make full use of modern broiler breeds and also to adjust to animal welfare requirements. Slaughterhouses have invested mainly in new production lines to extend the range of what they produce and to adjust to consumer demands. They have also undertaken promotion activities on both domestic and foreign markets making use of innovative techniques.

The Directive has had very little impact on the development of the sector in political terms. In economic terms there has been some limited impact in terms of driving investments related to higher welfare standards and in social terms there may have been a slight increase in employment related to the provision of training.

Broiler management on commercial farms

The Polish broiler industry follows good production and hygiene practices as well as a number of quality schemes being certificated with ISO 9001, BRC global standard, IFS international food standard, German quality standard QS and most recently QAFP system (Quality Assurance for Food Products). The QAFP certificate controls the entire production chain from hatchery to processing and trade and is therefore especially important in determining standards. Special attention is focused on animal welfare and environmental aspects, as well as on food safety.

Broiler farms operating within the QAFP system have to comply with EU and national legislation concerning the welfare of birds kept on farm, at transport to slaughterhouse and during the process of slaughter. It is necessary to have a set of instructions for good practice which is relevant for welfare requirements and is updated at least once a year. The obligatory control system involves annual inspection by independent organisations authorised to provide QAFP certificates.

The QAFP system was launched in 2011 and has been supported by EU promotion funds for poultry meat. There are no official data indicating the scale of QAFP production or its share in the broiler market. However, a number of the largest slaughterhouses (Indykpol, Konspol Bis, Exdrob, Bomadex, Wipasz, Indrol, Reydrob and others) have already become certified and produce chicken and chicken products under the regime; the industry interviewee stated QAFP-certified production accounts for around 15% of total production.

Contradictory information was provided about the distribution of broiler flocks by stocking density. The General Veterinary Inspectorate, who is responsible for animal welfare and gathering the relevant data, stated that the vast majority (85%) of Polish broiler farms stock at 33 kg/m² in accordance with the legislation. This is much lower than prior to implementation when typical stocking densities were between 39 and 42kg/m². The derogations to stock at higher densities (39 and 42kg/m²) can be used subject to the additional requirements and subject to the farm not having been found not to be compliant in the previous two years. According to the General veterinary Inspectorate, 12% of flocks are kept at stocking densities of 39 kg/m² and 3% at stocking densities of 42 kg/m². However, other interviewees felt that the proportion of birds kept at higher

stocking densities is higher because it tends to be larger farms which operate under the derogations.

The typical commercial production cycle is 42 days with a range between 35 and 45 days. The competent authority stated that 2.40 kg live-weight is usually attained within 42 days. Depopulation is followed by an empty period of between 10 and 14 days during which cleaning takes places.

Ventilation and/or heating are used in the majority of broiler farms, although the extent to which they are required depends on the location of the site, the type and age of housing and also on the outside temperature and the stage of production cycle. The minimum requirement for ventilation is 1 m³ of air per 1 kg of chicken per hour. This should be provided since the placement of the day old chicks. The temperature should be 30°C diminishing to 20°C with the aging of birds. Humidity should be between 60% and 80% depending on temperature and relative moisture should not exceed 80%.

Light intensity is at least 20 lux at bird eye level illuminating 80% of the house. The use of phased lighting is recommended after the 7th day of the production cycle with alternating periods of darkness and lighting. In the last three days before slaughter light should be provided for 24 hours a day. Higher light intensity leads to greater bird activity and this can have negative animal welfare consequences.

The average concentration of NH₃ must be lower than 20 ppm and that of CO₂ lower than 3,000 ppm. Monitoring is obligatory for stocking densities above 39kg/m².

Neither beak trimming nor castration is permitted in Poland.

Interviewees did not think that any significant changes in broiler management had resulted from the implementation of the Directive.

Breeds used

Despite the efforts made by legislators to encourage chicken producers to use slow or slowly growing breeds, the vast majority of hatcheries offer mainly fast growing lines. The offer concerning slow growing chicken is rather marginal and the number of poultry kept on organic farms has reduced to just over 200,000 (Eurostat, 2015). Poultry meat produced in semi-intensive systems with a production cycle of 56 days is available on the Polish market (so called: "*kurczak zagrodowy*"); this is not a free-range system, "*zagroda*" is an old name for farm and the term "*zagrodowy*" suggests that chicken has been produced in a traditional way, although it does not say this directly.

A number of commercial breeds are used in Poland including the Ross 308, the Ross 708, the Ross PM 3, the Cobb 500, the Hubbard Flex and the Hubbard JA-57 (Centre of Usable Valuation of Poultry Flocks). According to information obtained from the Ministry of Agriculture and confirmed by representatives of the industry (the Centre for Using Value Assessment of Poultry) three cross-breeds dominate: the Ross 308, the Cobb 500 and the Hubbard Flex.

There has been no substantive change in the use of breeds over the 2008-14 period. This is true of both the use of slower growing breeds within free range production systems and commercial broiler production. There is very limited demand for chicken meat coming from slow growing birds due to the higher price.

Employment on commercial farms

The extent of employment on commercial farms depends on the holding and the degree of automation. Generally there will be a farm manager and a limited number of employees (one or two). In 2015 there were as many as 12,200 people working in 6,830 poultry farms together with the owners and keepers, i.e. an average of 1.8 per farm. Additional temporary workers are employed for catching and loading chickens in depopulation periods. The Directive has had no impact on employment.

A5.6.2.2. Implementation of the Directive

Requirements for keeping chickens

There are no country-specific requirements which go beyond the Directive. However, when first implemented, Polish regulations demanded that the chicken keeper notify the dimension of feeders and drinking fountains; this went beyond requirements. Industry organisations demand the withdrawal of this additional requirement arguing that there is no reason to go further than the EU requirements. This requirement was subsequently abolished and national legislation is now exactly the same as the Directive. There are no regional differences.

The Directive has been fully transposed into national legislation and according to the competent authority (both the Ministry of Agriculture and Rural Development and the General Veterinary Inspectorate) Poland is 100% compliant with the Directive. However, the audit conducted by the Directorate Health and Food Audits and Analysis in 2011 stated that the compliance was "adequate" and suggested that keepers did not receive adequate training and certificates approving their competences.

The requirements to use the first derogation to allow stocking at 39kg/m² are:

- a map of the broiler house with the indicated production surface in use;
- a description of the ventilation system and parameters of air quality;
- a scheme of heating and cooling system;
- information on feeding and drinking systems;
- information on emergency alarm systems and emergency energy supply; and,
- information on type of floor and litter used.

The derogation to stock at up to 42kg/m² requires that Cumulative Daily Mortality Rate (CDMR), controlled during at least seven successive production cycles (flocks) in a given broiler house, is lower than 1% + 0.06% multiplied by the age of the flock in days at slaughter. If this indicator exceeds this limit, but the cause is not the actions of the birds' keeper, the stocking density can also be increased to 42kg/m². In addition to this requirement, controls conducted by the district veterinarian during the last two years must not detect any lack of compliance with the legislation.

Documentation setting out the daily mortality rate and the CDMR, as well as the breed of the birds, must be sent to the slaughterhouse together with broilers for slaughter where either of the derogations is used.

Training and guidance for persons dealing with chickens

The Provincial Veterinary Officer has been appointed by the Ministry of Agriculture and Rural Development as the body responsible for training activities concerned with animal welfare. This responsibility includes also relevant activities connected with implementation of the Directive, in particular:

- providing training courses;
- granting other entities authorisation to provide training;
- approving training programmes;
- appointing an examination board;
- supervising entities organizing training; and,
- providing certificates of competences.

Although a number of public and private bodies in Poland undertake training courses relevant to the Directive, a well-organised, comprehensive system for training, examinations and provision of certificates of competence is still not in place. Despite this, the rules introduced previously for national training requirements (Animal Protection Act of 1997) ensure that chicken owners or employees possess appropriate competences. Broiler owners or keepers and broiler farm workers must be also trained in animal production practices including requirements for animal protection (Regulation of the Ministry of Agriculture and Rural development of 24 November 2009).

This Regulation also determines staff, technical and organisational conditions for entities which may be authorised to run courses on welfare of broilers. It determines a standard certificate template confirming termination of a course. The authorisation to run courses is granted by the provincial veterinary officer.

These courses must include at least the following subjects:

- requirements concerning sites keeping broilers;
- basic physiology of birds and their needs for feeding and drinking;
- broilers' behaviour and problems related to stress;
- taking practical care of broilers with special focus on catching, loading and transport to slaughterhouse;
- procedures of killing in emergency; and,
- prophylactic measures for biological security.

There is a number of training providers, mainly in the private sector. Courses for farmers (chicken keepers) are also provided by the Agricultural Advisory Centres and by farmers' organisations (*inter alia* the National Poultry Council - Chamber of Commerce and Association of Poultry Producers and Breeders). Training has to be paid for by the person undertaking it.

According to the animal welfare NGO interviewed, in practice the main focus of training is the legal requirements rather than best practice. This NGO felt that it is very important to explain the correlation between the welfare of birds and their health and production efficiency to broiler keepers in order to build awareness about the links between good animal welfare and business performance.

The next training problem raised in our interviews concerns slaughterhouses. In many slaughterhouses animal welfare officers do not have certificates proving their competences relevant for the Directive. There are no national regulations which clarify who is responsible for training official Animal Welfare Officers employed at

slaughterhouses, although it is obligatory to have these officers. Neither is it clear who has the right to train slaughterhouse workers in welfare problems and to give them authorisation.

In practice nobody was able to provide data on the number of trained persons or certificates issued, the subjects of training courses or estimated costs of such training activities. Such data seems not to be collected at the national level.

Inspections

The Ministry of Agriculture and Rural Development appointed the Chief Veterinary Officer as a person responsible for animal welfare matters including inspections. The CVO has prepared written instructions for regional veterinary officers to collect data from at least 10% of broiler farms. Regional inspectors of the General Veterinary Inspectorate control broiler keepers, but the share of farm controlled annually is not high because of the large number of broiler farms in Poland. District veterinarians prepare annual reports on official controls for the General Veterinary Inspectorate. The reports are kept at this level.

Inspections aimed at checking broiler welfare conditions on farm are carried out by the official veterinarian supervising the farm and the official veterinarian supervising the slaughterhouse. They exchange the findings of both controls and the relevant documentation and communicate the results to broiler keepers and to the competent authority. The monitoring of welfare conditions is therefore carried out at two levels.

The next step in the control process, including administrative decisions which may be taken, falls under the jurisdiction of the district veterinary officer who supervises the farm.

The main problems resulted from inspections are:

- on farm: keeping records and registers, space allowance;
- at transport: exceeding time limits for journeys;
- at slaughterhouse: standard operation procedures.

Guides to good management practices

In terms of guides to good management practices, there are no general guides available to broiler keepers. There are so called "zeszyty branżowe" (branch leaflets) entitled, "Production and quality requirements" issued within the QAFP system available for farmers operating under this quality regime. Obviously there are also training aids for people undertaking courses which are provided to participants by course organisers. To some extent, guidance is given by the Agricultural Advisory Centres, which are located and run their activities near to farmers as well as by farmers' organisations. There were also articles in the vocational press and magazines devoted to welfare problems.

Penalties

If a lack of compliance with the Directive requirements or any national legislation is detected on farm the district veterinary officer may pass a decision to:

- impose sanitary procedures;
- impose a limit or a ban on the sale of birds originating from the farm to domestic and foreign markets;

- suspend or close the entire farm, or a part of it, for appropriate period;
- undertake any other necessary measures such as imprisonment or fine; or,
- withdraw permission granted to the farm to stock at an increased density rate.

While these mechanisms have been used, the more severe penalties have only been used infrequently.

The competent authority is not in a position to comment on the effectiveness of the penalty system. However, it is thought by the representatives of the poultry industry to be generally effective in ensuring compliance. The animal welfare NGO took a different view and noted that the trigger levels are set too high to allow actual improvements in welfare conditions. In their opinion, a coherent administrative penalty system should be established, including a ban on allowing birds to be kept on farms which permanently do not follow the welfare requirements. They also drew attention to the fact that although the Instruction issued by the Chief Veterinary Officer demands the district veterinary officer to put a motion to the police if severe irregularities are detected, but in practice this rarely happens. Further, broiler keepers are often advised about controls to be conducted on farm and control lists are often completed based on the oral declaration of the farmer as a visual assessment is difficult at high stocking densities. The NGO stated that the current control system could be improved through the use of more *ad hoc* visual inspections.

A5.6.3. Impact and costs of implementing the Directive

A5.6.3.1. Impact of implementation

The impact of the Directive is generally considered to be very positive. Specifically, the Directive has had:

- very positive impacts on housing conditions, litter quality and better access to feed and water have been declared at the farm level;
- slightly positive impacts on bird keeper training, on staff at slaughterhouse as well as on the administrative burden for competent authority; and,
- neutral impacts on guidance to good management practices, ability to sell broilers to slaughterhouses in other Member States and the ability to source them from growers in other Member States.

Interviewees stated that farmers appreciate the fact that broilers in better conditions receive in better prices and a lower number of rejections at slaughterhouse because of poor bird quality. They also use high welfare conditions on farm in applying for permission to increase stocking density which leads to a better economic performance. Higher density allows an increase in output by weight. If it is also possible to reduce the empty period between batches then the number of production cycles in a year can be increased from six to seven. One or both of these changes leads to higher overall production from the same production surface and therefore higher income.

According to the animal welfare NGO interviewee, the density indicators demanded by the Directive are high and do not improve welfare conditions, especially in the last phase of production cycle. They stated that stocking density should be lower than 30kg/m². In their opinion this is the reason why the implementation of the Directive has not resulted in a significant improvement in bird welfare.

The competent authority position is that they are not able to comment on the impact of the Directive in the absence of relevant research. However, there is an expectation that

there has been a positive impact on animal welfare, although it is not possible to measure it.

A5.6.3.2. Costs of implementation

The cost of the implementation of the Directive in Poland has not been estimated by any of the broiler market players so no information could be provided. It can only be considered that most of the costs were borne by the industry with the competent authority incurring relatively minor costs of inspection and enforcement.

A5.6.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.6.4.1. Recording of welfare indicators at slaughterhouses

According to the legislation a slaughterhouse must record indicators related to broiler welfare, but there is neither a unified way of collating regional data at the national level, nor a standardised set of indicators. This was stated during the DG Health and Food Safety inspection in 2015 and was confirmed as still the case by the industry representatives who were interviewed. Data collected in the slaughterhouse are kept at the slaughterhouse unless action is required according to the trigger system.

The Animal Protecting Act of 1997 states that if any breach of welfare requirements is detected during the post mortem examination of birds the official veterinary officer will communicate this to the broiler keeper and to the district veterinary officer supervising the farm of origin. The way information should be transmitted has not been set out. However, according to the industry interviewee, both electronic transmission and paper documentation are used.

The indicators used at slaughterhouses in post mortem examinations of broiler welfare are:

- frequency of appearance of foot pad dermatitis;
- frequency of appearance of infection (verminous);
- frequency of appearance of general constitutional diseases;
- daily mortality rate;
- cumulative daily mortality rate.

Feet are sampled from each broiler flock (one foot per 100 birds). The first half of the sample is drawn from the first third of the flock to be processed and the second half from the last third. Where a flock is slaughtered in several batches, or in several slaughterhouses, feet are examined in each batch and in each slaughterhouse. Where a flock is split up, the district veterinary officer supervising the farm of origin considers the findings from each batch/slaughterhouse and makes his judgement according to the worst case. The evaluation is aimed at detecting changes to the foot pad from what should be expected where there is no issue and penalty points are related to the findings:

- lack of any change, i.e. normal (0 points);
- surface and colour changes (0.5 points);
- more significant changes including ulceration (2 points).

The number of feet classified in each category is multiplied by number of points of this category. The trigger values are as follows:

- less than 40 points – no comments;
- 41-80 points – an average level of abnormality;
- above 80 points – high level of abnormality.

The scoring system includes two trigger levels of action depending on the welfare conditions on a farm:

1. A trigger level for average levels of abnormality, in which the official veterinarian at the slaughterhouse reports the finding to the supervising district veterinary officer. The information is kept at this level and communicated to the official veterinarian at the farm of origin only if a second notification is made.
2. A trigger level of poor welfare conditions (high abnormality), in which the official veterinarian at the slaughterhouse reports the finding to the supervising district veterinary officer who communicates them to the district veterinary officer of the farm of origin for necessary action.

Daily mortality rate and CDMR are used as basic indicators in assessing welfare conditions at farm in post mortem examinations at slaughterhouses. There are two trigger values related to CDMR:

- good level of welfare if the value is less than $[(1\% + 0.06\%) \times \text{age of the flock in days}] \times 100$ – an example for a flock kept for 42 days: $[0.01 + (0.0006 \times 42)] \times 100 = 3.52$;
- average or poor level of welfare if the CDMR is higher than the level calculated above.

If average or poor welfare conditions are detected on a farm the district veterinarian responsible for supervising the slaughterhouse concerned will also send the documentation for the inspected batch. The district veterinarian supervising the slaughterhouse will inform the district veterinary supervising the farm about the results of the control and will send relevant documentation.

If the lower level of welfare is detected for the first time the district veterinarian will consider the necessity of controlling the next flock at the farm. If the lower level of welfare is detected for the second time at the same farm such a control will be obligatory.

European Commission (2015) stated that in some cases the actual trigger value of CDMR was higher than the maximum permitted in broiler flocks kept at stocking densities between 39 and 42kg/m². A recommendation was made to check and eventually modify the “trigger level” for CDMR so official controls at the slaughterhouse effectively detect poor welfare conditions of chickens at the farm of origin and communicate this to the owner or keeper of birds and to the competent authority in order to undertake improving actions.

According to information provided by the competent authority (the Ministry of Agriculture and Rural Development and the General Veterinary Inspectorate) the trigger level of CDMR is in compliance with the Directive requirement, but following the recommendation the Chief Veterinary Officer declared he would undertake any necessary measures to improve control at farms stocking at increased densities and to make relevant adjustments if needed in 2016 as the whole Animal Protecting Act is being changed and the procedure is in progress. The CVO instructed district veterinary officers to collect relevant data from at least 10% of broiler farms in the district. He also asked the

Institute for Zoo-technics to deliver information on the average indicator of daily mortality rate on broiler farms in Poland. This action remains in progress.

The representatives of the industry, especially of poultry producers and breeders, stated that there was resistance to using mortality rate as an on-farm animal welfare indicator because this is often not entirely within the control of farmers. This concerned not only poultry producers but other animal producers as well. However, they could not suggest a more suitable indicator to use instead.

According to The General Veterinary Inspectorate, the majority of controlled slaughterhouses comply with the requirements of the Directive. For the minority that do not, the following problems were raised:

- lack of written procedures to follow;
- insufficient information on birds storage;
- incomplete documentation; and,
- lack of Animal Welfare Officer with relevant experience.

The main data are held by the General Veterinary Inspectorate. The competent authority uses the data to control and to benchmark welfare conditions on farms and also for the reporting to the European Commission.

The competent authority did not point out any issues with the indicators. However, the industry noted that sometimes there are problem for growers in terms of linking the indicator to a specific welfare problem.

A5.6.4.2. Transmission of information and its use on-farm

Data are only transmitted to broiler keepers who have exceeded any of the trigger levels. They are communicated by the official veterinarian who has carried out the post mortem examination; a copy is also sent to the district veterinary officer and to the competent authority. A general method of transmission has not been established. In practice transmission is mainly electronic (using emails), but paper transmission is also used depending on the type of farm.

A5.6.4.3. Structure of the data transmission

The document provides the following details:

- stocking density;
- age of birds at slaughter (days);
- slaughter date;
- document date;
- production system (intensive indoor, for example); and,
- breach of trigger indicators.

No data are provided to allow benchmarking of performance by the grower (as is the case in the UK). Data are stored at slaughterhouses and the competent authority, but they are not made publicly available. The progress made on individual farms, as well as benchmarking against the district average can be accessed by the district veterinary officer.

A5.6.4.4. Impact of the use of welfare indicators and method of transmission

The competent authority was not able to comment on the impact of the use of welfare indicators or the impact of the method of data transmission. However, the general feeling is that indicators allow welfare issues to be monitored, even though few processes are in place to utilise the data to improve animal welfare on farm.

The Competent Authority highlighted FPD, hock burn, breast burn and blisters, joint lesions and CDMR as indicators highly suitable for assessing welfare on farm. Emaciation, ascites, cellulitis, respiratory problems, scratches and total rejection indicators were considered as slightly suitable and wing fractures, dehydration and dead on arrivals indicators as neutral. It is worth noting that only a few of these indicators are used in practice.

According to the animal welfare NGO interviewed, the indicators currently used are objective and adequate to evaluate broiler welfare on farm. The problem is that the trigger levels are considered to be too high and the control system is inefficient and needs to be improved. This organisation also stated that collected data should be stored for a long time to monitor trends and maintain better control and should be made accessible to the public for transparency. The data could provide a useful resource for legislators who could assess how animal welfare on broiler farms is evolving.

The organisation representing growers accepted the necessity of collecting information on animal welfare and following this up where required. They did not have specific views on the indicators collected, but the point was made that performance against the indicators is not only affected by the grower. This organisation felt that there was only utility in collecting information on aspects of animal welfare which growers can influence. That said, the majority of broiler owners/keepers appreciate that it is in their interest to monitor and address poor animal welfare standards in their business relationships with slaughterhouses. The industry fully accepts that derogations to increase stocking density should be contingent on the provision of higher welfare conditions.

A5.7. Spain

A5.7.1. Introduction

Interviews were held with:

- the national competent authority for on-farm animal welfare (MAGRAMA) on 22nd July 2016;
- with poultry sector representative Propollo, on 20th July, 2016; and,
- with animal welfare NGO ANDA, also on 20th July 2016.

The national competent authority for animal welfare in slaughterhouses ASEOCAN (an agency of the ministry of health) reported that they were unable to complete an interview in the timescale foreseen due to the need to obtain input from the 17 autonomous communities prior to any meeting. ASEOCAN did, however, provide subsequent written input on the issue of slaughterhouse indicators. It should be noted that the distribution of competences in Spain (with the national ministries responsible for the transposition of the Directive and co-ordination, but individual autonomous communities responsible for the implementation) posed some challenges. While it was not possible to examine regional differences in depth, key areas of difference are outlined.

The Directive is implemented in Spain at the national level through Royal Decree 692/2010 establishing minimum requirements for the protection of chickens destined for meat production of 20 May 2010⁶².

Between 2009 and 2011 MAGRAMA completed a large scale scientific study on broiler welfare (*Estudio sobre bienestar animal en los pollos de engorde*) (MAGRAMA, 2011). The study monitored 403 flocks passing through 18 slaughterhouses across 11 of Spain's Autonomous Communities over an eighteen month period and examined various welfare indicators including footpad dermatitis, hock burns and breast burns and linked them to a range of production factors, specifically the climatic zone, time of year, type of litter, stocking density, bird age, breed and bird weight. This study consequently includes both important information on the production conditions/parameters in Spain, and information which formed the basis of decisions regarding the use of welfare indicators (see below).

A5.7.2. State of play of the implementation of the Directive

A5.7.2.1. Broiler production in Spain

The structure of the Spanish broiler industry

According to Eurostat data, Spain was the fifth largest producer of poultry meat in the EU in 2014. Apart from a peak in 2010, production has remained fairly constant over the 2009 to 2014 period, although Spain's share of EU production has declined marginally from 11.4% to 9.5% (Figure A5.6).

⁶² https://www.boe.es/diario_boe/txt.php?id=BOE-A-2010-8824

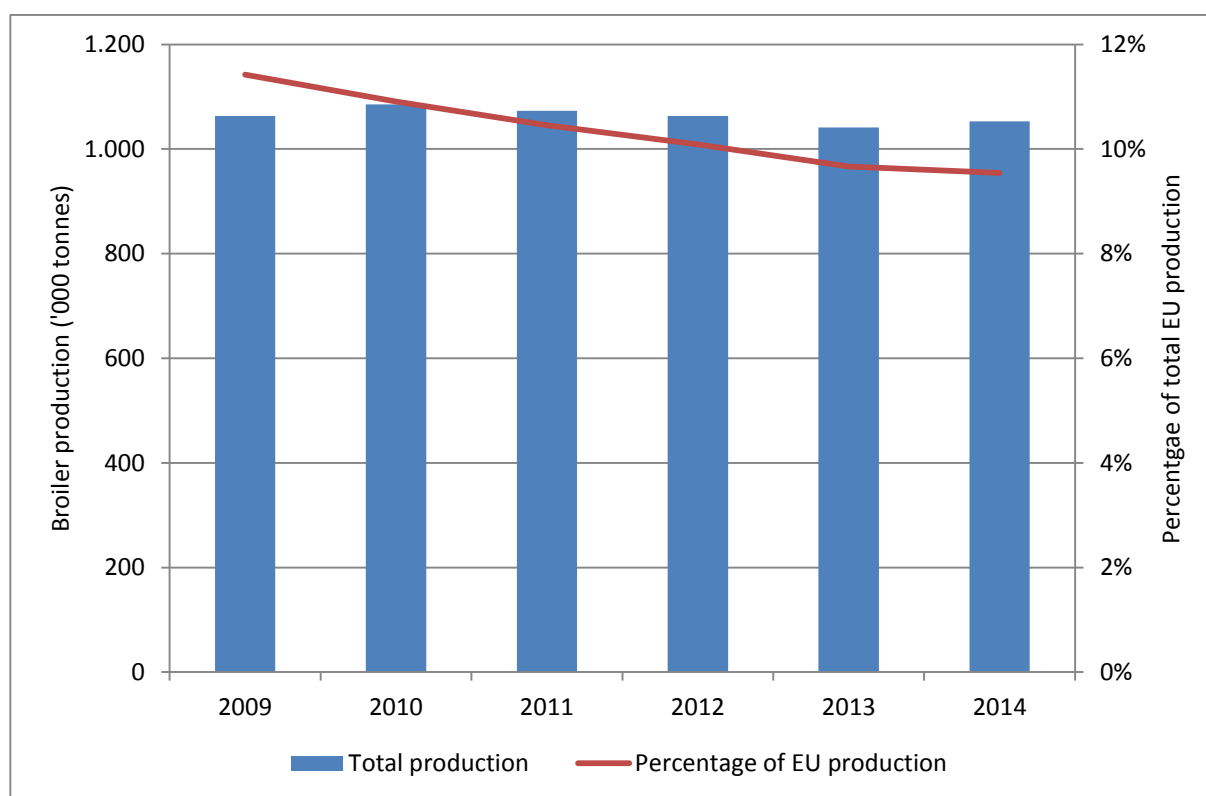


Figure A5.6: Broiler production in Spain and share of total EU production (source: Eurostar, 2016)

According to interviewees, the Spanish industry is almost entirely integrated (between 92% and 97% of poultry production). There are two models of integration:

- **Full integration** (incubation, farm, slaughterhouse, feed production and parent stock). This accounts for about 65% of total production.
- **Smaller level integration** (incubation, farm, slaughterhouse) which accounts for about 30% of production.

In both models of integration the birds belongs to the integrator, but the installations on the farm belong to the grower. The share of production accounted for by integrators has increased in recent years from between 60-70% in the 2008-12 period to the current levels.

Five large companies account for 62% of production between them. No other company accounts for more than 4% of production.

No interviewee thought that the Directive was a major factor in the evolution of the Spanish industry.

PEST analysis based primarily on interview findings reveals the following influences on the sector:

- **Political.** EU legislation on the environment (such as the Industrial Emissions Directive (IED63) and the Water Framework Directive64) was in particular

⁶³ Directive 2010/75/EU of the European Parliament and the Council on industrial emissions.

identified as a political factor which impacted the Spanish poultry sector vis-à-vis third country producers, though it was also recognised that this legislation affects all EU Member States, not just Spain. Royal Decree 1084/2005 sets out the minimum requirements for farms and had already had an impact on the installations on broiler farms. One interviewee believed that the industry had had a significant influence on the drafting of national legislation in Spain which had mitigated the negative impact on the sector.

- **Economic.** Multiple retailers have increasing power. Their importance for the distribution of poultry has increased substantially over the last four years; previously the majority of poultry was sold through butchers and traditional shops, now it is sold through multiple retailers (see below for the reasons for this). Multiple retailers can influence prices, and they also have other requirements such as presentation, labelling and origin⁶⁵, with precise requirements varying between companies. Integrators play an important role and can have high standards / requirements.
- **Social.** Consumer habits (notably convenience and culinary) are changing, and this has played an important role in the increasing importance of multiple retailers. Some traditional Spanish recipes (e.g. paella) require that the bird is cut in a certain way, and this favours traditional sales outlets who do the cutting themselves. However, as cuts are increasingly consumed rather than whole birds or recipes requiring whole birds, supermarkets have become more popular. Whole birds which are not to be cut up for specific recipes may also be cheaper to buy in supermarkets.
While a few years ago consumption of poultry was boosted by the economic situation (as it is a relatively cheap source of protein), this is no longer the case. With the worst of the crisis expected to be over, expenditure patterns are changing and poultry consumption shows a slight downward trend.
- **Technological.** No significant technological factors were identified. The use of newer technology such as smartphones for feedback on and the control of production parameters was though reported by interviewees.

Broiler management on commercial farms

Interviewees considered broiler holdings to be small (20,000 birds), medium (around 45,000 birds) or large (80,000+ birds). Around 65% of holdings are medium sized and 15% large, the remaining 20% are small. On average holdings have 40,000-50,000 birds and a minimum of two broiler houses. Holdings have been increasing in size in recent years. Small farms were reported as being more likely to produce higher quality birds which can be sold at a premium (e.g. the quality lines in supermarkets).

On balance, evidence from interviewees suggests that the majority of broiler farms are specialised (i.e. other agricultural goods are not produced). Two interviewees believed that integrators may stipulate that farmers are dedicated to broiler production.

Older broiler houses are likely to have been upgraded over time, although the technology may not be as sophisticated as that used in new houses; these often use smartphone based control systems. Two factors were identified as contributing to a fairly high level of environmental conditions in broiler houses: Royal Decree 1084/2005 setting out the

⁶⁴ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

⁶⁵ They do not have animal welfare requirements at present, but this could change in the future.

minimum requirements for poultry farms⁶⁶; and the high level of requirements from integrators.

While the precise installations in poultry houses will vary greatly, interviewees agreed that all houses have heating or ventilation of some kind. The climate in Spain is such that this is essential (with temperatures very high in summer, but also falling significantly in winter). Most houses use some form of mechanical (forced) ventilation. The type of lighting varies, but the use of natural light is common, particularly in older houses which tend to have windows for natural light; this also reduces lighting costs. Newer and larger houses tend to have electrical lighting. Houses normally contain sensors which measure key parameters such as humidity, temperature and gas levels.

Evidence from the surveys and from interviewees clearly suggests that stocking densities used in Spain are below 33kg/m². More specifically:

- Only a small minority of farms (8.1%) are authorised for the use of stocking densities above 33kg/m². Interviewees noted that many growers request the authorisation to stock at higher densities in order to have the option to produce at these levels, but do not actually use it.
- All interviewees reported average stocking densities in the range of 28-33kg/m², and that this has been historically normal in Spain.
- A key reason for this relative low stocking density is climate which has a strong influence over production systems in Spain. Temperatures are particularly high during the months of June-September (30-35 degrees Celsius during the day). These temperatures mean it is not possible to use high stocking densities as birds would overheat and mortality would be high. Indeed stocking densities tend to be reduced in summer and in some cases birds are slaughtered at a younger age during the summer.

Table A5.6: Percentage of broiler holdings in Spain authorised for different stocking densities

Density	% of holdings with authorisation
Up to 33kg/m ²	91.9%
Up to 39kg/m ²	8.0%
Up to 42kg/m ²	0.1%

Source: MAGRAMA.

There was limited precise information on other production parameters; however the low level of infringements recorded (see below) indicates that parameters equal or exceed the legally required minimum in the vast majority of cases. More specifically:

- **Temperature.** No data on average house temperature were identified. As noted above, broiler houses have heating and ventilation. One interviewee believed there may be issues with temperatures in some cases during the very hot summer months.
- **Lighting.** In the case of use of natural lighting (which is widespread), lighting levels will be significantly above the 20 lux and six hours required by the Royal Decree. No concrete issues with lighting were identified by interviewees, though it was noted that in one case there had been a question from a producer about whether the colour of artificial light used to attain the 20 lux was important (certain colours of light at 20 lux may have a similar effect to a lower lighting level).

⁶⁶ This notably contains minimum requirements for the conditions in broiler houses, including provisions on ventilation, stocking density limits and air quality parameters.

Many of the infringements noted during controls are connected to record keeping (to put this in context, the infringement rate was 21 from 510 checked holdings in 2015, 4%). The record keeping issues identified included not recording daily mortality rate data, incomplete/absent records and a failure to retain records for the minimum period of three years. Some Autonomous Communities (ACs) provide precise information on the nature of record infringements, others do not. As a result, there is no central source of information on the precise nature of these infringements. Interviewees believed that records are most likely to be kept in electronic form due to the standards and systems required by integrators.

Beak trimming and castration are permitted in Spain, with the conditions for use identical to those set out in the Directive. There are no data on the use of castration or beak trimming. Interviewees believed that castration is only likely in a few traditional holdings. Beak trimming, though permitted, was considered unlikely to be used in the case of broiler production (feather pecking is not the same problem as it is in layer flocks).

Interviewees reported that farmers tend to complete four checks per day on birds (more than the two required by legislation); this is at least partly due to the expectations of integrators. If a farmer identifies a potentially infectious problem (e.g. E.coli) he or she will call the integrator's veterinarian immediately. The veterinarian may also be called if issues with the legs or dermatitis are identified, but equally the farmer may wait for the veterinarian visit (integrators tend to have veterinarians visit farms once per week). Issues with temperature and humidity will be dealt with by the farmer, as will on farm culling/slaughter, if required.

No substantial changes to broiler management followed the entry into force of the Directive.

Breeds used

The main breed used in Spain is Ross; some Cobb is also used. One interviewee placed the proportions as 60% Ross, 40% Cobb. MAGRAMA (2011) contained data on breeds from sampled holdings. This is presented in Table A5.7, and broadly corroborates the interviewee estimate above. No data on the specific lines of Ross and Cobb could be provided by interviewees.

Table A5.7: Main breeds used in Spain (all types of production)

Breed	Number of flocks	% of production
Ross	213	53%
Cobb	93	23%
Ross-cobb cross	62	15%
Slow growing	2	>1%
Hubbard or unspecified	33	8%
Total	403	

Source: MAGRAMA 2011.

As can be seen from the Table, slower growing breeds account for less than 1% of total production. According to interviewees there is some use of slower growing breeds in the north of Spain and some production across the country for local consumption. There is an organisation focused on the use of Label Rouge breeds and which exports label rouge meat to Spain. There is no national definition of slower growing breeds.

Interviewees did not believe that there had been any significant change in the use of breeds in Spain since 2010.

Employment on commercial farms

One interviewee provided estimates of the number of full time employees (FTEs) required by broiler farm size:

- **Small (20,000 birds):** 1 FTE
- **Medium (45,000 birds):** 1.5 FTE
- **Large (80,000+ birds):** 2 to 3 FTE

Interviewees reported a high level of automation in Spanish poultry production, with the automation of feed and water distribution and the use of sensors to inform farmers of issues outside the norm. Catching can be either manual or automated depending on the farm size, the integrator and the transport used. That said, manual catching was believed to be more common than automated catching. According to one interviewee, integrators will sub-contract the task of catching to firms which specialise in this activity, meaning that the farmer is not involved in the process at all.

A5.7.2.2. Implementation of the Directive

Requirements for keeping chickens

Royal Decree 692/2010 establishing minimum requirements for the protection of chickens destined for meat production of 20 May 2010 transposes the Directive. The Decree contains identical provisions to the Directive in all areas with two minor exceptions related to training. First, a minimum course duration of 20 hours is specified. Second, two further areas for training are specified: the working of equipment and installations for production; and legislation on sanitary issues and animal welfare. It was clarified that these additional provisions were introduced in order to ensure a certain degree of harmonisation between the 17 autonomous communities (ACs) in the courses.

The responsibilities for inspection and follow up lie with the ACs, meaning that there may be differences in this area (though the provisions of the Decree must be respected).

Training and guidance for persons dealing with chickens

As noted in above, there is a minimum course duration of 20 hours and training covers the areas set out in the Directive plus two further areas (see above for details).

Training was already required by Royal Decree 1084/2005 prior to the entry into force of the Directive. For this reason, 135 training courses had already been run before 2010. Between 2010 and 2014 a further 180 courses (as required by Article 4 of the Directive) were run and 3,535 people trained. As training was already required prior to the entry into force of the Directive, the provision for granting certificates based on experience (Article 4.4 "grandfather rights") was not relevant in Spain and no certificates were issued under this provision.

Course are run either by the ministries (Agriculture or Education) of the ACs or bodies approved by the Ministries. The precise methods vary between ACs. The use of the Ministries or approved bodies ensures that the training courses fulfil the necessary requirements and it is up to the ACs to ensure that the length and criteria of courses offered are in line with the legal requirements set out in the Decree.

In addition to the courses which focus only on training for broiler farms there are other integrated training courses run by ACs which cover various issues including broilers. It is not possible to identify the extent to which these were used for training required under Article 4.4 and consequently these have been excluded from the figures above⁶⁷. Given that poultry farmers tend to be specialised (see above), it is likely that few participants of integrated courses complete them with the initial objective of using the training on poultry holdings.

Each AC has a register of the courses completed, in some cases with the certificates awarded. Certificates are checked during inspections. As noted in the section on penalties, personnel issues were rather problematic (4%) of inspected poultry holdings. Where problems with personnel issues were identified, these did not necessarily relate to training; they could also relate to various other issues including, for example, an inadequate number of staff for the number of birds. There are no data to allow a separate identification of training infringements.

Interviewees identified the following issues with training:

- According to the Directive, certificates of course attendance are required rather than certificates of competence leaving a degree of ambiguity about the use of training. As the transposition into Spanish legislation keeps the same wording, this is also subsequently an issue in the Spanish legislation. One possible way to resolve this would be to specify the need for certificates of competence as is the case for transport and slaughter.
- Due to the regional responsibility for training there is still the potential for a lack of harmonisation in this area. A better definition of the training requirements, including the time to be spent on different themes, would be advantageous (Regulation (EC) No 1/2005 on the protection of animals during transport provides a good example of more precise requirements for training).
- The areas covered by training should be extended to specifically cover the issue of on-farm culling/slaughter given that growers need to be able to perform these operations.

Interviewees noted that in addition to the courses outlined above for the fulfilment of the requirements of the Directive, there is other training on specific aspects or issues and courses offered by integrators, though this does not count towards the obligations under Article 4 of the Directive.

Inspections

Under Commission Decision 2006/778/EEC, MAGRAMA is required to report the results of inspections to the Commission. In order to do this it collects information from all 17 ACs on inspections and infringements. It should be noted that the species *gallus gallus* is not limited to broilers; other species of domestic poultry (e.g. parent stock) are included in the inspection, although laying hens are not as these are reported separately. The results of the 2015 checks are presented in Table A5.8.

⁶⁷ For example, one AC reported that some 1,700 people had been trained under these integrated courses but it is not possible to say how many of these will have completed this training for use on poultry holdings.

Table A5.8: Outcome of checks of holdings in Spain in 2015

Checked holdings	510
Number of holdings with infringements	65
Of which class A (light)	49
Of which class B (medium)	12
Of which class C (serious)	4
Nature of infringements	
Personnel issues (training, number of workers)	29
Register issues	21
Building	8
Automatic / mechanical equipment	10
Food and water	5

Source: MAGRAMA report to the Commission to fulfil the requirements of Commission Decision 2006/778/EEC.

Note: there are several categories for which no infringements were identified.

The main issue reported with regard to inspections was the limited resources of competent authorities. Resources have been cut through the years of economic crisis, meaning that there are a limited number of inspectors available to perform controls.

Guides to good management practices

It is possible for both MAGRAMA and the relevant Ministries in the ACs to publish guides of good practice; the former at the national level and the latter at the regional level.

However, no general guide of good practice has been published by MAGRAMA. One interviewee explained that this was because there have been no major issues with the application of the Directive which have required the publication of a guide. Another factor was the high standards demanded by integrators who provide their own guides to growers. Another interviewee explained that generally national guides of good practice in Spain are based on EU level guides (at least in the area of agriculture) and the absence of an EU guide might explain the absence of a national one. Two documents have been published by MAGRAMA to provide guidance on specific aspects of the Directive. The first relates to the process for requesting to stock at a higher density. The second is about the documents which should accompany flocks when sent to slaughterhouses. These were published in March 2012 and May 2012 respectively.

Interviewees were not certain if any ACs had published guides of good practice; although it was thought that such a guide had been published in Catalonia.

One interviewee noted several issues with the Royal Decree (as an almost direct transposition of the Directive) and believed that a guide of good practice could assist with these. More specifically these issues were:

- **Article 8 of the Decree on inspections.** “An adequate proportion of animals raised in the territory” is not defined. In Spain there are big differences between ACs in the number of animals and farms, making a definition useful (it is possible that this definition has subsequently been addressed in the hygiene package).
- **Density.** There are three issues. First, how does one calculate density (see definitions point (k); does the feeding tray count or not in the density calculation?). There is also a lack of clarity about how the competent authority should act in borderline cases where it calculates the density to be slightly higher than it should

be (e.g. a tolerance level should be clearly set out to avoid ambiguity). Finally, in the case of the authorisation of a higher stocking density it is not clear how long this authorisation is valid for.

- **Beak trimming.** This is only permitted after “other measures” are exhausted, but it is not clear what the other measures are. It is also not clear which veterinarian needs to be consulted; the official one or the one from the integrator.
- **Feeding.** Sufficient amount and quality are ambiguous terms; the precise needs differ between breeds/lines.
- **Litter material.** The term “friable material” (ES: material friable; also present in the Directive) is ambiguous and not easy for farmers to understand.

It was noted that while breeders provide guides for their breeds, these are documents focused on commercial production/performance and not on fulfilling the requirements of the Directive.

Penalties

Penalties are harmonised to a degree through the law 32/2007⁶⁸. However, they are ultimately dependant on the ACs. In some ACs the offenses may be classed as criminal, in others they are classed as administrative; it depends on the legal system of the AC. Sanctions are normally enforced by the legal services of the AC and not by the Ministries for Agriculture which will perform the inspections. There is currently no central system for showing what subsequent events followed the identification of an infringement; however there is work in progress in this area.

A5.7.3. Impact and costs of implementing the Directive

A5.7.3.1. Impact of implementation

Interviewees agreed that the impact of the Directive had generally been limited. No interviewee believed welfare on farms to be particularly poor in Spain prior to its introduction. This was attributed to a combination of Royal Decree 1084/2005 which had already ensured some improvements in legal standards, and the requirements of integrators (particularly in terms of management practices). Stocking density had always been low in Spain for climatic reasons so the 33kg/m² limit only impacted a small proportion of farms. Improvements in animal welfare were therefore considered to be marginal. The application of the Directive from a competent authority viewpoint was generally not considered complicated.

The following concrete impacts were noted by interviewees:

- the recording of cumulative daily mortality may have caused changes for producers;
- a small proportion of producers may have been seasonally impacted by the basic 33kg/m² stocking density limit;
- there have been positive impacts on biosecurity, with veterinarians (both official and integrator-employed) paying more attention to this area;
- there is more control over self-inspection by farmers, but it is not clear how uniform and effective training of farmers is or the impact that this training has had; and,
- there have been significant impacts in slaughterhouses following the introduction of indicators in late 2015 (see below).

⁶⁸ <https://www.boe.es/buscar/doc.php?id=BOE-A-2007-19321>

No impacts on cross border trade in live broilers were identified.

A5.7.3.2. Costs of implementation

As there were few significant impacts, it follows that related costs have been limited. One interviewee believed that there had been cost for the industry due to the limit on stocking density in some cases and as a result of record keeping requirements. However, no quantitative estimates for these costs were provided. The use of slaughterhouse indicators was identified as a potential source of extra cost (see below).

A5.7.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.7.4.1. Recording of welfare indicators at slaughterhouses

In November 2015 the document *Procedimiento para la detección post-mortem de insuficiente bienestar animal en las explotaciones de pollos de engorde y actuaciones de la autoridad competente* (procedure for the *post-mortem* detection of insufficient animal welfare on broiler farms and actions of the competent authority)⁶⁹ was ratified. This document sets out the indicators to be recorded in slaughterhouses. Prior to the ratification of this document there was no requirement for the use of welfare indicators at national level, although some ACs had already set up indicator requirements with thresholds (e.g. the Valencian Community had required checks for footpad dermatitis, on the dirtiness of birds, and for the presence of illnesses and mortality for holdings with stocking densities over 33kg/m²)⁷⁰.

The aforementioned document, while not included in the official state bulletin (and hence not a document with requirements specified by law), has been approved by the ACs and consequently is considered to apply across the whole of Spain, albeit on a theoretically voluntary basis. It sets out the indicators, number of flocks and sample sizes which must be checked for in slaughterhouses by Official Veterinarians, as well as threshold levels. The specific indicators are outlined in Table A5.9 below. A minimum of four indicators must be checked for every selected batch: **foot pad dermatitis**, **total mortality** (only for stocking densities over 33kg/m²), **mortality in transport** and **one more indicator of choice**.

Table A5.9: Indicators required for use in slaughterhouses, sample sizes, calculations and thresholds

Indicator	Sample size	Calculation	Threshold	
1	Food pad dermatitis	100 per batch	No. grade 1 legs * 0.5	41
			+	
			No. grade 2 legs *	

⁶⁹

http://www.aecosan.msssi.gob.es/AECOSAN/docs/documentos/seguridad_alimentaria/gestion_riesgos/Procedimiento_deteccion_post_mortem_bienestar_pollos_engorde.pdf

⁷⁰ Therefore there was no requirement for the use of welfare indicators during the study period of 2008-14. Findings in this section consequently refer to the situation after the study period and following the adoption of this 2015 document.

Study on the application of the broilers Directive and development of welfare indicators:
Final Report DG SANTE Evaluation Framework Contract Lot 3 (Food Chain)

Indicator	Sample size	Calculation	Threshold	
2	Hock burns	100 per batch	2 No. grade 1	13
3	Breast burns	50 per batch	No. grade 1	10
4	Dirtiness of the birds	100 per batch	No. grade 1 birds + No. grade 2 birds * 2	20
5	Mortality in transport	Whole batch	No. birds DOA/No. animal loaded	2%
6	Total mortality	Whole batch	Cumulative daily mortality rate + mortality during transport	9%
7a	<i>Presence of injuries and illness: emaciation</i>	<i>Whole batch</i>	<i>No. of carcasses declared unfit / no. of animals slaughtered</i>	<i>3%</i>
7b	<i>Presence of injuries and illness: ascites / edema</i>	<i>Whole batch</i>	<i>No. of carcasses declared unfit / no. of animals slaughtered</i>	<i>3%</i>
7c	<i>Presence of injuries and illness: septicaemia</i>	<i>Whole batch</i>	<i>No. of carcasses declared unfit / no. of animals slaughtered</i>	<i>3%</i>
7d	<i>Presence of injuries and illness: others (injuries, etc.)</i>	<i>Whole batch</i>	<i>No. of carcasses declared unfit / no. of animals slaughtered</i>	<i>3%</i>
7	<i>Presence of injuries and illness: TOTAL of above</i>	<i>Whole batch</i>	<i>Sum of the incidence of the above four injuries/illness</i>	<i>5%</i>

Source: Procedimiento para la detección *post-mortem* de insuficiente bienestar animal en las explotaciones de pollos de engorde y actuaciones de la autoridad competente.

The proportion of batches to control varies depending on the authorised stocking density of the holding, as set out in Table A5.10.

Table A5.10: Proportion of batches to control

Authorised stocking density	Proportion of lots to control
Under 33kg/m ²	10%
33kg/m ² to 39kg/m ²	50%
Over 39kg/m ²	100%
Unknown	100%

Source: Procedimiento para la detección *post-mortem* de insuficiente bienestar animal en las explotaciones de pollos de engorde y actuaciones de la autoridad competente.

The selection of indicators, sampling requirements and thresholds were established based on the 2011 study of broiler welfare by MAGRAMA (which used the methodology of the Welfare Quality project). However, small modifications were made to them in some cases to avoid issues with those ACs which had already set up thresholds in certain areas, hence respecting the work that they had already performed.

Certain further considerations were taken into account when the indicators were set:

- The number of indicators was limited to seven due to the capacity of veterinarians (feasibility in the slaughterhouse).
- It was decided not to define the samples in terms of beginning/middle/end of batch as the requirements were already considered quite complex and such a definition would introduce further complications for veterinarians.

A5.7.4.2. Transmission of information and its use on-farm

When a threshold is breached, the official slaughterhouse veterinarians must communicate the results to the Ministry of Agriculture of the AC within a one month period. This Ministry is then responsible for communicating results to the farmer, again within one month.

The competent authority for animal protection should inform the official veterinarians in slaughterhouses of measures adopted on-farm to address any deficiencies identified as a result of the feedback on indicators. This should happen within less than a month of the establishment of the measures.

However, one problem with this system is that considerable time may have elapsed by the time that the farmer has been informed and follow-up actions are being pursued. With this passing of time, the conditions which caused the problems may have changed.

One interviewee reported that slaughterhouses will also generally inform growers directly of the results. On their side, slaughterhouses will often keep records in order to monitor performance against the indicators; this also allows slaughterhouses to take actions (such as not renewing the grower contract) if results are poor and there is no improvement.

As previously noted, the selection of indicators was based on a comprehensive study completed by MAGRAMA in 2011. Interviewees had differing views on the use of specific indicators:

- One interviewee believed that stricter on-farm welfare requirements were preferable to the use of indicators; however if welfare requirements were to be kept as they are at present, it is necessary to use all indicators which have been independently identified as relevant for welfare (e.g. as in the 2012 EFSA report) in order to identify all possible animal welfare issues. The use of selective indicators was not considered capable of identifying all potential issues.
- Another interviewee noted that there are issues of practicality around the use of several indicators. First, it is only possible to identify certain issues (e.g. scratches and bruises) after the skin is exposed following defeathering. Second, these problems can result from poor on-farm welfare, transport, handling in the slaughterhouse, the stunning process, etc. Care therefore needs to be taken when

linking data from certain indicators to welfare on farm (i.e. it is not always easy to establish causality).

A5.7.4.3. Structure of the data transmission

The method of transmission (electronic or paper) is not specified, and therefore depends on the AC. However, one interviewee commented that the method of transmission of indicators from the slaughterhouse to the grower is likely to take place electronically (where it takes place).

As the requirements have only recently been introduced it was not considered possible to comment on the level of success of transmission of data.

Communications must contain the following information:

- Registered holding number
- Date of slaughter
- ID of the slaughterhouse
- ID of the transporter
- Detailed results of the control by indicator

A5.7.4.4. Impact of the use of welfare indicators and method of transmission

Interviewees noted that the use of indicators had significant impacts on (i) slaughterhouses and (ii) the competent authorities.

With regards to slaughterhouses, it was noted that the practices in slaughterhouses were being adjusted in line with the requirements of the procedure document on indicators ratified in November 2015. This notably included an increase in time spent on supervising animal welfare in the slaughterhouse. Two interviewees reported that the use of indicators had resulted in some extra costs, though it was not possible to quantify these. That said, interviewees also noted that indicators may have connections to economic and sanitary issues, and not just welfare issues. Indeed, one interviewee believed that slaughterhouses may use some indicators independently of the requirements introduced in late 2015 in order to monitor product quality.

With regard to the impact on competent authorities, the use of indicators was considered to have created both a higher administrative burden, and the need for a higher level of inspections. This translated into unquantifiable costs for CAs in terms of human and economic resources. The costs were considered unquantifiable for two reasons: first, experience with the use of welfare indicators is recent; and, second, the different ACs have different protocols with regard to the use of indicators meaning there are different potential economic impacts across ACs.

No evidence suggested that the use of welfare indicators had had an impact on consumer perception.

A5.8. Sweden

A5.8.1. Introduction

Interviews were held with Svensk Fågel, representing the industry, on 28 June, 2016 and with the Swedish Board of Agriculture (one of the two national competent authorities) on 8 August, 2016.⁷¹ It was difficult to arrange interviews in Sweden due to the coincidence between the data collecting phase of the study and holidays in Sweden; these difficulties were overcome by using telephone interviews which were later supplemented by a visit on 21/22 September, 2016 to meet the national Competent Authorities (National Food Agency, NFA and the Swedish Board of Agriculture, SBA) and grower and slaughterhouse representatives.

The Directive is implemented in Sweden through SJVFS 2010:15.⁷²

According to Bock, *et al* (2014), the key points of difference between the Swedish legislation and the Directive are:

- mandatory daylight access;
- a ban on beak trimming;
- the inclusion in scope of broiler breeder welfare;
- differences in ammonia levels;
- a ban on antibiotic feed additives; and,
- differences in respect of noise levels.

The competent authority explained that there has been a consensus between citizens, government and the industry on the welfare of broilers since public discussions in the late 1980s. As a result, Sweden limits the maximum stocking density to 20 kg/m², with a possible derogation to 36 kg/m² under a controlled program that limits the total number of birds (see below).

Most Swedish broiler production (99% according to the competent authority) is in accordance with the voluntary Animal Care Programme⁷³, run by Svensk Fågel, which rewards growers on the basis of effort and the classification of results. Essentially this starts from the legal maximum stocking density of 20 kg/m² from which derogations are permitted up to a maximum of 36 kg/m² as long as the producer's premises and animal care meet the requirements in the 31 point programme for higher stocking densities; in both cases it is management standards which are key rather than direct indicators of animal welfare. The system operates in close cooperation with salmonella controls. The organic sector does not use the FPD indicator because they stock at a maximum of 20 kg/m². Free range systems stock at 27 kg/m² and therefore have to use the system.

A5.8.2. Impact of implementing the Directive

There have been no *ex-post* studies on this topic in Sweden, although an Impact Assessment was carried out by the SBA (as part of the process of changing national

⁷¹ The 21 County Administrative Boards are also competent authorities with responsibility for control of animal welfare in primary production (regional level). The Swedish Board of Agriculture provides guidelines for these controls:

<http://www.jordbruksverket.se/amnesomraden/tillsyn/instruktionertillkontrollanterochinspektorer/djurskydd/va-gledningarochchecklistor.4.67e843d911ff9f551db80005152.html>

⁷² <https://www.jordbruksverket.se/download/18.6b0af7e81284865248a80002467/2010-015.pdf>

⁷³ This was developed jointly by Svensk Fågel, the Swedish Board of Agriculture (competent authority) and the Swedish University of Agricultural Science. See: <http://www.svenskfagel.se/?p=2215>.

regulations) and circulated to stakeholders (Jordbruksverket, 2009). The Impact Assessment concluded that potential costs to growers were not likely to be appreciable; new administrative requirements were expected to be minimal given that growers already kept journals. Only growers not already using industry training would incur additional costs.

The lack of *ex-post* assessment is partly because the Directive did not lead to many changes in practice and therefore had practically no impact. The only real change was to training which is now both mandatory and more formal (although included in the industry standards). Because there was no real change to broiler production practice, neither the industry nor the competent authorities felt that there had been any impact as such, including in terms of costs. The expectation in Sweden was that the implementation of the Directive would create more of a level playing field between producers across the EU. The perception is that this has happened to a limited extent and very slowly; the Swedish industry believes that the dominant pressure for change has been multiple retailers rather than the Directive. The Swedish industry also believes that some Member States have implemented the Directive more strictly than others and that some have not implemented it at all.

The point was made by the Swedish poultry industry that producers in Sweden are at a disadvantage to producers in Member States who are able to stock at higher densities and that no "compensation" is received for the higher animal welfare outcome. For example, the industry explained that producers in neighbouring Finland can stock at up to 42 kg/m² and can receive assistance in meeting the additional requirements via the Rural Development Programme. Producers in Sweden who wish to stock above 20 kg/m² have to follow the additional animal welfare requirements at their own expense (there is no possibility for support because the requirements pre-date the implementation of the Directive); this includes additional inspections, the administration involved in using the reporting system and the production of annual reports. There is also a cost in the form of imposed reductions in stocking density when there is a high incidence of FPD (see below). The competent authorities agreed that the lower stocking density in Sweden places Swedish producers at a disadvantage vis-à-vis producers in other Member States, but it should be recalled that the choice to use a lower stocking density was a national decision.

A5.8.3. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.8.3.1. Recording of welfare indicators at slaughterhouses

The Swedish legislation does not specify that slaughterhouses must record information on FPD. Some indicators have to be recorded by law under the Swedish interpretation of the Official Controls Regulation. The requirement to record FPD, along with other indicators, is part of the voluntary Animal Care Programme which almost all producers follow. The NFA explained that while it is therefore possible for some chickens to be slaughtered in Sweden without an assessment of FPD, Official Veterinarians still assess FPD in slaughterhouses where suppliers do not follow the Animal Care Programme, just not in each flock.

Data on dead on arrival (DOA) numbers and wing damage are used within the Animal Care Programme, but again there is no legal requirement relating to the Directive; these indicators are used by the industry because they find them useful and/or because they are required under Official Controls. Although there is no requirement in Sweden to use Cumulative Daily Mortality Rate (CDMR) as an indicator because stocking density is

limited to a maximum of 36 kg/m², it is still recorded. There is though no link between the CDMR and stocking density because the stocking density is below that foreseen in the Directive.

Slaughterhouses collect data on the FPD indicator and this is followed-up under the Animal Care Programme as required. At the slaughterhouse, data are also collected on wing damage and DOA indicators (and other physical parameters) and these are followed up when considered necessary. In June, 2016, guidelines⁷⁴ were produced to help achieve harmonisation among the Official Veterinarian (OV) and the County Administrative Boards (CABs⁷⁵), which are responsible for official control of animal welfare. The current situation is that where DOA is above 1% the OV should inform CABs. This is usually done with additional information from *post-mortems* conducted on a sample of DOA birds. The information is sometimes, but not always, transmitted via the county veterinarian who will then carry out investigations. As the CABs are independent bodies, they decide the action to take and this may differ. This is why guidelines were produced.

If there are suspicions about poor welfare in transport, then the OVs should report this irrespective of the DOA level. The OV should include a narrative which provides any possible explanations and should indicate whether the problem is likely to relate to the grower, the transporter or the slaughterhouse. The threshold for DOA (1%) was calculated using national data and was agreed by a working group of stakeholders and the competent authorities. When the trigger value for DOA was discussed, the Trigger 1 and Trigger 2 system used by Defra in the UK was examined for possible use in Sweden, but it was decided that the definition of trigger levels according to Standard Deviation would not be appropriate in Sweden as the Swedish data are not normally distributed. The competent authorities added that this approach allows for considerable deviation from typical standards before a trigger is reached.

Data are recorded by suitably qualified slaughterhouse staff under the supervision of the OV who carries out checks to ensure that the process is being followed correctly. Data are entered electronically and are then transmitted to the slaughterhouse office. The data required under the Animal Care Programme are recorded for each flock on the Tuppen system (a data system owned by the industry).

Some OVs provide all the data they record on DOA to the CABs in order to provide a more comprehensive oversight. However, reports to the CABs are public documents and sometimes they can provide a misleading picture of the industry to the media (not just in the poultry sector), so not all CABs request these additional data. Part of the rationale for the new guidelines is to help the OVs and the CABs identify cases where there is poor animal welfare. The new guidelines cover additional parameters; the competent authorities stated that DOA and red skin are the most important indicators to be dealt with in the guidelines, as a first step. The competent authorities explained that more parameters are likely to be added to the guidelines in the future.

The FPD indicator is scored as follows: 100 feet are taken from each slaughtered flock (without prior inspection) and each is categorised using a scale of 0, 1 and 2 with 0 indicating no problem and 1 and 2 indicating increasing grades of severity. The categorisation is done under supervision of the OV at the slaughterhouse. The number of feet given a score of 1 is multiplied by 0.5, and the number given a score of 2 is

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<http://www.jordbruksverket.se/download/18.69237655154974af61b8feed/1467027763184/V%C3%A4gledning+f%C3%B6r+kontrollmyndigheter+p%C3%A5+slakteri.pdf>

⁷⁵ There are 21 CABs.

multiplied by 2 to give a final score for the batch between 0 and 200. If the score exceeds 40 for a second time, then stocking density has to be reduced by 1 kg/m². If the score exceeds 80, then a stocking density reduction of 2 kg/m² is enforced with subsequent breaches of this score resulting in further reductions of 1 kg/m². These restrictions are kept in place until such time as the score for birds from this house returns to below the thresholds. Breaches of the 80-point trigger are reported by the Official Veterinarian (NFA) to the CAB which should then take further action.

The categorisation process is quite simple and there are training courses to ensure a standard assessment. Best practice is to sample from different points on the processing line so that the birds are not all from the same part of the house; this should reduce the risk of missing localised problems.

The FPD trigger values were set on the basis of the science available at the time. However, reducing the stocking density does not actually address the cause of the animal welfare issue which will be wet litter. This can be caused by combinations of bad management, inappropriate ventilation, feed quality, etc. The point of the stocking density reduction is an economic punishment which is designed to make the grower take the issue seriously, and therefore make necessary changes, rather than to result in a direct improvement in animal welfare.

Growers stocking at up to 36 kg/m² need to maintain FPD scores below 40. They must also fulfil other management criteria. In 2014, 93% of the Swedish industry operated at 36 kg/m² with 3% operating at or below 20 kg/m² and 3% above this minimum, but below 36 kg/m². However, it is important to note that some of those stocking at below 36 kg/m² have chosen to do so because they are producing non-conventional chicken using slower growing breeds as part of corn fed systems and free-from-coccidiostat⁷⁶ systems (20 kg/m²) or free range systems (27 kg/m²), not because they have high FPD scores.

A key disadvantage with the FPD indicator is the way it is connected to stocking density given the lack of a causal relationship. The industry believes that, given this lack of relationship, a straight financial penalty would be more appropriate where the incidence of FPD is a problem (see also below).

The FPD assessment was developed by Lotta Berg and Jan Svedberg at the Swedish University of Agricultural Sciences in the early 1990s.

The other indicators do not yet have trigger values and the data are just monitored internally. Wing damage is also only followed up internally. The main issue with the wing damage indicator is that it is subjective. The line speed exacerbates the difficulty of scoring against this criterion and this can lead to an over-estimation of problems as the industry believes operators tend to err on the side of caution. Another issue is that it is difficult to determine when wing damage occurred (i.e. on the farm or during transport) and whether it was caused by an injury or not.

Slaughterhouses store the data collected in a database and send the data back automatically to the grower as soon as it has been collected. The NFA used to collate FPD data when paper forms were used, but this practice was discontinued. There are plans to reintroduce this central collation of FPD data on a voluntary basis. However, at the moment, the NFA is not able to track developments in the FPD indicator over time.

⁷⁶ A substance administered to poultry to retard the growth and reproduction of coccidian parasites.

No other indicators of on-farm welfare recorded at slaughter were considered in Sweden. The ones that are used are considered to be sufficient to improve welfare conditions. The industry believes that including cellulitis could be a problem because antibiotic use in Sweden is very low (meaning that the incidence of cellulitis is relatively high). Mortality can also be relatively high because antibiotics are not used as a preventative measure in Sweden. CDMR would therefore not be an appropriate indicator to use since culling is considered an important welfare tool and is sometimes preferred for infected birds instead of treating the whole flock with antibiotics. Because the higher stocking densities permitted under derogation in the Directive are not used, there is no requirement to reduce stocking densities due to mortality rates in Sweden.

There were discussions around the stocking densities set out in the Directive, but a collaborative decision between the industry and the competent authorities was taken not to increase the levels used in Sweden.

No interviewees identified any specific difficulties with recording the indicators in use. The competent authorities did not perceive any specific advantages or disadvantages from using specific indicators. However, they noted a general advantage in keeping information in an electronic database so that changes in parameters can be tracked over time and systemic risks identified. Such tracking would also reveal links between specific indicators which would improve the understanding of the utility of recording these.

The new guidelines, which cover animal welfare at slaughter, include red skin, but this results from slaughterhouse procedures and so is not relevant to animal welfare on farm.

The competent authorities reiterated that the Animal Care Programme is a voluntary scheme and this addresses several parameters concerning housing, environment animal welfare and hygiene, some of which are not legally required.

A5.8.3.2. Transmission of information and its use on-farm

Where the FPD score requires action by the grower this is set out in an email (this will be an indication that stocking density must be reduced) and the grower must explain what action they are going to take to both the slaughterhouse and the farm's veterinarian. Whilst the industry stated that communication is all electronic (and automatic), the competent authorities said that paper communications are sometimes still used. The adjustment of ordering of day old-chicks to the farmer is also made if the stocking density must be reduced because a threshold has been exceeded. There is follow-up through Svensk Fågel who receive copies of the information when the trigger is reached and they follow up around 20% of cases as part of the Animal Care Programme.

Growers are used to using the FPD indicator and accept its use; there is little discussion on this. Growers do consider this indicator useful (despite the lack of direct relationship between it and stocking density) because it means that the industry has to operate in a similar way across Sweden and producers are therefore competing fairly.

The use of DOA as an indicator is also considered fairly uncontentious because it is a simple, objective binary indicator. However, because Sweden is a large country, many broilers are transported over long distances to slaughterhouses and the number of DOA is more problematic where this is the case.

The wing damage indicator is considered by the industry to be more problematic. The grower feels that wing damage is usually caused by loading and/or in the stunning process and they are not sure why they should be responsible for this. However, the

growers own the birds and the counter argument is that they have to take responsibility for the loading programme. This difference of opinion is why the industry believes it is more suitable for wing damage to be an internal indicator rather than an official one.

There is little difference in perspective between the competent authority and the industry; both focus on the FPD and DOA indicators which they find useful and straightforward to deal with. The competent authority noted that more time is needed to see what the advantages and disadvantages of specific indicators are, although the FPD indicator is quite informative about the management on farm. That said, FPD can be caused by feed quality as well as management practices and sometimes the grower is unable to take remedial actions (where the feed is produced off-farm for example).

The industry body, Svensk Fågel, provides an annual report on the Animal Care Programme to the SBA (reporting used to be every six months). The report is also presented to the NGOs for animal welfare. The report contains information on various aspects of the Programme, including aggregated FPD scores. The central competent authority thus has a broad overview of the situation. The competent authorities explained that there is seldom a more detailed discussion within the reference group where the report is presented. However, the SBA would take action if it was apparent that action was required, and if the industry had not already taken action itself, but this eventuality is not considered likely.

There are also meetings between the competent authority and the industry throughout the year on certain issues and the national competent authorities (SBA and NFA together) have also carried out revisions where the programme was critically evaluated and feedback provided to, and addressed by, Svensk Fågel.⁷⁷ The regional competent authority (i.e. the CAB) can be involved if it has been informed by an OV that the FPD at one flock is high. However, usually this process is quite lengthy and the farmer will have received data and addressed the problem/had stocking density reduced before the local competent authority becomes involved.

In addition to this reporting, each flock's FPD scores are available to the officials at the slaughterhouse and on request. However, growers receive feedback from the slaughterhouse on each batch (to the level of sub-unit within a house under the same definition of "flock" as used under the salmonella control procedures) and are therefore able to make necessary adjustments to safeguard animal welfare. Any necessary stocking density reductions are made on the next flock to be put in the incubator, i.e. not the flock which immediately follows the batch which triggered the reduction. The only issue with traceability is when birds are taken from more than one house at the same time, but even here the producer will still have narrowed the problem down to a small number of houses.

A5.8.3.3. Structure of the data transmission

The data collected for each flock at the slaughterhouse is listed below. This is then sent to the NFA and is also used in the Tuppen data system.

- FPD score
- Wing damage
- Liver disease
- Enteritis
- Other leg problems
- Skeletal malformation
- Emaciation
- Muscle dystrophy

⁷⁷ The SBA and the NFA perform joint revisions of different sectors of the animal production programmes. It was the turn of the broiler Animal Care Programme in 2010-2011.

- Peritonitis
- Lung, heart or air sacculitis
- Nefrit
- Ascites
- Crop - dilated disease
- Yolk sac inflammation
- Leukosis eller Marek's Disease
- Other tumours
- Joint lesions
- Fractures
- Small, underweight
- Cellulitis
- Breast blisters
- Abnormal smell, discolouring
- Culled, not slaughtered
- Others
- Wooden breast
- Others, muscle
- Dead on arrival

A number of other conditions which are due to processing are also recorded:

- red (not bled)
- Bleeding, fresh fractures
- Lack of organ
- PM mechanical damages
- Poorly bled
- Not bled (but not red)
- Contamination
- Reject due to technical failures at processing

Basic information on the day, date, producer, house and sub-unit is also recorded, as is information on the contents of the crop (empty, half-full, full), the staff completing the data capture exercise and, finally, the total number of rejects (both including and excluding DOA).

The information sent to growers is always received by them; it includes information on rejects, which determines their payment so they would need to ask for it they had not received it.

Slaughterhouses hold the information in databases while most growers will use the "Tuppen" data system which stores all data centrally. Only a small number of farmers use paper records or their own system rather than the Tuppen system. The NFA records a substantial proportion of the data set out above in the official database directly at the slaughterhouse.

A5.8.3.4. Impact of the use of welfare indicators and method of transmission

The implementation of the Directive in Sweden did not lead to any substantive changes in practice (see above) and therefore the use of welfare indicators had little impact. However, the industry perception is that the system leads to a higher level of welfare on-farm and generally to better production standards. Some growers will have had to make some investments in management, but these will have had positive impacts on their business.

The prevalence of severe FPD in Sweden has decreased from 11% in 1994 to between 4% and 6% from 1995 to 2001 and then to 3% in 2005 after a brief spike to 7% in 2002 and 2003 (SBA, 2011). The same source states that birds affected by severe FPD show a reduced growth rate and that better growth as a result of the assessments compensates for the costs of foot health control. The competent authorities explained that having data on the prevalence of FPD over time allows investigations to be made when the incidence increases, as was the case in 2014.

The competent authority explained that a comprehensive training system existed prior to the implementation of the Directive.

A negative impact of the system in place is that there can sometimes be issues when the trigger values are breached for isolated reasons often beyond the reasonable control of the farmer. To address this, the industry believes that it would be a good idea to set penalties on data drawn from a mean of three to five flocks to allow for isolated incidents largely beyond the farmers' control without penalty.

The industry believes that some consumers may be aware of the Directive and may have a vague idea that animal welfare is higher in Sweden than elsewhere in the EU, but for most consumers this is not an issue that they are particularly aware of. The competent authority felt that the average consumer will not be aware that there is EU legislation in this specific area, although consumers are considered to be aware that there is general EU legislation on animal welfare. The main consumer focus is on broilers having outside access. This has led to growth in the free range/organic sectors, albeit from a very small base⁷⁸. This issue appears to be more important to consumers than FPD and other specific welfare issues.

The activities required under the Directive are considered by the industry to be routine. There is therefore no perception that there are additional administrative costs beyond modest initial setup costs immediately post-implementation. This position is not expected to change as long as the requirements remain as they are.

The competent authorities had to update national legislation and also produced updated guidelines for the CABs. Because the Animal Care Programme was in operation before the Directive was implemented, an independent party (the insurance company for salmonella compensation which makes inspections on farm), produces the FPD report to the SBA and Svensk Fågel.

The industry would prefer to have a financial penalty rather than the stocking density reductions and this is in discussion. The stocking density restriction, while it effectively amounts to a financial penalty, is not considered to be a practical response because growers have contracts with slaughterhouses to deliver a certain number of birds and this approach has implications for the operation of the supply chain. The industry believes that there are some management measures which can be taken in the house to improve the FPD score, but this is not a stocking density issue.

The main benefit of the way in which the system is implemented is that electronic communication is quick. It is though very important that the figures are entered correctly; this is the main vulnerability in the system. That said, the industry considers that the validation systems to alert people to possibly incorrect figures are sufficient (this is not just animal welfare data). There are also systems to allow data to be corrected if it is later determined that they are incorrect.

The competent authority explained that electronic communication requires growers to have and be able to use computers, although this is also the case in other relevant areas such as alarm systems linked to animal welfare. It is also necessary to have back-up power sources. These requirements though are not driven solely by the way in which the Directive has been implemented.

⁷⁸ It is not easy to produce organically in Sweden; free range production is more manageable.

The only real issue with the implementation of the Directive in Sweden has been the requirement to not withdraw feed more than 12 hours before slaughter. There are only a few slaughterhouses in Sweden and, as a consequence, there are long distances to travel in many cases. This is the only aspect of the Directive that is really discussed by the industry as being a problem.

A5.9. United Kingdom

A5.9.1. Introduction

Interviews were held with the competent authority (Defra) and with the British Poultry Council (BPC), representing the industry, on 27 June, 2016. An interview with an animal welfare NGO (RSPCA) was held on 11 July, 2016 and a written response to specific questions was received from 2 Sisters, the UK's largest poultry integrator, on 25 July, 2016.

The UK competent authority has commissioned Bristol University to carry out an evaluation of the UK implementation of the Directive⁷⁹. This report has not been published at the time of writing and Defra took the position that it is unable to provide any substantiated insights into the impact of the Directive, or the utility of indicators, until it has been published. This report will form the basis for the competent authority's Post Implementation Review.

The Directive is implemented in England through the Welfare of Farmed Animals (England) Regulations 2007⁸⁰ (amended in 2010⁸¹) and through similar legislation in the devolved authorities of Scotland, Wales and Northern Ireland.

A5.9.2. State of play of the implementation of the Directive

A5.9.2.1. Broiler production in the United Kingdom

The structure of the United Kingdom broiler industry

The UK is the second largest broiler producer in the EU (Figure A5.7) although its share of total EU production declined by 4% between 2009 and 2014, even though production increased by 14%.

Broiler production in the UK is generally integrated with slaughterhouses owning the chain from processors back to parent breeders supplying day old chicks; some integrators, but not all, also own feed mills.

Around 75% of the poultry industry was integrated in 2014 (Dickinson, 2014), but according to the poultry industry the degree of integration in the broiler sector may be slightly higher at up to 90%. The UK poultry industry is also highly concentrated with the largest four operators accounting for 84% of total weekly production and the largest eight for 95% (Dickinson, 2014). Again, it is thought that concentration may be slightly higher in the broiler sector. The poultry industry supports 79,300 jobs and had sales valued at £6.9 billion in 2014 (Maliki, 2017).

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<http://scienceresearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17720>

⁸⁰ http://www.legislation.gov.uk/uksi/2007/2078/pdfs/uksi_20072078_en.pdf

⁸¹ http://www.legislation.gov.uk/uksi/2010/3033/pdfs/uksi_20103033_en.pdf

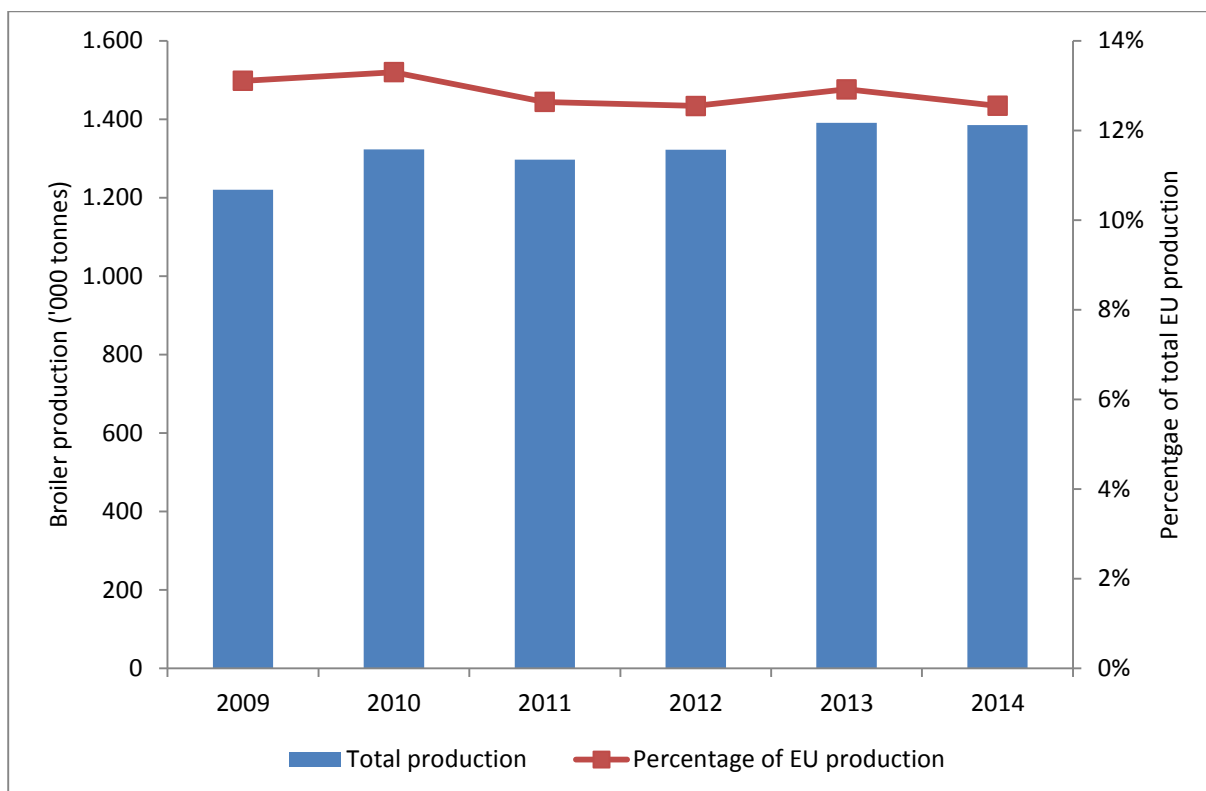


Figure A5.7: Broiler production in the UK and share of total EU production (source: Eurostat, 2016)

As Figure A5.7 shows, the poultry industry in the UK has been growing steadily in terms of output. Consolidation has been ongoing and has been driven by the result of general competition and the battle to supply the major retailers. Dickinson (2014) states general growth factors to be:

- rising demand;
- high degree of integration;
- lack of subsidy (meaning a dynamic sector);
- the good fit between poultry production and mixed farming;
- ability to respond quickly to changes in demand; and,
- growth in renewables.

Interviewees did not feel that the Directive had been a factor in the evolution of the industry.

PEST analysis reveals the following influences over the sector:

- **Political:** environmental legislation is an important driver, specifically the provisions of the Industrial Emissions Directive⁸² which controls ammonia emissions (mainly affecting growers) and odour and noise (mainly affecting slaughterhouses). Climate Change Agreements provide an opportunity to get up to a 65% discount on the Climate Change Levy tax if targeted improvements in energy or carbon efficiency are met (for farms the target reduction is 13% and for factories 15% by 2020). New cooling systems have been installed in slaughterhouses to comply with Regulation (EU) No 517/2014 on fluorinated

⁸² Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control).

greenhouse gases (the so-called F-GAS legislation). The Directive has had only limited influence on animal welfare in the sector.

- **Economic:** the main economic driver has been the general popularity of chicken as a versatile and relatively cheap source of protein which is eaten by all sections of society both in the home and in the catering sector. In addition, retailer dominance of the sector has created a drive to increase scale to meet their demands. Retailers also use chicken price to benchmark against their rivals and so there is downward pressure on prices which is exacerbated by the (usually lower) price of third country product. Retailers are also always looking for points of difference, but are reluctant to pay more for this. The main economic influence on production costs is the price of feed. At the moment this is quite favourable to the sector, but changes can have a significant impact on production costs and some producers are at risk of going out of production if increases are severe.
- **Social:** prior to the recession there was a push by celebrity chefs towards the increased use of free range and organic chickens, although this growth has been curtailed by the recent economic climate. Beyond this it can be difficult to build new poultry houses or to extend existing farms as a result of community opposition to expansion. This issue directly prevents the expansion of existing production facilities, but there is also an indirect effect in that breeders cannot expand to meet any increased demand for chicks. Environmental pressures have led to increases in production efficiency (intensity) which can be at odds with animal welfare concerns.
- **Technological:** the broiler sector has been investing in heat exchanges, biomass boilers and underground heating sources which has led to some reductions in energy bills. The burning of litter on farm is now permitted under the Animal By-products Regulations⁸³ and farms are investing in the technology to allow them to do this. Slaughterhouses are investing in new cooling systems for the plant (not for chilling the birds), also in an attempt to reduce energy costs. Since 2008 the use of Controlled Atmosphere Stunning has largely replaced the use of water baths as a result of retailer demand. Several companies have invested in factory interventions to reduce *Campylobacter* on chicken carcasses. Although technology is available to measure animal welfare in slaughterhouses (FPD and hock burn), there has been a reluctance to invest in this.

Broiler management on commercial farms

The majority of the UK market is for standard or standard plus birds which follow the Red Tractor Assurance standards⁸⁴; Dickinson (2014) estimates that 85% of the poultry market falls into this group, Maliki (2017) estimates 90%, a range corroborated in interviews. Some 14% of the market is for higher welfare birds including some retailer codes (Waitrose and Marks and Spencer) as well as the RSPCA's Farm Assured scheme. A further 3% of the market is (other) free range and 1% is organic.

The majority of the UK broiler industry therefore stocks at 38 kg/m² in line with the Red Tractor standards with higher welfare lines, free range and organic systems stocking at lower densities (30 kg/m² for RSPCA Farm Assured; 27.5 kg/m² for free range and 21 kg/m² for organic (fixed houses; 30 kg/m² for mobile houses which remain open at night) (RSPCA, 2013).

Stocking at 38 kg/m² has been typical since the introduction of the Red Tractor Chicken Assurance scheme in 2005 (previously known as the Assured Chicken Production Scheme). Prior to this the Defra code of recommendations for meat chickens and

⁸³ Regulation (EC) No 1069/2009 and its accompanying implementing Regulation (EC) No 142/2011 which are administered and enforced in England by the Animal By-Products (Enforcement) (England) Regulations 2011.

⁸⁴ <http://assurance.redtractor.org.uk/contentfiles/Farmers-5616.pdf>

breeding chickens⁸⁵ advised a maximum stocking density of 34 kg/m², but this had no force in law. Broiler producers operating outside of the Red Tractor scheme are free to stock at 39 kg/m² in accordance with the legislation.

The typical commercial production cycle is between 35 and 45 days; sometimes the flock is thinned at 30-35 days with the rest of the batch being depopulated at 40-45 days. Dickinson (2014) states that 2.4 kg liveweight is usually attained after 40 days. Depopulation is followed by an empty period of between 7 and 10 days during which cleaning takes places.

The use of ventilation or heating is site specific depending on the location of the site, the type and age of housing; the extent to which either is required also depends on the outside temperature. Houses are pre-heated to around 25°C with the temperature then increased to 34°C at placement before being reduced to 23°C by around day 25 and from there to 18°C. The vast majority of housing is environmentally controlled.

In accordance with the provisions in Annex I of the Directive, light intensity is at least 20 lux at bird eye level illuminating 80% of the house. Higher light intensity leads to greater bird activity and this can have negative animal welfare consequences such as increased injurious pecking; producers therefore try to reduce light as far as possible. The relatively recent requirement, via retailer production codes, for houses to have windows makes this more difficult, especially on bright days. Generally window space is equivalent to between 1% and 3% of floor space.

The Red Tractor scheme limits ammonia concentrations inside the house to 20 ppm and CO₂ concentrations to 3,000 ppm (both in line with Annex II of the Directive). In order to meet these requirements producers should know the actual concentrations, but these vary according to site-specific factors (CO₂ concentrations sometimes exceed 3,000 ppm when chicks are first placed due to heaters raising the temperature, but they quickly reduce; there is no issue with ammonia concentrations). However, European Commission (2013b) was critical of audit visits which it claimed did not provide adequate assurance that these requirements were met. In response the competent authority indicated that it would seek improvements in this area and this was subsequently done (European Commission, 2015).

While the identification at inspection of birds in pain, suffering from severe ascites or severe malformations or whose growth is compromised is subjective⁸⁶ and depends on the competency of the keeper, this competency is informed by training which aims to provide a standard level of acceptable care. There are accepted industry guidelines on assessing walking difficulties which use a six-point scale from 0 to 5 with birds scoring 4 or above being culled⁸⁷. Birds identified as being in pain are humanely culled to avoid unnecessary pain and suffering; given the scale of chicken production it is not practical to do anything else. The RSPCA argued that culling should probably take place at a greater scale to safeguard animal welfare; it is in the industry's interest to sell as many birds as possible.

Records are kept in accordance with the requirements of the Directive and this information must be available for the annual audit under the Red Tractor scheme. Producers supplying retailers can also be subjected to random spot checks without notice and again records will need to be produced. The Animal and Plant Health Agency

⁸⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69372/pb7275meat-chickens-020717.pdf

⁸⁶ Ascites cannot really be accurately identified until post-mortem, but can be assumed from various symptoms, and it can lead to sudden death syndrome.

⁸⁷ The RSPCA view is that while this system works well, birds scoring 3 or above should be culled.

(APHA)⁸⁸ also carries out controls under the Official Feed and Food Controls (England) Regulations 2009 (SI 2009/3255) which implements Regulation (EU) No 882/2004 and would require access to records. These controls are targeted on those holdings not part of farm assurance schemes due to risk profiling. In addition, the APHA will request daily mortality data⁸⁹ from the records if a trigger report is generated on the basis cumulative daily mortality rate or if the OV is concerned about the level of on-farm mortality.

Records are kept for at least three years. Integrators usually hold the records for all their farms in a central database. Where growers hold the data themselves this is also usually in electronic form, although a small proportion still maintains paper records.

Beak trimming is permitted in accordance with legislation⁹⁰. However, this is not generally carried out due to the short lifespan of broilers and the general absence of the feather pecking problems seen in laying hen flocks. Castration is not permitted in the UK.

Defra (2010) noted that the broiler industry is not characterised by rapid technological change. The main change in management over the 2008-14 period has been improved biosecurity. This has been driven by the need to reduce the incidence of campylobacter under Food Standards Agency targets and also to protect against exotic disease such as Avian Influenza. This has resulted in minimising access to farms, vehicle disinfections on entry and exit, the need to have dedicated farm clothing which is changed into on-site and the use of double barrier systems under which off-farm boots are dipped at entrance before changing into on-farm boots on the other side of the barrier. These measures also address the need to control salmonella.

Other changes of note include the increased use of windows to allow natural light as a result of retailer/consumer concern (see above) and a reduction in antibiotic use.

None of the changes above have been driven by the provisions of the Directive.

Breeds used

The main breed used in the UK is the Ross 308, with some use of the Ross 708. There is also some use of Cobb and Hubbard breeds.

There has been no substantive change in the use of breeds over the 2008-14 period. This includes the use of slower growing breeds within free range systems where demand increased in the wake of a public campaign and TV series by a UK celebrity chef, but then returned to pre-campaign levels with the onset of the adverse economic climate.

Employment on commercial farms

The extent of employment on commercial farms depends on the holding and the degree of automation. Generally, there will be a farm manager and a limited number of employees depending on scale and the availability of farm staff on nearby farms. Farms with less than 100,000 birds will tend to share workers if this is possible given location; those with around 300,000 birds will have up to three staff plus relief workers. Contracted catchers and cleaners are used for depopulation, although some integrators have catching teams which are employed centrally. Dickinson (2014) notes that the

⁸⁸ The Animal and Plant Health Agency (APHA) is an executive agency of the Department for Environment, Food & Rural Affairs, and also works on behalf of the Scottish Government and Welsh Government. The agency was launched on 1 October 2014. It merged the former Animal Health and Veterinary Laboratories Agency (AHVLA) with parts of the Food and Environment Research Agency (Fera) responsible for plant and bee health to create a single agency responsible for animal, plant and bee health.

⁸⁹ Not reported as a matter of course, see below.

⁹⁰ The Mutilations (Permitted Procedures) (England) Regulations 2007 (as amended).

largest UK poultry company, the 2 Sisters Food Group, employs over 5,000 people, although this figure includes employment throughout the controlled chain. Defra (2010) estimated that 2,000 people are employed in broiler production on commercial farms which amounts to an average of 1.5 workers per holding. Feeding, drinking and environmental control are usually automated, although there is very little automated catching in the UK.

A5.9.2.2. Implementation of the Directive

Requirements for keeping chickens

The UK implements all elements of the Directive with the exception that in GB (England, Scotland and Wales) the second derogation on stocking densities up to 42 kg/m² was not taken up due to scientific evidence that welfare could be compromised at higher stocking densities. Although this derogation is taken up in Northern Ireland, it has never been used. It should also be noted that as most of the industry was (and remains) covered by the Red Tractor Chicken Assurance Scheme (which specifies a maximum stocking density of 38 kg/m²) there would have been little take up of a higher stocking density in any case.

There are also some small differences in the operation of the trigger systems between GB and Northern Ireland; due to the low numbers involved, Northern Ireland records FPD scores for every batch whereas in GB this is only done if the Official Veterinarian (OV) thinks there is an issue with a specific batch (see also below). While Northern Ireland uses the same indicators and thresholds, condition data are checked within the slaughterhouse whereas in GB condition data are uploaded into a central database (one for England and Wales and one for Scotland) and checked at this level.

Training and guidance for persons dealing with chickens

There are a number of training providers, but the major provider for the UK industry is Poultec. Poultec also administers the British Poultry Training scheme: this is an industry initiative, recognised by BPC, NFU and Defra, which was established to encourage the UK poultry meat industry to complete formal training and to provide a system of recording of training⁹¹.

The minimum qualification sufficient to comply with the requirements of the Directive is the Level 2 in GB and Level 3 in Northern Ireland Diploma in Work-based Agriculture (Poultry Production) and the SVQ Level 2 Agriculture (Poultry) in Scotland.

The UK decided to implement the "Grandfather Rights" scheme (provided for in Article 4 of the Directive). Defra (2010) estimated that around 20% of the 2,000 people employed in keeping broilers would apply under this scheme in the six months for which it would be made available (later in this source a figure of 800 is provided which is 40%). It was also estimated that 10% of the workforce would already hold appropriate qualifications leaving 1,400 people needing to take a training course (see below for actual figures).

The RSPCA considers that the training offered is of a good standard and goes beyond the minimum requirements set out under the Directive.

Defra and the Devolved Administrations do not approve training courses; they rely on the Office of Qualifications and Examinations Regulation (Ofqual) and the Scottish Qualifications Authority (SQA) to control and approve awarding bodies which in turn control and approve course providers. Ofqual regulates qualifications, examinations and

⁹¹ <http://www.poultrypassport.org>

assessments in England and Wales and vocational qualifications in Northern Ireland. SQA is the national accreditation and awarding body in Scotland. It accredits vocational qualifications that are offered across Scotland and approves awarding bodies that wish to award them.

The awarding body in England, Wales, and Northern Ireland is City & Guilds for the Level 2 and 3 Diplomas and the awarding bodies in Scotland are SQA and City & Guilds for the SVQ, with Lantra (the sector skills council for land based industries) setting the national occupational standards for the UK.

Development and maintenance of national occupational standards is undertaken by Lantra in conjunction with industry. The standards must meet set quality criteria as laid out by the UK Commission for Employment and Skills. These standards are then used by the awarding bodies to develop their qualifications in line with the regulatory requirements set out by Ofqual and SQA. Awarding bodies have their own plans in place for auditing and monitoring centres which Ofqual may ask to see, but the responsibility sits with them.

Training has to be paid for by the person undertaking it.

By July, 2016, 4,193 farm managers and stockpersons had registered for Level 2 and 3 Diplomas via the Poultry Passport, the meat industry's training scheme, which is a requirement of the Red Tractor standard. Of these, 2,116 had completed a Diploma, as at July 2016 and 1,500 equivalence certificates had been awarded.

Inspections

Inspections are carried out on the basis of Broiler Condition Reports (trigger reports) which are sent by the APHA to regional veterinarians who then contact the producers concerned to discuss the reason for the issue and how it can be resolved. Depending on the issue and the severity, producers can be asked to devise an Action Plan with their private veterinarian and to send this to APHA for approval. If there have been repeat trigger reports, or an issue appears particularly severe, there might be an inspection.

In 2015, some 2,519 trigger reports were generated, although 2,253 (89%) were resolved following assessment⁹². Action plans were requested for 213 holdings (8.5%) and 42 (1.7%) were inspected. In only one case was a stocking density reduction recommended. Of those holdings inspected, 28 (66.7%) were found to be in full compliance with legislation and the code of good practice, the remainder were found to be in full compliance with legislation, but not the code of good practice.

According to the RSPCA, the main animal welfare problems encountered on farm in the UK are lameness, ascites, cellulitis, FPD and hock burns. These conditions are usually caused by genetics, poor litter and poor air quality. The main animal welfare issues during transport are DOA and heat and cold stress. The impact of these issues becomes apparent at the slaughterhouse, as do other health issues and wing and leg damage from handling in catching.

Guides to good management practices

The current guidance for chicken keepers is Defra's Interim Guidance for Keepers of Conventionally Reared Meat Chickens in relation to the Welfare of Farmed Animals

⁹² This means that either (a) the trigger report was not accurate; (b) the trigger report related to an off-farm issue (e.g. transport) which was addressed separately; (c) the case received a full veterinary investigation, including contact with the keeper, and current action was considered sufficient; or (d) an initial investigation was carried out but has been superseded by the processing of further batches of birds from the same farm that have not generated a trigger report.

(England) Regulations 2007 as amended by the Welfare of Farmed Animals (England) (amendment) Regulations 2010⁹³. This replaced earlier guides and is fully in line with the requirements of the Directive. The RSPCA noted that the guidelines provide useful additional guidance which goes beyond the requirements of the Directive, although of course they could be further improved.

None of the interviewees recalled how the guide was disseminated to growers, but usual practice would be for a communication to be sent out alerting growers to the publication on the internet. The BPC and the National Farmers' Union would also have sent copies to their members via newsletter and emails. It should be noted that growers are required to be acquainted with the provisions of the codes and to have access to a copy of them. The guidance should be being followed by growers and where it is not, this will become apparent at inspection.

Defra (2010) notes that a series of workshops were run by a private consultancy firm to help inform producers about the Directive's requirements. In addition, a dedicated Defra website was set up to provide a one stop shop for all information relating to compliance with the Directive. Guidance on the trigger system remains available online and additional guidance on the trigger system has been provided via industry journals.

Penalties

The use of trigger reports, Action Plans and ultimately inspections is designed to avoid the need for penalties. The competent authority can though enforce reductions in stocking densities as a penalty (i.e. removing the ability to use the derogation to 39 kg/m²). This mechanism has been used, but very infrequently.

Ultimately prosecutions can be brought (and have been in small numbers) for serious offences under the Welfare of Farmed Animals (England) Regulations 2007 (as amended) (Article 9)⁹⁴ which allows for a limited fine and/or imprisonment for up to 51 weeks and under the Animal Welfare Act 2006⁹⁵ which allows for an unlimited fine and/or imprisonment for up to 51 weeks.

The competent authority is not in a position to comment on the effectiveness of the penalty system pending publication of the Bristol University assessment. However, as the penalty system is only used as a last resort and given that penalties have rarely been imposed it appears likely that the measures used before penalties are needed are generally effective in ensuring compliance. The RSPCA took a different view and noted that the trigger levels are set too high (see section A5.9.4) to allow anything other than the very worst cases of poor welfare to be identified. The RSPCA also drew attention to the fact that not all farms are followed up following the production of a trigger report, although it was accepted that this was a resource issue.

A5.9.3. Impact and costs of implementing the Directive

A5.9.3.1. Impact of implementation

The impact of the Directive is uncertain in the UK pending the completion of the Bristol University assessment and the competent authority's Post Implementation Review. The Bristol University assessment is a substantial piece of research with a budget of £296,400 (€365,533 at the ECB 2012 exchange rate⁹⁶) and a two-year timespan (although the project is currently a further two years behind schedule). The competent

⁹³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69382/pb13545-meat-chickens.pdf

⁹⁴ <http://www.legislation.gov.uk/ukxi/2007/2078/contents/made>

⁹⁵ <http://www.legislation.gov.uk/ukpga/2006/45/contents>

⁹⁶ €1:£0.81087: <http://sdw.ecb.europa.eu/browse.do?node=9691296>

authority's position is that they are not able to comment on the impact of the Directive at all in the absence of this research. However, there is an expectation that there has been a positive impact on animal welfare, although it is not possible to be sure or to comment on the extent. This view was echoed by the industry. The RSPCA though noted that welfare in the industry is controlled by the provisions of the Red Tractor scheme rather than the legislation.

The industry felt that the Directive has created an uneven playing field across the EU because the derogations have been used differently across the EU and GB producers are now competing with those stocking at up to 42 kg/m². However, the decision to not adopt the second derogation was taken on the basis of an Impact Assessment (Defra, 2010) which found that only 16% of all growers in England (10% of broiler production by volume) stocked above 38 kg/m² and on the advice of the Farm Animal Welfare Council, the advisory body who provides independent advice on animal welfare to Ministers, which felt that a maximum stocking density option of 42 kg/m² (i.e. the Annex V derogation) should not be adopted in the light of Oxford University research which indicated that welfare problems increased as stocking densities of 40 kg/m² and higher were approached. It should also be noted that there is the opportunity to stock at 39 kg/m² in any case, which, due to the penetration of the Red Tractor Assurance Scheme, is rarely taken.

As noted above, there was no suggestion that the recent development of the UK broiler sector has been influenced (positively or negatively) by the Directive. However, the industry did note that there is greater awareness of issues related to litter management as a result of the Directive and that this has led to improved management and fewer adverse welfare outcomes.

Training is now mandatory whereas previously it was a requirement under farm assurance schemes, but only recommended elsewhere. Working conditions may have improved in terms of air quality, but if they have this was thought to have been driven as much by environmental legislation covering emissions as by the Directive. Growers would have had to fill in data sheets prior to the implementation of the Directive under farm assurance schemes.

Generally the point was made that most of the management requirements under the Directive were already in place under the farm assurance schemes and given their penetration in the industry, little is likely to have changed for most growers; any costs that were incurred strictly as a result of the Directive (rather than in compliance with farm assurance schemes) are not thought to be substantial. This is also the view put forward in Defra (2010) where it states that for most broiler producers the Directive's requirements will simply build on systems, processes and best practice that are already in place on the ground. It is important to recall that the recent developments in terms of biosecurity and the use of windows are not related to the Directive.

The Directive is not thought to have had any impact on cross-border trade in the UK. This is only possible on the Northern Ireland border with Ireland and there is little trade in live poultry in any case.

A5.9.3.2. Costs of implementation

In terms of costs, again no information could be provided without reference to the ongoing Bristol University study. However, the Impact Assessment carried out by the competent authority prior to implementation (Defra, 2010, based on commissioned research) compared the costs of full implementation of the Directive against the cost of implementing everything except the second stocking density derogation (this option was ultimately selected) and produced the cost estimates set out in Table A5.11.

Table A5.11: Costs of implementing the Broiler Directive (without the Annex V derogation)

Affected item	Costs	
Annex 1: lighting requirement		
One-off	£1,706,474	€1,989,268
Ongoing	£552,269	€643,790
Annex 2: ammonia and humidity levels, temperature requirements and additional documentation		
One-off	£8,630,472	€10,060,701
Ongoing	£161,020	€187,704
Stocking density		
One-off	£4,375,630	€5,100,753
Ongoing	£4,421,593	€5,154,333
Training		
One-off	£2,157,954	€2,515,567
Ongoing	£478,020	€557,237
Inspection and enforcement		
One-off	£121,288	€141,388
Ongoing	£159,955	€186,463
Admin burden		
One-off	£8,032	€9,363
Present value (2010) of ongoing costs for 8 years	£43,918,079	€51,196,119
Total present value (2010)	£60,917,928	€71,013,159

Note: Euro values converted using ECB 2010 exchange rate, €1:£0.85784:
<http://sdw.ecb.europa.eu/browse.do?node=9691296>.

Against these costs were set expected benefits of £103 million (€120.1 million) a year in terms of the willingness of consumers to pay for the higher welfare delivered. In 2010 terms this benefit amounted to £856,610,348 (€998,566,572) over eight years giving a net present value of implementing the Directive of £795,690,294 (€927,550,935).

Most of the costs (98%) were expected to be borne by the industry with the competent authority incurring relatively minor costs of inspection and enforcement (which also includes the cost to the competent authority of training).

However, given that the majority of the industry was already following the Red Tractor assurance scheme and retailer codes of practice, little change was required in practice and the cost estimates produced are likely to be over-estimates. The RSPCA noted that one of the few areas where additional cost is likely to have been incurred in practice is in the employment of slaughterhouse staff to monitor FPD.

A5.9.4. Welfare indicators to be recorded at slaughterhouses and the structure of transmitting data

A5.9.4.1. Recording of welfare indicators at slaughterhouses

The UK legal situation with regard to the recording of welfare indicators at slaughterhouses is nuanced. There is in fact no legal requirement to record *specific* indicators, but there is a legal requirement to monitor indicators; the number is not specified in law. The indicators that are used were discussed and agreed following discussions between Defra and representatives from the APHA, the Food Standards Agency Operations Group and stakeholders drawn from the industry and animal welfare NGOs. The set of indicators ultimately chosen was informed by a pilot study undertaken between September, 2009 and February, 2010 which compared indicator data against what was observed on farm to determine which indicators were the most useful in highlighting animal welfare issues. Statistical analysis showed that emaciation, total rejections and FPD were good predictors of animal welfare on-farm. Although no

relationship was found between the other indicators and animal welfare on-farm, this may have been due to the small sample size (approximately 210 flocks) and so these indicators were retained. It is therefore possible that there are some small areas of redundancy in the system.

Some indicators were considered, but ultimately not used. Indicators such as mortality and Dead on Arrival (DOA) had to be used and FPD was considered to be a very useful predictor of on-farm welfare and so was retained. The other indicators selected followed the discussions referred to above. The intention was to produce a set of indicators which provided the right information without including indicators which co-varied with other indicators and therefore did not add any further information.

Figures for daily mortality rates are not collected. European Commission (2013b) states that the competent authority felt this to be too burdensome on industry; these data are though available if requested by OVs and this request is made where it is considered beneficial.

The trigger system used involves two processes. The first (Process 1) is designed to identify holdings where the rate of one or more *post-mortem* (PM) condition(s) is exceptionally high, which possibly indicates a specific on-farm welfare issue. Process 2 is designed to identify holdings where Cumulative Daily Mortality Rate (CDMR) is unusually high and additionally, the rate of three or more PM conditions is above the national average, possibly indicating a more generalised on-farm welfare issue. This approach is based on some indicators being specific and others (“iceberg” indicators) suggesting a problem, but without identifying exactly what it is. The indicators used are set out in Table A5.12.

Table A5.12: Trigger levels used by indicator

<i>Post-mortem</i> condition	Process 1 trigger level (%) (6 Standard Deviations above 2010 industry average)	Process 2 trigger level (%) (2010 industry average)
Ascites/Oedema	2.02	0.21
Cellulitis & Dermatitis	3.00	0.20
Dead on Arrival (DOA)	1.51	0.12
Emaciation	0.67	0.04
Joint lesions	0.43	0.02
Septicaemia/Respiratory	9.28	0.49
Total rejections⁹⁷	11.76	1.11
Cumulative Daily Mortality Rate	11.85	
FPD score*	167	60

* FPD score is not a percentage, but is a score of the severity and extent of lesions (0-200) based on scoring 100 feet.

A Process 1 trigger report is generated if the level of a *post-mortem* condition is exceptionally high (defined as more than six standard deviations above the average). These trigger levels are those set out in Table A5.12. The trigger values are as objective as they can be, based as they are on real data recorded in 2010. A trigger report is generated under Process 2 if the CDMR is unusually high (defined as greater than three standard deviations above the average, i.e. 7.37%) **and, in addition**, the level of three or more other *post-mortem* conditions is high (defined as above the average); these are the Process 2 trigger levels in Table A5.12.

⁹⁷ Not including processing rejections which are not relevant for on-farm welfare.

FSA officials within slaughterhouses carry out ante-mortem and *post-mortem* inspections on all batches of broilers. Specifically trained plant staff (Poultry Inspection Assistants, PIAs) can carry out *post-mortem* inspections in certain slaughterhouses. Condition cards are used to increase the accuracy and consistency of recording *post-mortem* findings⁹⁸. *Post-mortem* inspection results and details of CDMR, breed/hybrid and stocking density, provided on the Food Chain Information form (FCI)⁹⁹ submitted with the birds are entered onto the dedicated IT software. Slaughterhouses retain the data for inspection under the official controls regime.

The FPD indicator is the most problematic indicator on which to collect data, but there is evidence that this is one of the best indicators of poor animal welfare on-farm; it is laborious and time consuming to collect this data and, importantly, it is not required under any other legislation or for any other purpose. For this reason in GB a binary approach tends to be taken to assess whether there is a problem or not and only if a problem is suspected are 100 feet sampled (the RSPCA felt that there would be a higher number of trigger reports if every batch were sampled). Indicators are assessed at different points on the processing line and there are differences in the degree of access, etc. according to the set up in individual slaughterhouses.

European Commission (2013b) noted that the trigger system has been actively reviewed since its inception and a number of changes were made to improve its operation and resource implications such as:

- reporting on house rather than batch basis;
- collating multiple premises trigger reports; and,
- analysing seasonal data for trends and providing seasonal data to growers.

There are no additional indicators used under the Red Tractor assurance scheme. However, the RSPCA's Farm Assurance scheme requires the collection of a number of indicators on-farm (action must be taken if trigger levels are exceeded) and the more comprehensive collection of indicators in the slaughterhouse (dirty feathers, back scratches, etc.). The requirements are set out RSPCA (2013). A full welfare outcome assessment for broilers is under development and should be incorporated into the RSPCA standards by the end of 2016.

A5.9.4.2. Transmission of information and its use on-farm

The transmission of data and its processing is set out by European Commission (2013b). Data collection against the indicators takes place in all slaughterhouses and data are uploaded to a central FSA database every 24 hours; it then takes the FSA 48 hours to assess and verify it¹⁰⁰. The trigger system operates within this central database and monitors the inspection results recorded by all batches of conventionally reared meat chickens. The system generates a trigger report for any batch of birds that exceeds the set threshold trigger levels (see above).

Once generated, each trigger report is checked by a Veterinary Manager to ensure that there are no obvious discrepancies. Any discrepancies identified are followed up with slaughterhouse staff and rectified. All trigger reports are emailed to FSA staff at the slaughterhouse, and if provided, the slaughterhouse FBO, the broiler producer named on the FCI form, and in some cases, where permission has been provided, to the producer's private veterinarian. Trigger reports are also emailed to the "Broiler Directive" team

⁹⁸ These are contained in the manual on official controls: <https://www.food.gov.uk/enforcement/approved-premises-official-controls/manual>

⁹⁹ <http://www.food.gov.uk/sites/default/files/multimedia/pdfs/fcipooultry.pdf>

¹⁰⁰ A flood which affected the processing centre caused some delays in the issuing of trigger reports, but this was an exceptional occurrence.

within the AHVLA Specialist Service Centre (SSC) in Worcester for follow-up by AHVLA veterinarians.

Upon receipt, all trigger reports are assessed by a veterinary officer (VO). The majority are resolved immediately following this assessment, with typical outcomes being that upon contacting the keeper the VO finds that action has already been taken to resolve the problem or that the problem relates to an off-farm issue (e.g. DOAs that are attributed to transport conditions rather than to a pre-existing problem on the farm and have already been followed up), and this is followed up separately. In other cases, action may already be in place following a previous trigger report and the VO may consider this to be sufficient to resolve the issue(s) identified in the current trigger report. Where no action plan is in place the VO may request the producer to develop and submit one for approval, and in a small number of cases a visit is carried out (although by the time this visit is carried out, two or three subsequent crops could have been through the house). All VO actions taken at the regional level are fed back to the "Broiler Directive" team so that the outcomes of individual trigger reports are tracked.

European Commission (2013b) reports that enforcement escalation advice is provided by the AHVLA "Broiler Directive" policy team when each trigger report is sent for action to the relevant AHVLA office. This source also notes that a more prescriptive escalation system introduced in May 2012 grades trigger reports into 5 options:

- The first three options relate to notification of fewer than three trigger reports in the previous three months; cases in this category can have any number of trigger reports generated prior to the preceding three-month dataset.
- Options 4 and 5 are where there are more than three and ten trigger reports respectively in the previous three months which require that either a visit should be considered (Option 4) or should be carried out (Option 5).

Some 11 farms in GB were identified as Option 5 premises i.e. having more than 10 trigger reports within a three-month period in 2012. This resulted in ten advisory visits.

The main data are held by the FSA (and Food Standard Scotland) and these are used to provide seasonal average data which is updated on trigger reports every three months. The competent authority also uses the data to examine the trends, specific problems, etc. and also for the Commission reporting requirements. Where the grower is part of an integrator the data will usually go to a central person within the integrator. Feedback from integrators suggests that they use the data to assess performance across all their farms. Where there is a market for feet, high levels of FPD is likely to lead to reductions in payment, but this is a commercial response rather than a "punishment" for exceeding trigger levels.

The competent authority did not indicate any issues with the indicators. However, the industry and the RSPCA noted that the lack of specificity of indicators such as mortality is a problem for growers in terms of linking the indicator to a specific welfare problem. It should be noted though that further guidance on the specific problem is provided under Process 2 trigger reports (triggered on the basis of excessive CDMR). The industry and the RSPCA also felt that line speeds at 200 birds a minute makes scoring for FPD very subjective; both consider that the use of camera technology is required to automate this process. The industry did not consider that the reporting system benefits the grower who has to ensure that any trigger level breaches are reduced in the next flock. The RSPCA suggested that where birds have more than one welfare problem, often only the most obvious is recorded.

The RSPCA pointed out that setting the trigger thresholds at 6 SD (see above) means that welfare has to be very poor before action is taken.

It should be noted that there is also exception reporting under which specific indicators of severe welfare conditions revealed in either ante-mortem or *post-mortem* examination are immediately investigated. Full details are provided in European Commission (2013b).

A5.9.4.3. Structure of the data transmission

As noted above, data are transmitted electronically. A Broiler Condition Report is then generated and this is returned to growers who have exceeded any of the trigger levels within a timeframe of 3-4 days; a copy is also sent to the AHPA. Producers usually receive separate data from the slaughterhouse on the number of birds that have been rejected for each condition (because this information is used to calculate payments), and this is sent regardless of whether or not trigger levels have been exceeded.

The Broiler Condition Report (two sheets) provides the following details on the house/batch:

- stocking density (a range, so between 33 and 39 kg/m² for example);
- age of birds at slaughter (days);
- slaughter date;
- completion date (of the trigger report); and,
- production system (intensive indoor, for example).

The top right hand corner of the report sets out the Process 1 and Process 2 trigger levels (see Table A5.12) and, for each, presents the industry average for the corresponding previous quarter. These data are calculated from the information collected at slaughterhouses and allow producers to see how these industry-level data compare to the Process 2 trigger levels which were set on the basis of 2010 data. The industry can therefore see progress against this baseline as well as benchmarking their performance against the industry average.

Data are then provided for each house against the set of indicators (number and percentage). Colour coding is used to highlight which indicators breach which Process levels.

The second sheet repeats the indicator data for the same house going back for one year. This is also colour coded and allows the grower to see at a glance which indicators have been problematic. Isolated breaches can therefore easily be distinguished from longer standing problems.

Slaughterhouses send the following data to the FSA:

Suspected notifiable diseases:

- Avian Influenza
- Newcastle disease

Conditions:

- Abnormal colour/fevered
- Antemortem rejects (cull/runts)
- Ascites/Oedema
- Bruising/Fractures
- Cellulitis
- Contamination
- Dead on Arrival/Death in the lairage (DOA)
- Death other than slaughter (uncut/badly bled)

- Dermatitis
- Emaciation
- Hepatitis
- Joint Lesions
- Machine Damage
- Overscald
- Pericarditis
- Perihepatitis/peritonitis
- Respiratory disease (air sacculitis)
- Salpingitis
- Tumours/nodules
- Other factory (poor plucking, product requirement, etc.)
- Other farm (Jaundice, Oregon, white muscle, etc.)

Foot Pad Dermatitis:

- 0 - Foot Pad Dermatitis (%)
- 1 - Foot Pad Dermatitis (%)
- 2 - Foot Pad Dermatitis (%)

A5.9.4.4. Impact of the use of welfare indicators and method of transmission

The competent authority was not able to comment on the impact of the use of welfare indicators or the impact of the method of data transmission without reference to the as yet unpublished Bristol University report. However, anecdotally the competent authority and industry felt that there has been welfare improvement on-farm as a result of the use of indicators; the RSPCA felt that while there will have been individual examples of improvement, there has been no widespread improvement. The RSPCA nonetheless welcomed the use of indicators as they allow welfare issues to be monitored, even though this organisation did not feel that processes are in place to utilise the data to improve welfare on farm.

Growers are considered far more likely to make changes to management practices on the basis of the Broiler Condition Reports that they receive because they know that if issues which have been highlighted are not resolved they will need to produce an Action Plan and refine this if it does not appear to be working. In other words, there is an expectation that welfare has been improved, but no hard data to demonstrate this. The industry position corroborates this view because trigger reports are felt to have improved management practices at the farm level.

Again, in the absence of the Bristol University report it was not possible for the competent authority to comment on the administrative costs, but the Impact Assessment (Defra, 2010) suggested that these would be relatively low (see Table A5.11 above). Despite the substantial costs to producers estimated as part of the Impact Assessment, the system in place is not considered to be too onerous by the industry, although of course the system does imply the need for some administrative time.

While it is not thought likely that the average consumer is particularly aware of the operation of the Directive, some rather large benefits (£103 million per year) were calculated in the Impact Assessment (Defra, 2010). However, the willingness to pay for higher welfare figure was calculated using a methodology which the researchers explain can lead to overestimates of absolute value derived and so should perhaps be treated with a degree of caution. The figures also represent the value that consumers say that they would pay; it does not necessarily follow that cost increases were subsequently passed on to consumers.

The competent authority considered that having data collated by a central and independent point (the FSA/FSS) is useful in terms of verification. This is important so that growers and veterinarians can trust the data (a point also made by the industry). Where there are concerns about data, checks are carried out with OVAs further increasing confidence in the final data. The speed with which the system feeds information back to the grower is also considered to be a strength; farm visits taking place (where required) after some months is a disadvantage because growers are unlikely to be able to recall issues after such a time period.

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