



BTSF Better Training for Safer Food *Initiative*

Animal welfare in poultry production (chickens kept for meat production) – IV Session

Rome 22-24 November, 2023

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Data collection system of welfare indicators in EU broilers' slaughterhouses

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- **Welfare Quality[®] measures at the SH**
- **Recommendations from Welfare Quality[®]**
- **Data collection according to Council Directive 2007/43/EC**

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Animal Welfare Indicators

Indicators need to be fit for purpose

- ❖ **sensitive** and **specific** to clearly identify causal factors
- ❖ **repeatable** and **reliable** so that results are robust

Some indicators such as on-farm mortality or culls on farm are considered as highly sensitive but poorly specific as they do not reliably inform about conditions on-farm

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Welfare Quality® data collection for broiler chicken at the slaughterhouse

	Welfare Criteria		Measures
Good feeding	1	Absence of prolonged hunger	Feed withdrawal time before slaughter Ematiation (on farm)
	2	Absence of prolonged thirst	Water withdrawal time before slaughter
Good housing	3	Comfort around resting	<i>As yet, no measure is developed</i>
	4	Thermal comfort	Panting on lorry and/or lairage
	5	Ease of movement	Stocking density in crates

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WQ data collection for broiler chicken at SH

- ❖ Feed withdrawal time before slaughter (min)
- ❖ Water withdrawal time before slaughter (min)

Before catching and during transport and lairage



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WQ data collection for broiler chicken at SH

❖ Stocking density in crates (kg lw/m²)

Measure 1 crate of uniform size. Count birds in 10 crates to create average number of birds per crate



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WQ data collection for broiler chicken at SH

Panting in lorry and/or lairage (% of birds)

When a bird 'pants' it increases its respiratory rate to allow rapid exchange of air to prevent overheating. The visible signs of panting are that the birds often sit upright, open their beak and often make visible respiratory movements.

Panting is defined as breathing rapidly in short gasps.

Observe 20 crates of birds from the front, middle and back of the lorry (or from a stack of crates in the lairage). 60 crates in total.

Calculate the number of birds per crate. Multiply by number of crates observed. Count the number of birds panting in the crates assessed.

Percentage of birds panting = ((number of birds seen panting)/
(Number of birds per crate x Number of crates assessed)) x100%

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WQ data collection for broiler chicken at SH

	Welfare Criteria		Measures
Good health	6	Absence of injuries	Wing damage, bruising Breast blister, hock burn, foot pad dermatitis (on farm)
	7	Absence of disease	Dead on arrival Ascites dehydration septicaemia, hepatitis pericarditis abscess (on farm)
	8	Absence of pain induced by management procedures	Pre-stun shock, effectiveness of stunning
Appropriate behaviour	9	Expression of social behaviours	<i>This criterion is not applied in this situation</i>
	10	Expression of other behaviours	<i>This criterion is not applied in this situation</i>
	11	Good human-animal relationship	<i>This criterion is not applied in this situation</i>
	12	Positive emotional state	Flapping on the line

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WQ data collection for broiler chicken at SH

❖ Wing damage (% of birds)

This measure assesses injury due to catching, transport and removal from transport crates.

Wing damage can be identified by visible 'dropped wings' on the slaughter transport line, indicating fracture or dislocation.

Record the number of birds passing per minute (line speed birds/min). Percentage of birds with wing damage = $((\text{Number of birds observed with wing damage (R)} / (\text{Line speed} \times \text{number of minutes of observation})) \times 100$

5 to 10 min



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WQ data collection for broiler chicken at SH

❖ Bruising (% of birds)

This measure assesses the **bruising visible on the carcasses, distinguished from post mortem carcass damage** (which will not have caused haemorrhage into the tissues). Observe the birds after plucking, or at the first available point where the whole (uncut) carcass can be observed. Record the number of birds passing per minute (line speed birds/min) Percentage of birds with bruising = ((Number of birds observed (R)) / (Line speed x number of minutes of observation)) x 100

5 to 10 min



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WQ data collection for broiler chicken at SH

❖ Hock burn

Hock burn is a **contact dermatitis found on the skin of the caudal (back) part of the hock joint**. The skin is turned dark by contact with litter and consequently skin lesions can result. The scoring scale allows assessment of the severity of these lesions. Observe the birds where the hocks are clearly visible after plucking. Record number of birds passing per minute. Count number of birds with hock lesions (0/1/2/3/4) - use the scoring category in photographic reference (2 x 5 min)



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WQ data collection for broiler chicken at SH

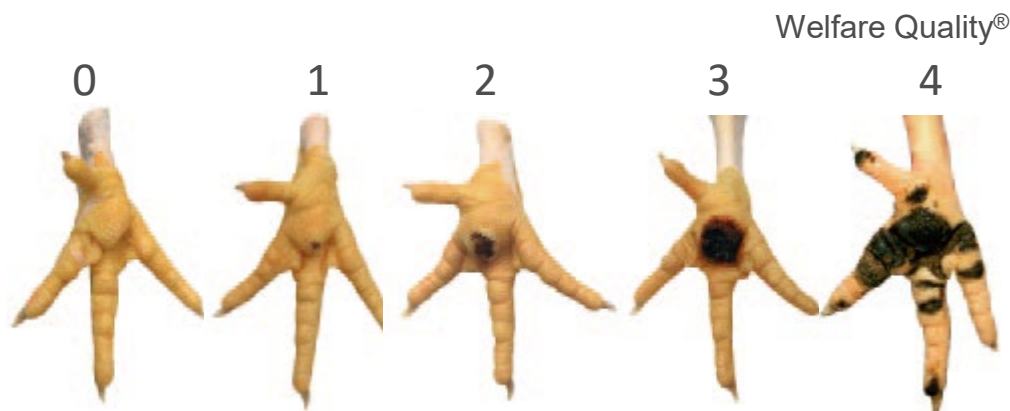
❖ Foot pad dermatitis

Foot pad dermatitis is a **contact dermatitis** found on the skin of the foot, most **commonly on the central pad, but sometimes also on the toes.**

Observe the birds where the bottom of the feet are clearly visible.

Record the number of birds passing per minute. Count the number of birds with foot pad lesions (0/1/2/3/4) – use the scoring category in the photographic reference. 2 x 5 min

If an automated camera system is used three scores are reported (0/1/2)



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WQ data collection for broiler chicken at SH FPD automatic grading system

1. A picture is taken of every shackle
2. Isolation of foot in picture
3. Identification of the footpads
4. Classification of the footpad, based on colour and size of lesion

Classification rules are based on Swedish score card.



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WQ data collection for broiler chicken at SH Hardware

The system consists of four components

1. Cabinet containing light and camera
2. Blue back plate
3. Trigger sensor
4. PC, with classification software (Connection through glass fiber)



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WQ data collection for broiler chicken at SH

Software – Main screen (Flock data)

Number per score

Flock score
(Adjustable weights)

Totals

Flock

Score 0	33	<div><div></div></div>	44.0
Score 1	13	<div><div></div></div>	17.3
Score 2	29	<div><div></div></div>	38.7

Flock Score
(1.0 , 2.0)

94.7

Start Time 12:05:39

Total Scored 75 100.0 %

Not Scored 0 0.0 %

Reset After 0 Shackles

Total 75

Empty Shackles 0

Meyn

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WQ data collection for broiler chicken at SH Software – Statistics

Since the system is last turned on, the processed flocks can be reviewed on the statistics screen.

All flocks are stored in an MS Access Database (*.mdb file), which can be used for creating reports.

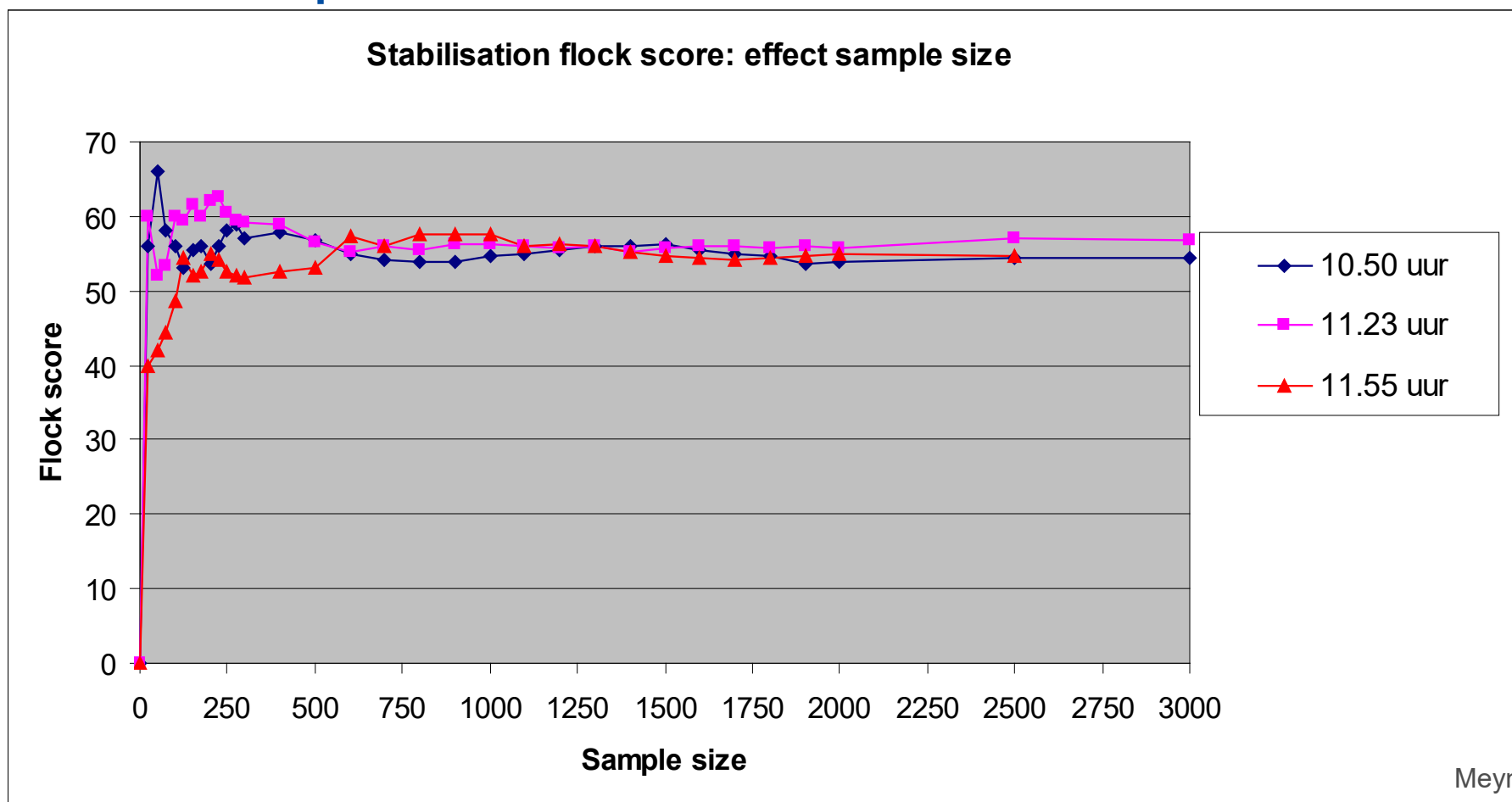
Flock ID	Start Time	End Time	Not Scored	Scored	Total Score	Score 0	Score 1	Score 2
Farmer Sm	2011/03/14 - 12:16:27	12:17:12	0	101	120.8	32.7	13.9	53.5
Farmer Joe	2011/03/14 - 12:05:39	12:16:27	0	97	116.5	35.1	13.4	51.5
Name	2011/03/14 - 12:02:36	12:05:39	9	1	0.0	100.0		
-	-	-	-	-	-			
-	-	-	-	-	-			
-	-	-	-	-	-			

Partial screenshot of 'Statistics screen'

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WQ data collection for broiler chicken at SH

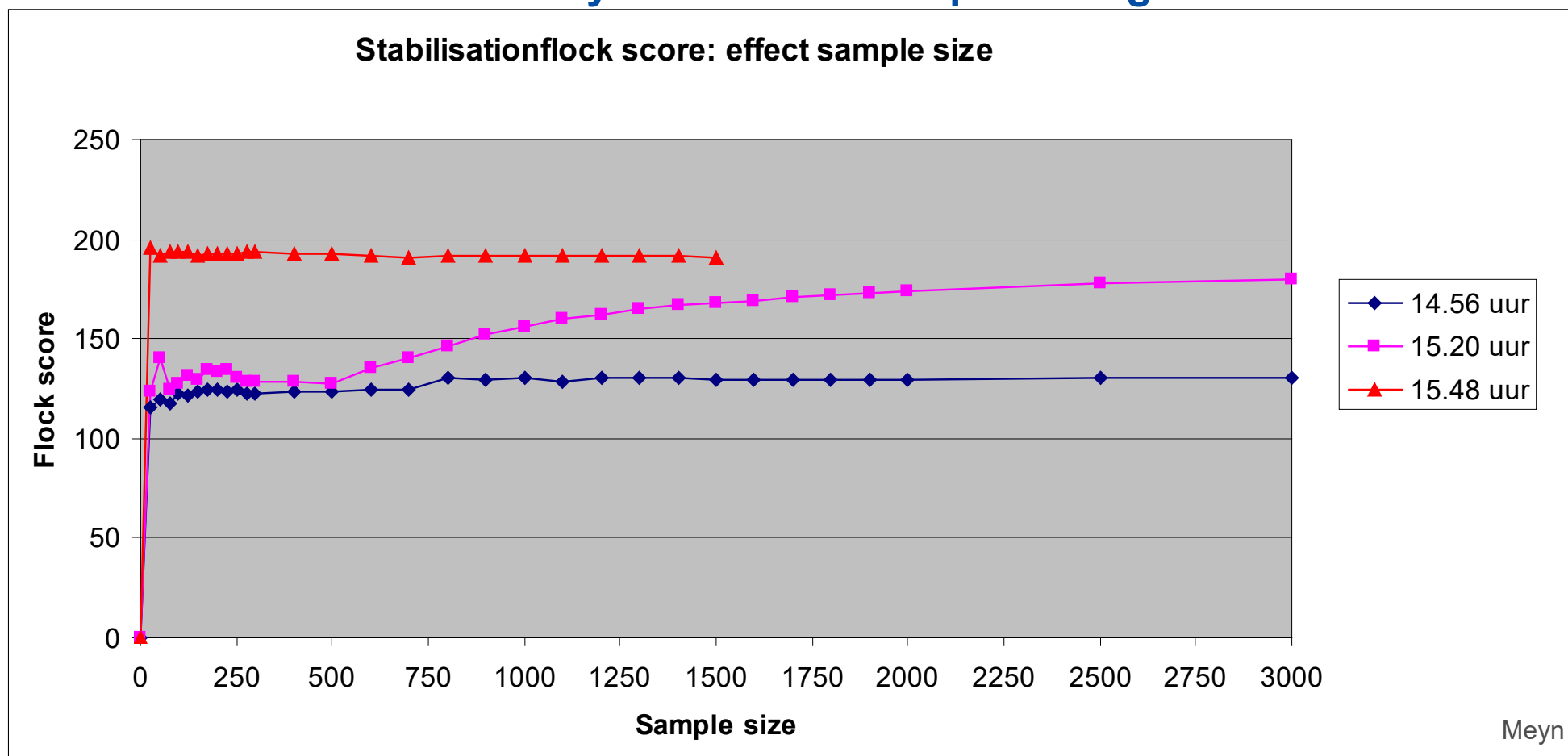
A sample size of more than 250 feet shows a stable value



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WQ data collection for broiler chicken at SH

The score value can vary as result of sample timing within one flock



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WQ data collection for broiler chicken at SH

Benefits camera vs manual inspection

- **Consistent grading**, results not influenced by human interpretation
- **No increase of labor** despite the number of flocks or required sample size
- Grading based on absolute and reproducible critical limits, **no daily or weekly learning procedures required**, virtually maintenance free operation
- More than **90% of the flock is inspected** instead of limited sample size
- Results are **real time shown** and stored digital without manual interference.
- **Images can be stored** and used for review with farmers

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WQ data collection for broiler chicken at SH

❖ Dead on Arrival (% of birds)

Mortality is the 'uncontrolled' death of birds (as distinct from culling) – birds may die from, for example- septicaemia, respiratory disease, acute infection, dehydration. Determine the number of birds to be slaughtered in a group, or the total number of birds to be delivered from the farm (n) from available records. Subsequently calculate total number of birds arriving dead after transport (D), by counting number of birds placed in the 'dead on arrival' bin.



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Lessons to be learned from WQ

- ❖ The welfare quality assessment tool aims at assessing animal welfare across farms, species, sectors and countries. In order to do so it has to use a standardized approach. For farmers this is difficult to accept as they perceive their farm as special and different to any other farm. To be more acceptable the **results need to have more relevance to farmers' everyday practice**
- ❖ For the acceptance among farmers it is important to elucidate the **practical applicability of the results** and how farmers could use the results in order to **improve animal welfare as well as production**

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Lessons to be learned from WQ

- ❖ It is important to explain that **assessing animal welfare at the farm does not implicate that only farmers are considered responsible** and is not meant to blame farmers
- ❖ Farmers mentioned that **climatic factors** need to be taken into account, as measurements taken during or in the aftermath of extreme weather conditions often influenced scores in ways that farmers have little control over
- ❖ More information is needed about the **importance and added value of animal welfare**

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Council Directive 2007/43/EC on the protection of chickens kept for meat production

Monitoring and follow-up at the slaughterhouse (Annex III)

- Mortality (i.e. dmr, cdmr, DoA)
- Post-mortem inspection (e.g. contact dermatitis, parasitism and systemic illness)
- Communication of results to owner/keeper and CA
- Appropriate actions by owner/keeper and CA

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Animal Welfare Indicators (FCEC, 2017)

- ❖ 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
- ❖ **Only FPD and hock burns** 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)

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Animal Welfare Indicators (FCEC, 2017)

- ❖ Most frequently recorded indicators are **FPD** (in 18 MSs), **CDMR** (in 18 MSs) and **DoA** (in 15 MSs)
- ❖ Certain indicators do not reliably inform about conditions on-farm because injuries usually occur in catching, transport or process of slaughter
- ❖ Only indicators of **hock burn** and **FPD** have specific and reasonably sensitive links through AW consequences to environment/management factors

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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the application of Directive 2007/43/EC and its influence on the welfare of chickens kept for meat production, as well as the development of welfare indicators (2018)

- ❖ **Mortality rates** provide a basic measure of the welfare of the flock, but scoring specific types of contact dermatitis at post mortem, notably **footpad dermatitis**, is now relied on in a majority of MSs as the best way to make a risk assessment of broiler farms and prioritising farms for investigation and action
- ❖ **Conditions at hatcheries and/or parent flocks** are often suspected of giving rise to high mortality rates during the early stages of rearing, but such establishments are not investigated by authorities as they have not defined specific animal welfare rules applicable at these other sites

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EFSA Panel on Animal Health and Welfare (AHAW) (2023)
Scientific Opinion on the welfare of broilers on farm.

Concerning the assessment of **on-farm welfare at slaughter**, it is recommended to harmonise the assessment of the following ABMs:

- ❖ **wounds**
- ❖ **carcass condemnation**
- ❖ **total on-farm mortality**
- ❖ **FPD**

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Scientific references

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Thank you

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