



WELFARE OF BROILER CHICKENS ON FARM

Cristina Rojo Gimeno

Working group scientific coordinator, BIOHAW Unit

*Animal Welfare Platform
15 June 2023*



ANIMAL CATEGORIES

The European Commission requested EFSA to give an independent view on the protection of domestic fowl (species *Gallus gallus*) related to:

the production of **broiler chicken meat** including the different phases of the production cycle:



Day-old chicks



Broiler chickens kept for meat production



Broiler breeders

GENERAL TERMS OF REFERENCE

ToR 1

Describe, based on existing literature and reports, the current **husbandry systems** and practices of keeping them;

ToR 2

Describe the relevant **welfare consequences**. Relevance will not need to be based on a comprehensive risk assessment, but on EFSA's expert opinion regarding the severity, duration and occurrence of each welfare consequence;

ToR 3

Define **qualitative or quantitative measures** to assess the welfare consequences (**animal-based measures -ABMs**);

ToR 4

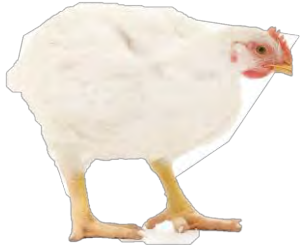
Identify the **hazards** leading to these welfare consequences;

ToR 5

Provide **recommendations** to prevent, mitigate or correct the welfare consequences.



SPECIFIC SCENARIOS



Specific scenario 1. The welfare of fast growing chickens in barns:

- a) air and floor temperature,
- b) access to feed and water,
- c) space allowance,
- d) air quality

Specific scenario 3. The welfare of broiler breeders:

- a) housing in (individual) cages,
- b) the practice of routine mutilation,
- c) feed restriction



Specific scenario 2.

ABMs collected in slaughterhouses to monitor the level of welfare on broiler farms

Specific scenario 4. The welfare of day-old chicks:

- a) hatchery conditions



EFSA to propose

- Detailed, qualitative and quantitative ABMs
- and preventive and corrective measures

DATA AND METHODOLOGY



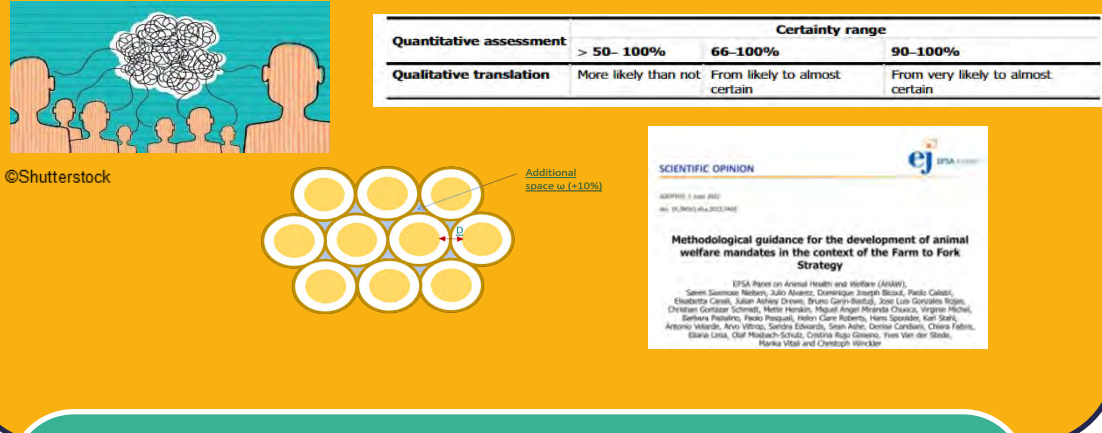
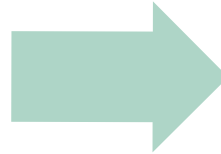
©Shutterstock

©Shutterstock

©Shutterstock

Data

- Literature review
- EFSA NCP and AHAW networks
- Questionnaire to the European Forum of Farm Animal Breeders (EFFAB)



©Shutterstock

	Certainty range		
Quantitative assessment	> 50- 100%	66-100%	90-100%
Qualitative translation	More likely than not	From likely to almost certain	From very likely to almost certain

Additional space is (+10%)

SCIENTIFIC OPINION

Methodological guidance for the development of animal welfare mandates in the context of the Farm to Fork Strategy

EFSA Panel on Animal Health and Welfare (AHAW)

Søren Garomøe Nielsen, Julia Alvarez, Dominique Joseph Bost, Paolo Calabi, Elisabetta Canali, Julian Ashley Drewe, Bruno Garin-Bastuj, Jose Luis Gonzalez Rojas, Christophe Guisard, Schmidt, Mette Henriksen, Miguel Angel Hernandez Chausa, Virginia Michel, Barbara Nisbet, Paolo Pasquali, Helen Clara Roberts, Hans Sporsberg, Karl Stahl, Antonio Valverde, Arco Viterbo, Søren Enevold, Gian Alois Dentler Candiani, Chiara Falini, Elvira Lina, Olaf Madsbach-Schulz, Cristina Rogo Giner, Yvett Van der Stede, Markus Wolf and Christoph Winckler

Methodology

- EFSA Methodological guidance for the development of animal welfare mandates in the context of the Farm to Fork Strategy
- Expert Knowledge Elicitation
- Uncertainty assessment
- Behavioural space model



HUSBANDRY SYSTEMS (TOR 1)

Day-old chicks

Hatched in hatchery



©Shutterstock

Hatched on farm



© Anja Riber

Broiler chickens

Floor systems



© Ingrid de Jong

Floor systems with covered veranda



© Wageningen Livestock Research

Floor systems with outdoor range



©Shutterstock

Mobile houses



© Virginie Michel

Broiler breeders

Floor systems



© Ingrid de Jong

Individual cages



©Shutterstock

Collective cages

Multi-tier systems



WELFARE CONSEQUENCES (TOR 2)

19 Welfare consequences

Bone lesions
Cold stress
Inability to perform comfort behaviour
Inability to perform exploratory or foraging behaviour
Isolation stress
Gastro-enteric disorders
Prolonged thirst
Heat stress
Prolonged hunger
Handling stress
Locomotor disorders
Predation stress
Restriction of movement
Resting problems
Group stress
Soft tissue and integument damage
Umbilical disorders
Inability to avoid unwanted sexual behaviour
Sensory under- and overstimulation

33 welfare consequences

Expert opinion

Non-applicable welfare consequences

Not highly relevant welfare consequences

19 welfare consequences

were identified as **highly relevant** for broiler chicken, day-old chicks and broiler breeders

ABMs (e.g., 'Leg deformation')

Hazards (e.g., poor litter quality)

Preventive measures (e.g., maintaining good quality litter)



OVERVIEW OF THE ELEMENTS

Stocking density

Elevated structures

Litter and enrichment

Covered veranda and outdoor range

Use of individual cages in broiler breeders

Feed restriction of broiler breeders

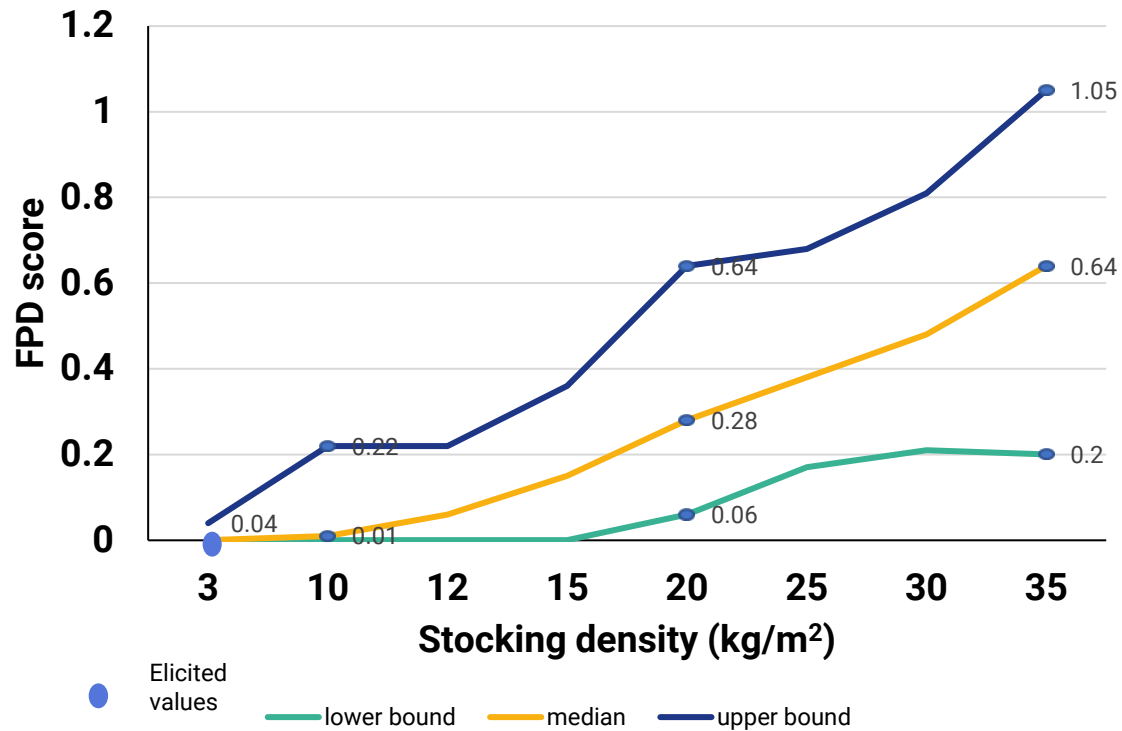
Mutilations of broiler breeders

ABMs at slaughter

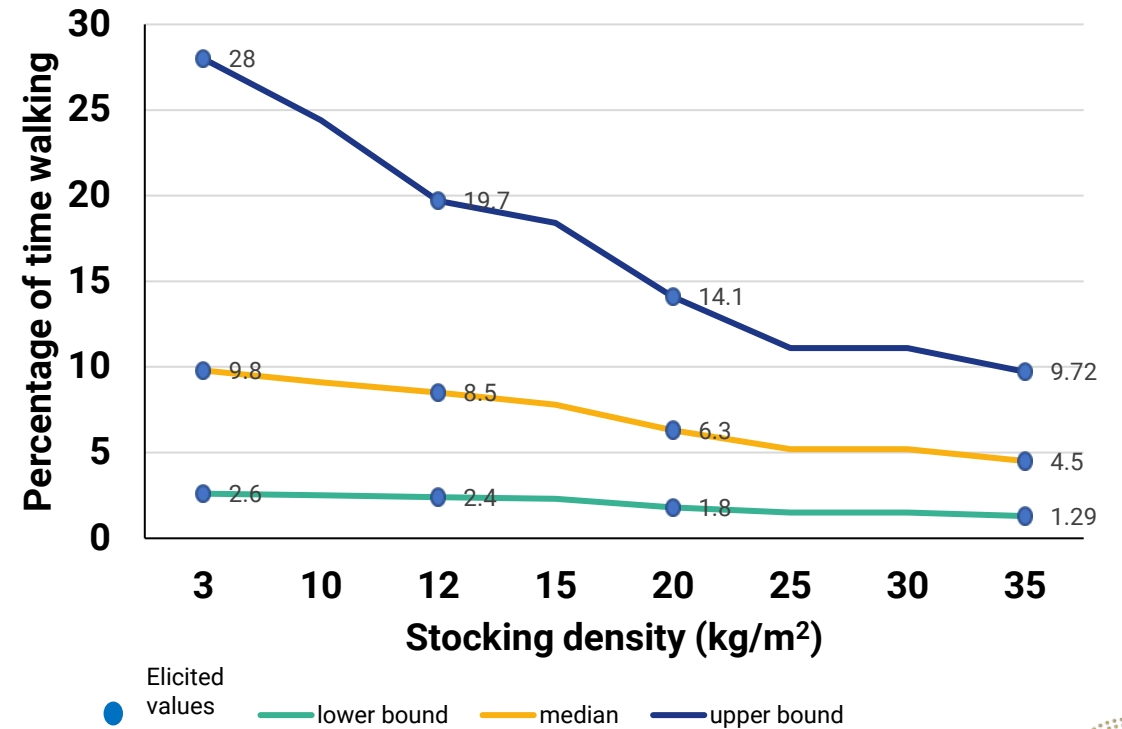


ASSESSMENT: EXPERT KNOWLEDGE ELICITATION RESULTS ON THE EFFECT STOCKING DENSITY ON FOOT PAD DERMATITIS AND PERCENTAGE OF TIME WALKING

Impact of stocking density on Foot pad dermatitis



Impact of stocking density on the Percentage of time walking



ASSESSMENT: STOCKING DENSITY BASED ON THE RESULTS OF THE BEHAVIOURAL MODEL

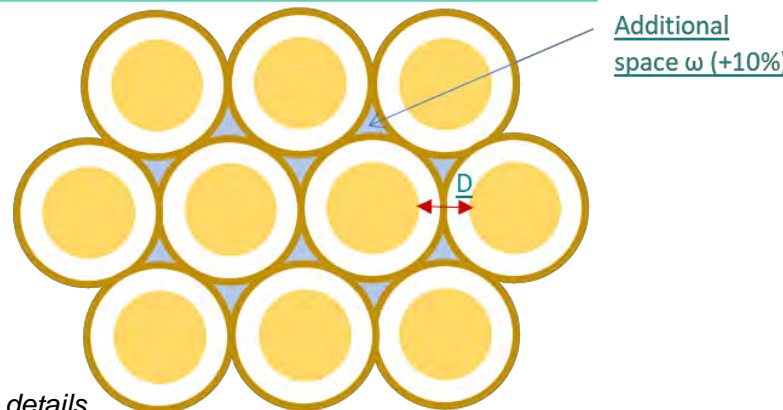
N= 9 behaviours taken into account

- Standing
- Sitting/Resting
- Walking
- Foraging
- Dustbathing
- Preening
- Wing/Leg stretching
- Wing flapping
- Drinking/eating

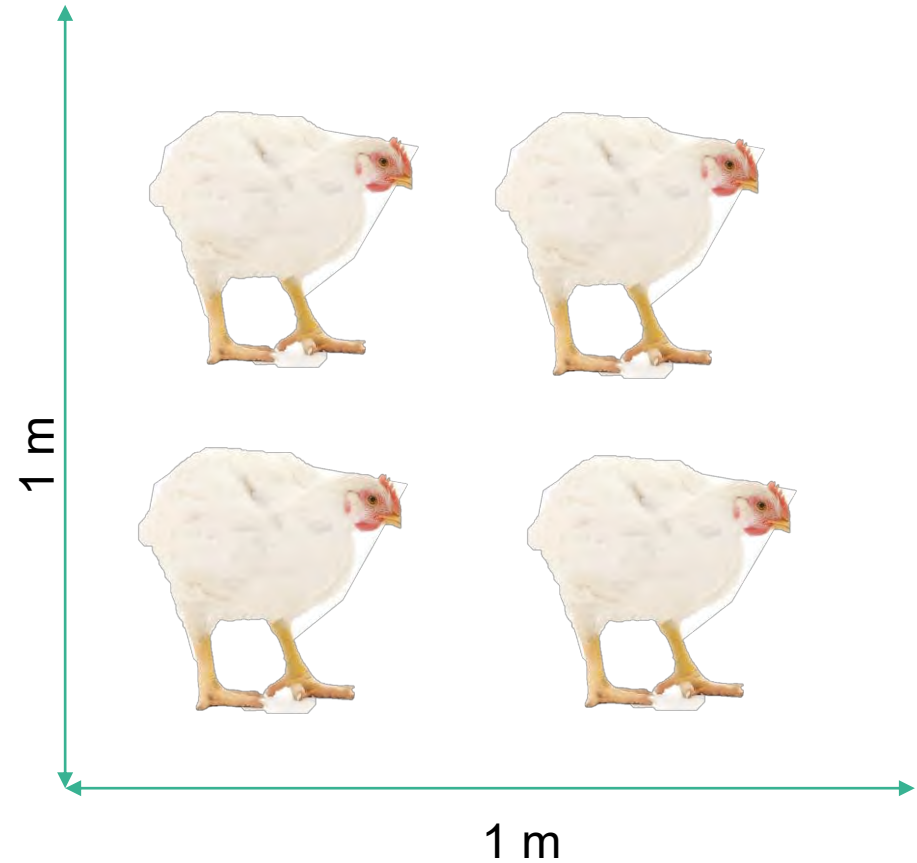
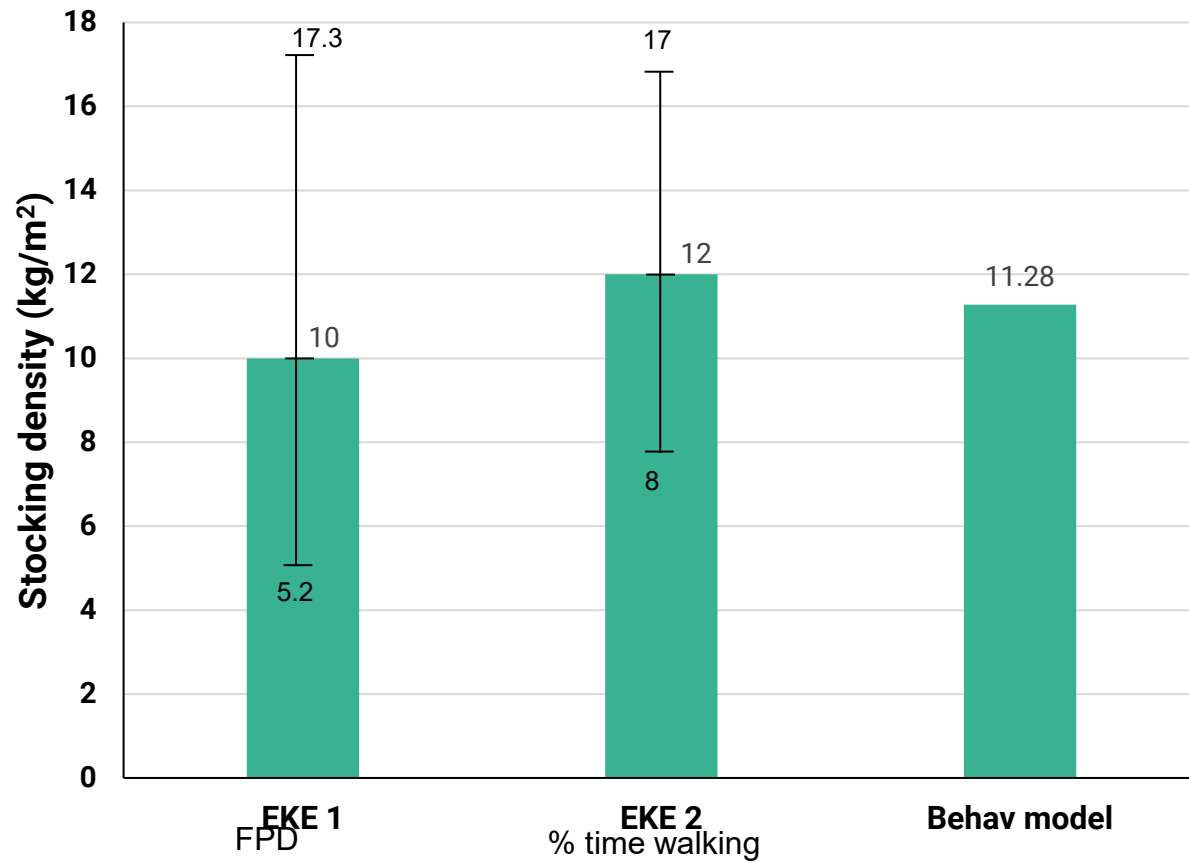
Model taking into account for each behaviour:

- The space needed to perform the behaviour (including inter-individual space and additional space)
- The proportion of animal performing the behaviour in an improved environment

Stocking density (kg/m ²)	11.28 kg/m²
Number of broilers/m ²	4.12 broilers/m²



ASSESSMENT: MAXIMUM STOCKING DENSITY



ASSESSMENT: ELEVATED PLATFORMS AND PERCHES

Elevated platforms and perches

Encourage locomotion

Reduce the risk of predation stress

Prevent resting problems

Ensure accessibility with ramps 25 °

A minimum of 15 cm/breeder

10% of the floor space covered with platforms will reduce resting problems and restriction of movement

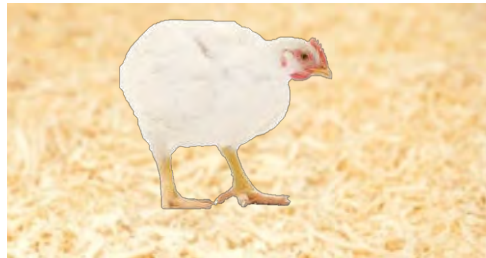


ASSESSMENT: LITTER AND ENRICHMENT

Litter

Enrichment and foraging material

Reduce the welfare consequences inability to perform comfort, exploration and foraging behaviour



©Shutterstock

Should **always** be available



Dry and friable litter

100% of the floor should be covered

New litter weekly

Good ventilation system

Enrichment additional to the litter **for dustbathing**

Edible enrichment materials



ASSESSMENT: COVERED VERANDA AND OUTDOOR RANGE

Covered veranda

Facilitate the performance of some behavioural needs
(e.g., comfort behaviour, exploratory and foraging behaviour)

Give access to different climatic and light conditions



©Wageningen Livestock Research

Appropriately dimensioned pop-holes: 1m linear for 1000 birds, at maximum height of 25 cm with ramps

At least 20% of the usable area

Accessible from 14 days of age

Enrichment material

Outdoor range



Shutterstock

At least 50% covered by natural vegetation



THE USE OF CAGES, THE PRACTICE OF MUTILATIONS AND FEED RESTRICTION IN BROILER BREEDERS



Inability to perform comfort behaviour

Inability to perform exploratory and foraging behaviour

Isolation stress

Resting problems

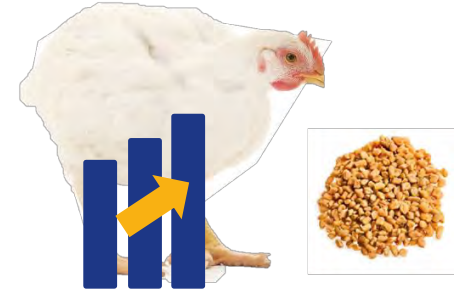
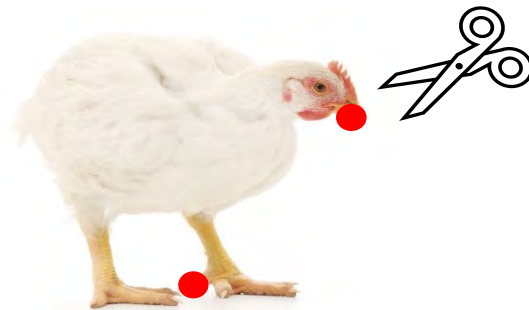
Restriction of movement

Handling stress

Inability to perform comfort behaviour

Inability to perform exploratory and foraging behaviour

Could lead to problems feeding and perching



Relaxing feed restriction

Increasing the time feeding

Adapting the feed intake individually

Reducing the appetite

Skip a day

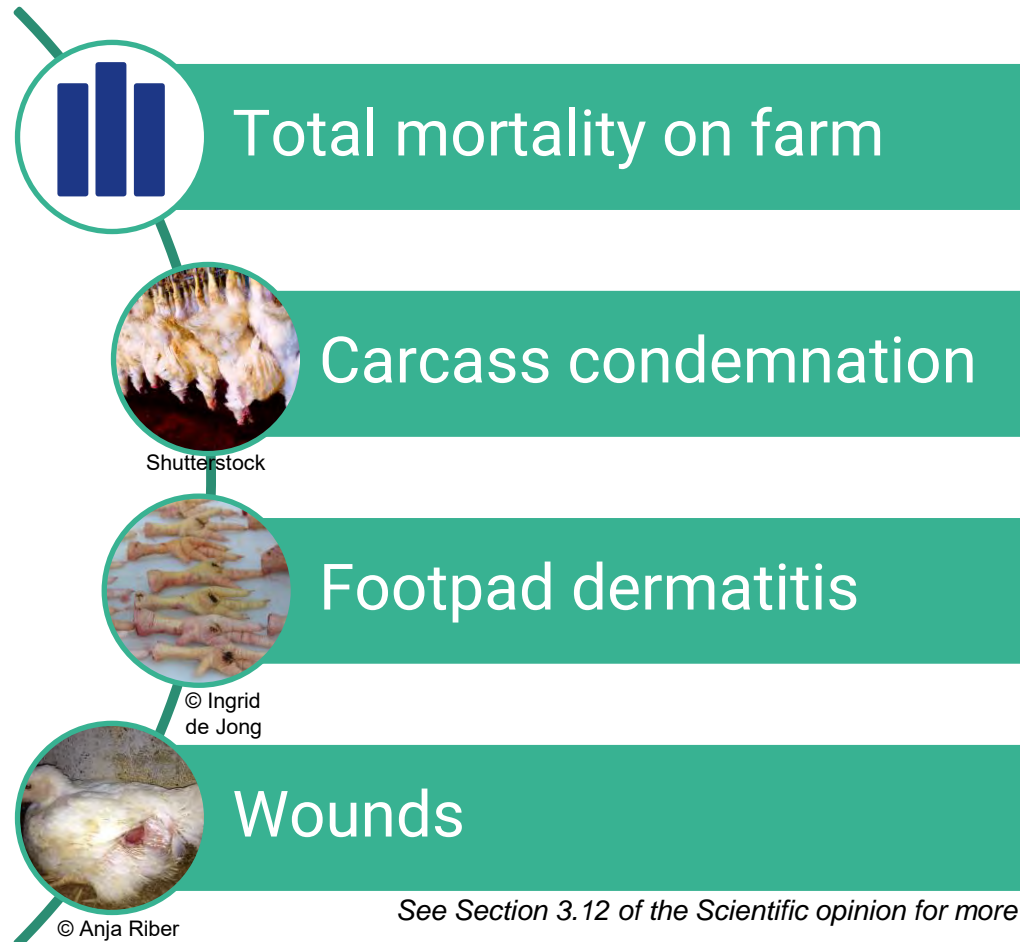
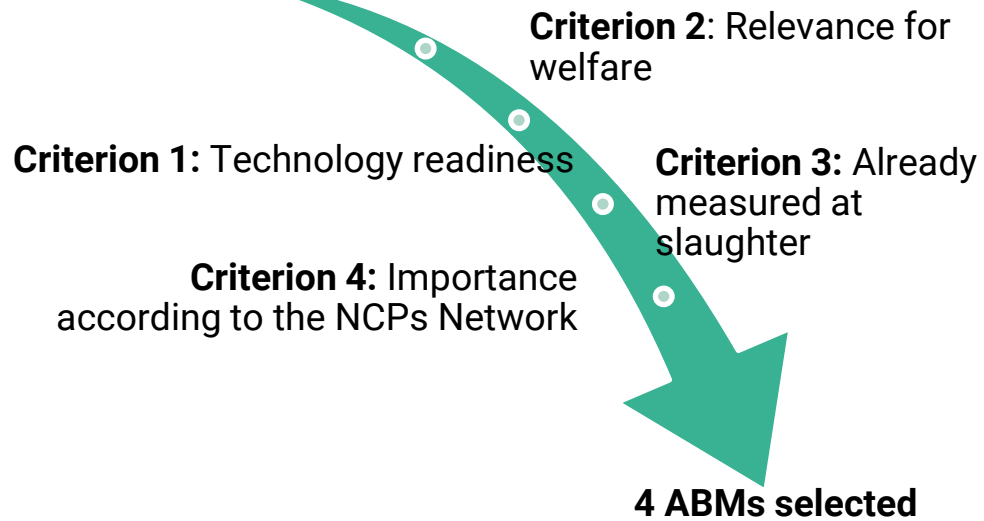
Qualitative change in feed

Genetic selection



ASSESSMENT: ABMS AT SLAUGHTER TO MEASURE BROILER WELFARE ON FARM (SPECIFIC TOR2)

16 ABMs identified by NCP EFSA network



See Section 3.12 of the Scientific opinion for more details



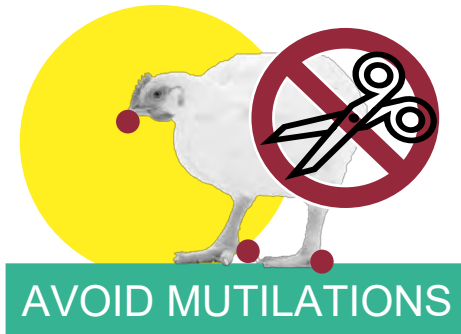
MAIN RECOMMENDATIONS



- ✓ **Avoid the use of cages** for broiler breeders



- ✓ **Avoid feed restriction** in broiler breeders



- ✓ **Avoid mutilations** for broiler breeders



- ✓ **Limit daily weight growth** to **50g/day**

MAIN RECOMMENDATIONS



- ✓ Provide **dry and friable litter** substrate from the first day of production; re-scatter new litter if needed



- ✓ Provide a **covered veranda** for broilers and broiler breeders



- ✓ Substantially reduce the stocking density of broiler



- ✓ Provide **elevated platforms, perches** for broilers and broiler breeders



HARMONISED ASSESSMENT METHODS

- ✓ Implement harmonised **assessment methods and scoring systems at the slaughterhouse for monitoring** welfare level across farms in Europe

MORE DETAILS IN THE SCIENTIFIC OPINION

- [Welfare of broilers on farm | EFSA \(europa.eu\)](https://www.efsa.europa.eu/welfare-broilers)



[Plain language summary](#)

Full article:

[Read online at EFSA Journal](#) | [Full article \(online viewer\)](#)

SCIENTIFIC OPINION

ADOPTED: 14 December 2022
doi: 10.2903/j.efsa.2023.7788

Welfare of broilers on farm

EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare),
Søren Saxmose Nielsen, Julio Alvarez, Dominique Joseph Bicout, Paolo Calistri,
Elisabetta Canali, Julian Ashley Drewe, Bruno Garin-Bastuji, Jose Luis Gonzales Rojas,
Christian Gortázar Schmidt, Mette S Herskin, Miguel Angel Miranda Chueca, Barbara Padalino,
Paolo Pasquali, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio Velarde, Arvo Viltrop,
Christoph Winckler, Inga Tiemann, Ingrid de Jong, Sabine Gabriele Gebhardt-Henrich,
Linda Keeling, Anja Brinch Riber, Sean Ashe, Denis Candiani, Raquel García Matas,
Michaela Hempen, Olaf Mosbach-Schulz, Cristina Rojo Gimeno, Yves Van der Stede,
Marika Vitali, Eléa Bailly-Caumette and Virginie Michel

Abstract

This Scientific Opinion considers the welfare of domestic fowl (*Gallus gallus*) related to the production of meat (broilers) and includes the keeping of day-old chicks, broiler breeders, and broiler chickens.

Who is who?

DAY-OLD CHICK
Will become a broiler chicken or laying hen depending on its genetics

LAYING HEN
Chicken that lays eggs for human consumption

BROILER
Chicken raised and reared for chicken meat production

How can their welfare be improved?

CAGES
Avoid the use of cages.

STOCKING DENSITY
Reduce the stocking density to give birds enough space to perform behaviours.

ELEVATED PLATFORMS
Allow all birds simultaneous resting and the ability to escape from each other.

COVERED VERANDA
Supports exploration, foraging and dustbathing.

FRIABLE LITTER AND ENRICHMENT
Supports comfort, foraging and exploratory behaviour

AVOID MUTILATIONS
Mutilations cause pain, and alternatives are available.

WHAT IS A DARK BROODER?

A dark brooder is a functional area that mimics some aspects of a mother hen by providing a warm, dark, and protected environment. It improves resting and reduces fearfulness.



ACKNOWLEDGEMENTS

- **EFSA AHAW Panel**

- Søren Saxmose Nielsen, Julio Alvarez, Dominique Joseph Bicout, Paolo Calistri, Elisabetta Canali, Julian Ashley Drewe, Bruno Garin-Bastuji, Jose Luis Gonzales Rojas, Christian Gortázar Schmidt, Mette Herskin, Virginie Michel, Miguel Ángel Miranda Chueca, Barbara Padalino, Paolo Pasquali, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio Velarde, Arvo Viltrop, Christoph Winckler

- **Working group welfare of broilers on farm**

- Inga Tiemann, Ingrid de Jong, Sabine Gebhardt-Henrich, Linda Keeling, Anja Riber, Antonio Velarde, Virginie Michel (Chair)

- **EKE experts**

- Karen Laing, Hans-Hermann Thulke

- **EFSA staff**

- Sean Ashe, Michaela Hempen, Raquel Garcia Matas, Olaf Mosbach-Schulz, Yves Van der Stede, Marika Vitali, Mariana Geffroy, Eléa Bailly-Caumette

