



WELFARE OF BROILER CHICKENS ON FARM

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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
- b) transport conditions



EFSA to propose

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

ABM: Animal Based Measure

See Section 2.2.2 of the Scientific Opinion

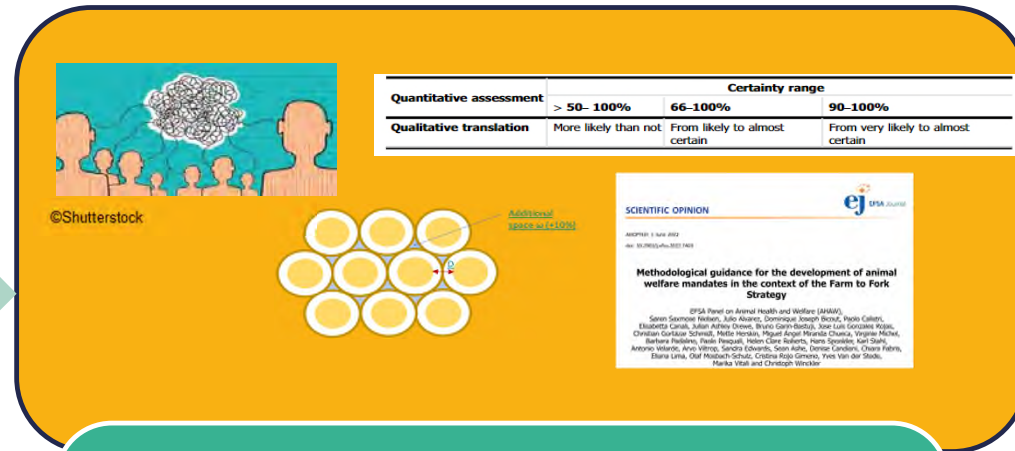


DATA AND METHODOLOGY



Data

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



Methodology

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



HUSBANDRY SYSTEMS (TOR 1)

Day-old chicks

Hatched in hatchery



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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



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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
Locomotory 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 PRESENTATION

Stocking density

Temperature

Air quality

Litter

Use of individual cages in broiler breeders

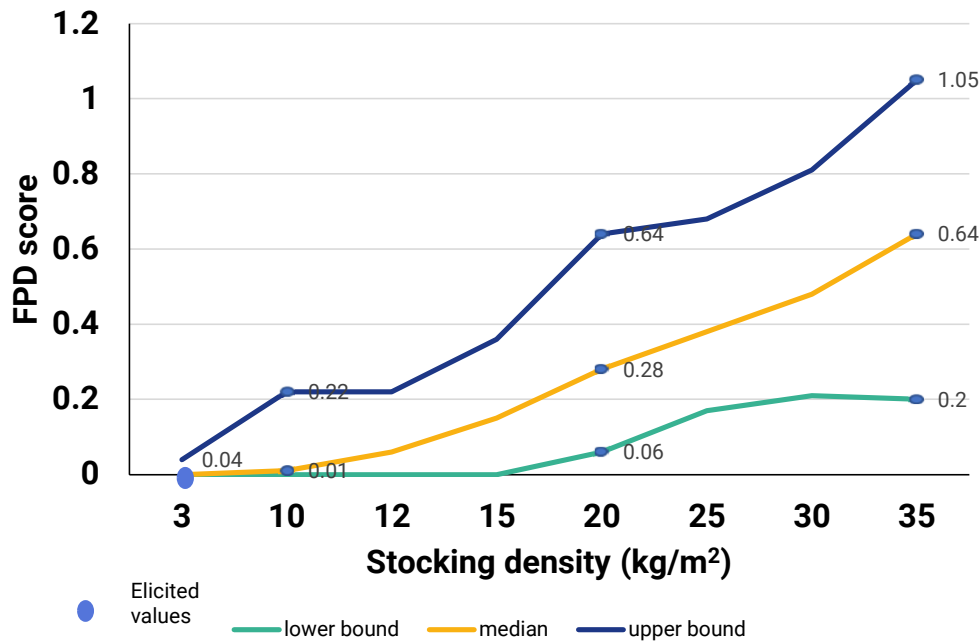
Feed restriction of broiler breeders

Mutilations of broiler breeders

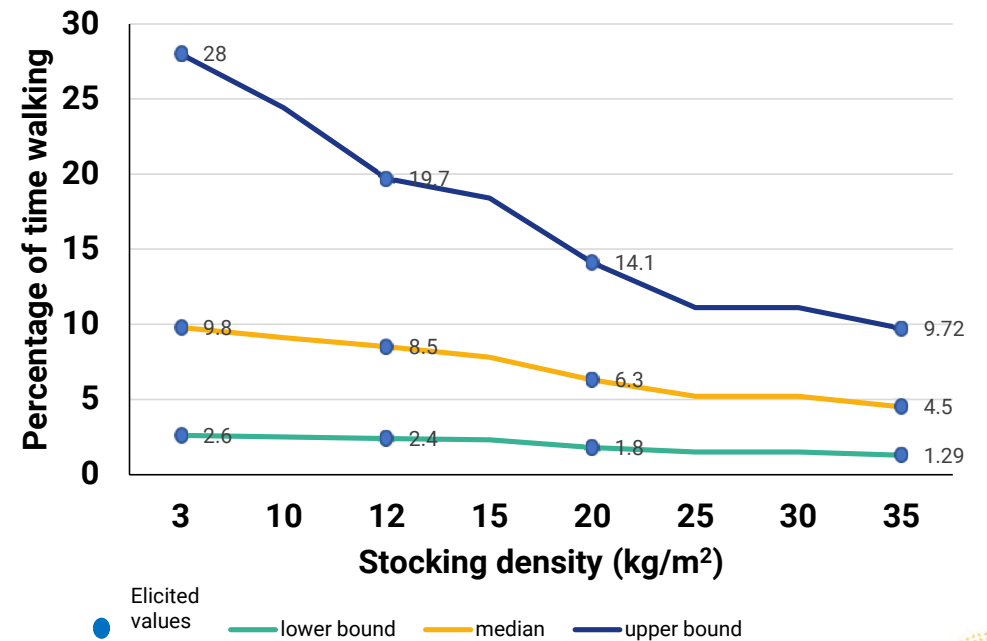


ASSESSMENT: EXPERT KNOWLEDGE ELICITATION RESULTS ON THE EFFECT STOCKING DENSITY ON FOOT PAD DERMATITIS AND PERCENTAGE OF TIME WALKING

Impact of stocking density on Foot pad dermatitis



Impact of stocking density on the Percentage of time walking



See Section 3.5.1.1 and Appendix B of the Scientific opinion for more details



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

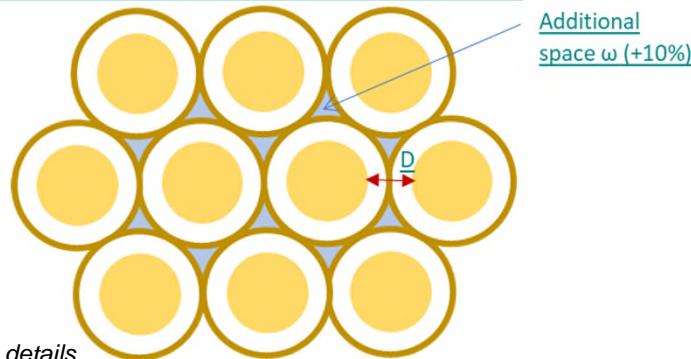
N= 9 behaviours taken into account

- 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

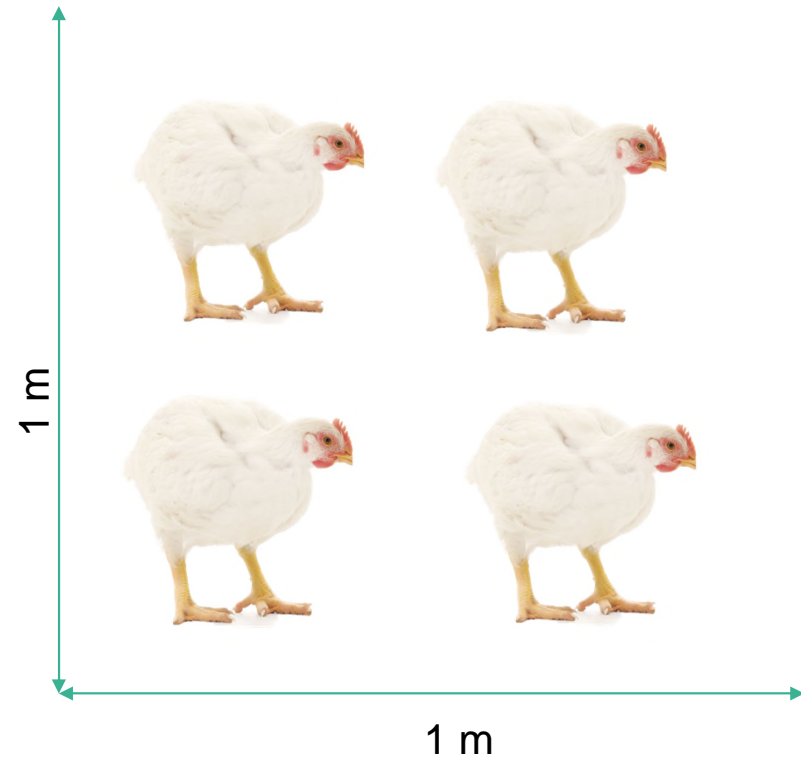
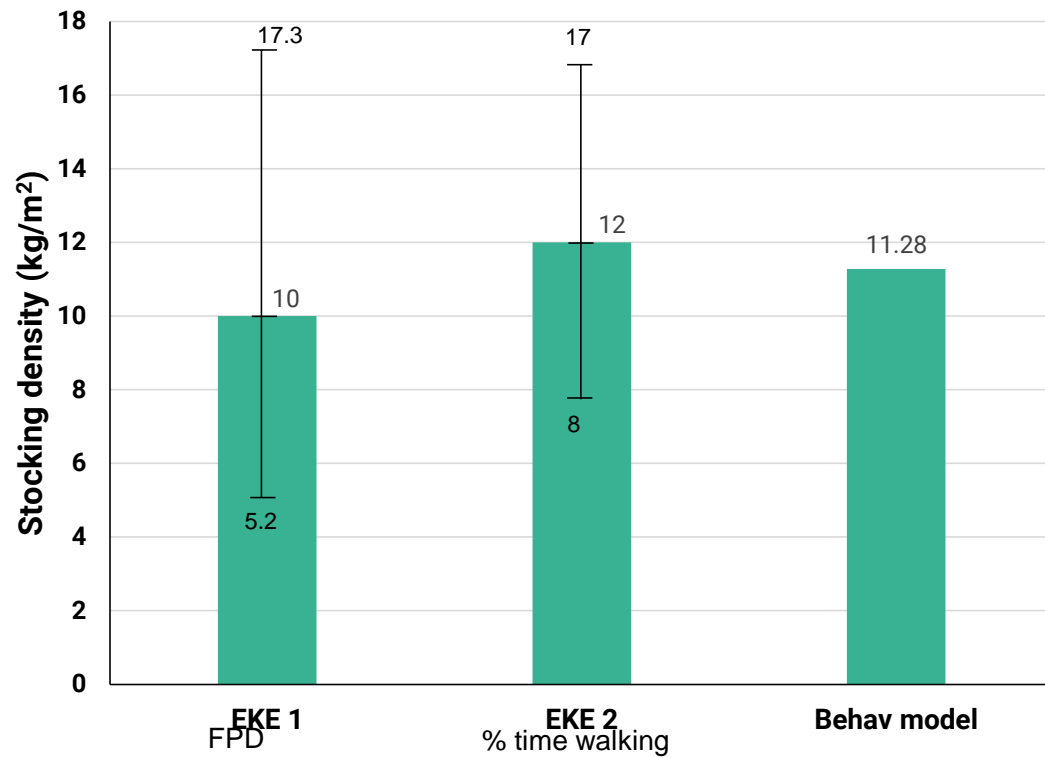
Stocking density (kg/m ²)	11.28 kg/m²
Number of broilers/m ²	4.12 broilers/m²



See Section 3.5.1.1 and Appendix B of the Scientific opinion for more details



ASSESSMENT: MAXIMUM STOCKING DENSITY



ASSESSMENT: TEMPERATURE (SPECIFIC SCENARIO 1A)



Day old chicks

- Floor temperature of 28-30°C
- Air temperature 30-35°C
- Barn preheated 48h before placement
- Spot brooding 32-35°C



Broiler chickens

- 17-21°C for chickens of 28 days
- Depends on:
 - breed,
 - humidity,
 - air speed,
 - stocking density,
 - degree of adaptation and duration of exposure



Broiler breeders

- The same as for broiler chickens



ASSESSMENT: AIR QUALITY (SPECIFIC SCENARIO 1D)



CO2

- 3,000 ppm in the Directive
- No evidence was found to propose a change



AMMONIA

- Current directive 20 ppm
- Most recent research showed birds shook their head above 15 ppm



Dust

DUST

- No particular values are given in the directive
- No evidence was found to identify maximum levels of dust



ASSESSMENT: LITTER AND ENRICHMENT

Litter

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



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Dry and friable litter

100% of the floor should be covered

New litter weekly

Good ventilation system

Should **always** be **available**

Enrichment and foraging material



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 which

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



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

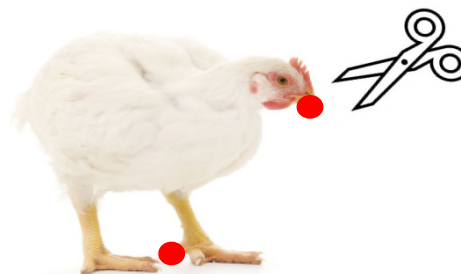
Handling stress

Inability to perform comfort behaviour

Inability to perform exploratory and foraging behaviour

Could lead to problems feeding

Could lead to problems perching



Relaxing feed restriction

Increasing the time feeding

Adapting the feed intake individually

Reducing the appetite

Skip a day

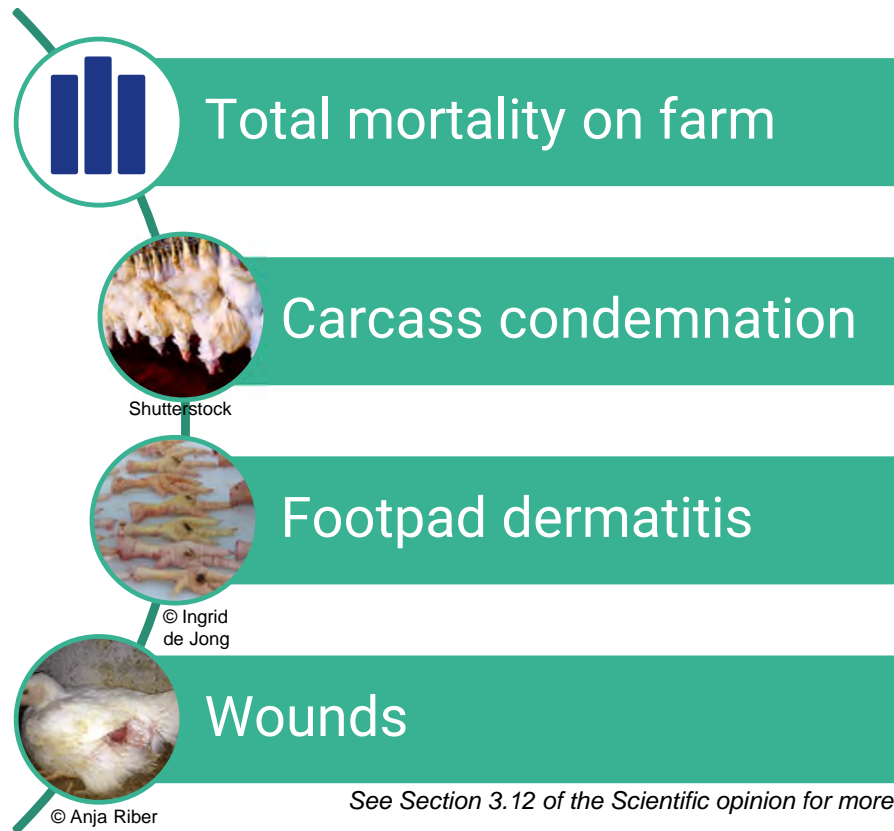
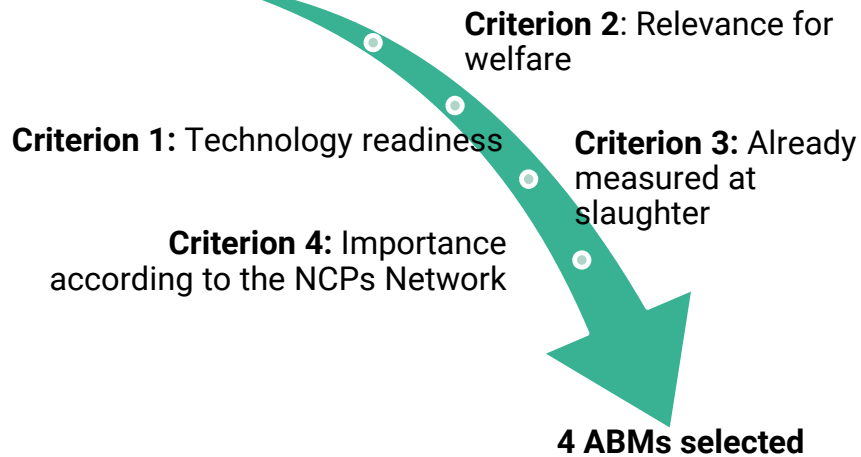
Qualitative change in feed

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



CAGES

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



FEED RESTRICTION

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



AVOID MUTILATIONS

- ✓ **Avoid mutilations** for broiler breeders



DAILY WEIGHT GROWTH

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



MAIN RECOMMENDATIONS



FRIABLE LITTER AND ENRICHMENT

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



COVERED VERANDA

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



STOCKING DENSITY

- ✓ Substantially reduce the stocking density of broiler



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)

efsa JOURNAL
Wiley Online Library

[Plain language summary](#)

Full article:

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

SCIENTIFIC OPINION

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Welfare of broilers on farm

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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
Chickens 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.



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