



EFS A OPINION ON WELFARE OF DAIRY COWS ON FARM

Denise Candiani

BIOHAW Unit, EFSA

SCOPE OF THIS WORK

The **European Commission** requested EFSA to give an independent view on the welfare of dairy cows (*Bos taurus*), which include:



Cows which have had a calf

Pregnant heifers in the last third of gestation

Dairy as well as dual purpose breeds

ASSESSMENTS

Assessment 1. The description of housing systems and their strengths, weaknesses as well as specific hazards for the welfare of dairy cows

Assessment 2. The assessment of selected welfare consequences in terms of ABMs and their prevalence in different housing systems

EFSA to propose

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

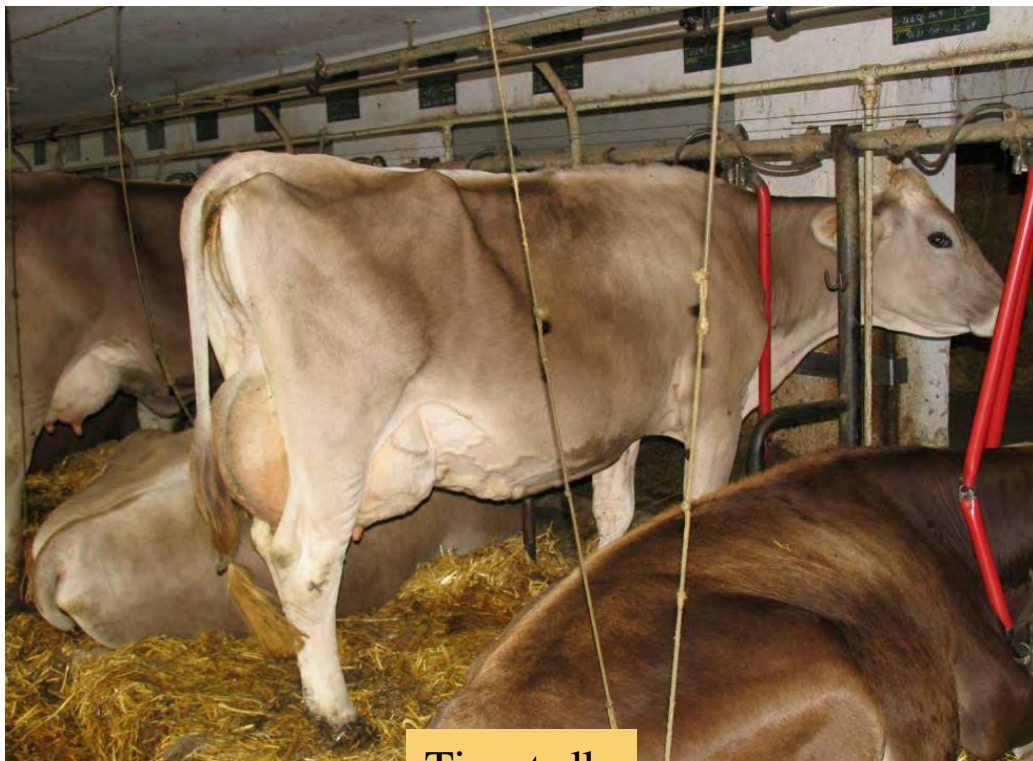
Assessment 3. The analysis of farm characteristics suitable to identify farms at risk of poor dairy cow welfare

ASSESSMENT 1: HOUSING SYSTEMS

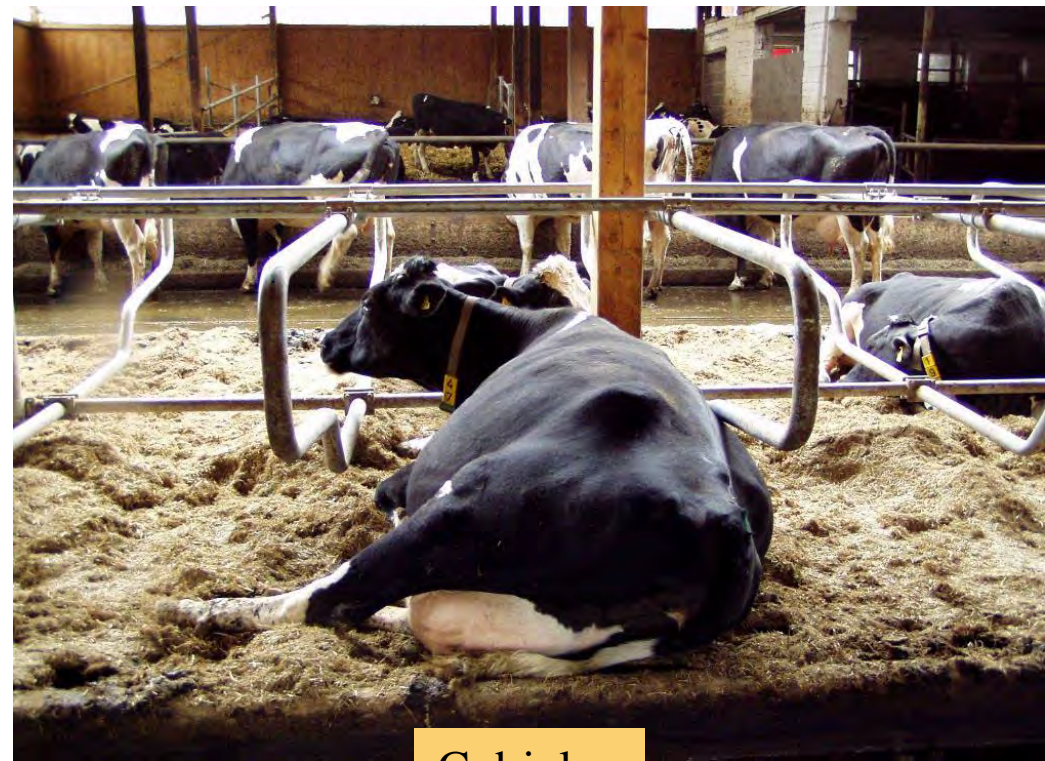


RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

Dairy Farms



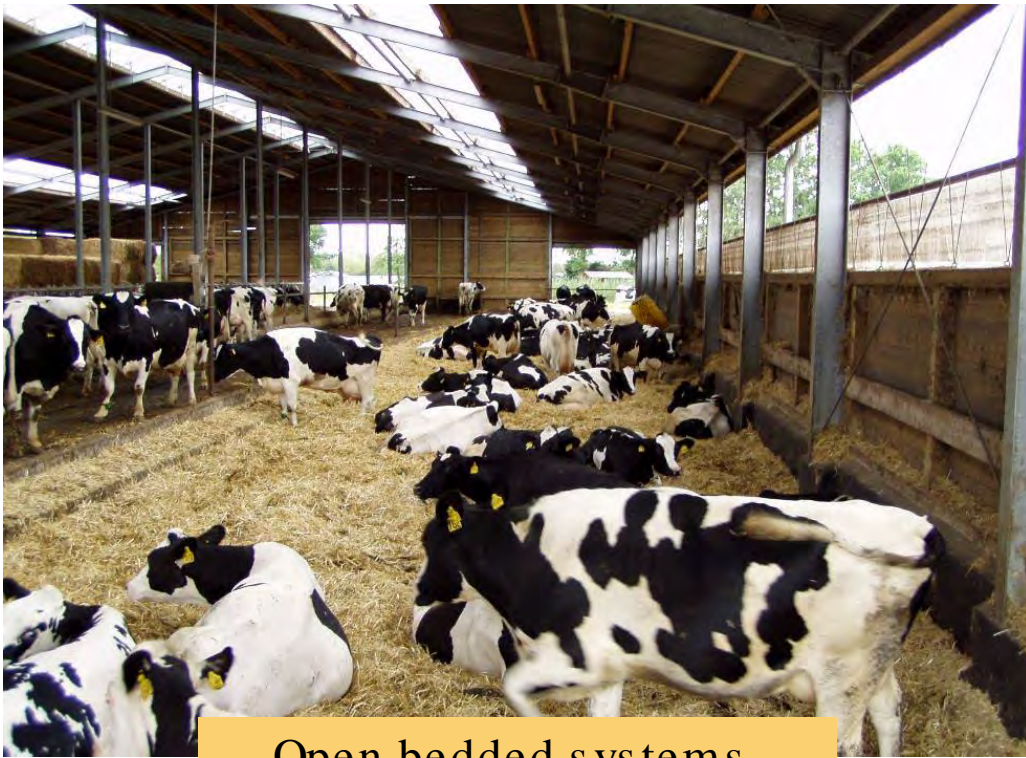
Tie-tails



Cubicles

RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

Dairy Farms



Open-bedded systems



Systems with access to outdoor area

ASSESSMENT 2: WELFARE CONSEQUENCES

LOCOMOTORY DISORDERS

MASTITIS

METABOLIC DISORDERS

RESTRICTION OF MOVEMENT

**INABILITY TO PERFORM
COMFORT BEHAVIOURS**



ASSESSMENT 2:WELFARE CONSEQUENCES

Locomotory disorders: conclusions

Description

Lameness is a significant welfare issue in dairy cows associated with pain and reduced ability to perform natural behaviours.

ABMs

- Gait scoring
- Foot lesion scoring

System Comparison

- Multifactorial (environment, management, animal)
- No clear evidence that one housing system is consistently better

Cubicles

vs

Access to pasture
(temporary)



High risk of claw disorders and lameness in cubicles with shallow beds or mats



Lower prevalence of integument damage compared to zero-grazing systems



ASSESSMENT 2: WELFARE CONSEQUENCES

Locomotory disorders: recommendations



Preventing lameness includes **regular gait scoring** followed by early treatment of lame cows.



Dimensions and design of the lying area(s) and cubicle furniture should match the size of cows ensuring that comfort is optimised, freedom of lying behaviour (natural postural changes) is allowed and risk of injury is minimised.



Dairy cows should be provided with **dry, soft and deformable lying surfaces**.



The walking and standing surface should be **clean, dry, non-slip and avoiding sharp edges**.



Tracks for pasture access should be suitable for long-distance walking (e.g. even surfaced, free from stones and debris).



ASSESSMENT 2: WELFARE CONSEQUENCES

Metabolic disorders: conclusions

Description

- Imbalance in the cow's metabolism, which can lead to a variety of health issues
- Ketosis, subacute ruminal acidosis, displaced abomasum and hypocalcaemia (milk fever) commonly occur during the peripartum period or in early lactation

ABMs

- Incidence rate of clinical cases
 - Subclinical ketosis
 - (Body condition scoring)
-
- beta-hydroxybutyrate (in blood)
 - ketones level (milk and urine)

System Comparison

no major difference



Diet & feeding management



ASSESSMENT 2: WELFARE CONSEQUENCES

Metabolic disorders: Recommendations



Preventive strategies based on key risks arising from feeding and management practices should be in place to minimise the occurrence of metabolic disease.



For metabolic conditions associated with clinical signs, clinical cases should be recorded accurately and incidence rates calculated to provide the basis for monitoring clinical metabolic disease.



ASSESSMENT 2: WELFARE CONSEQUENCES

Restriction of movement/resting problems: conclusions

Description

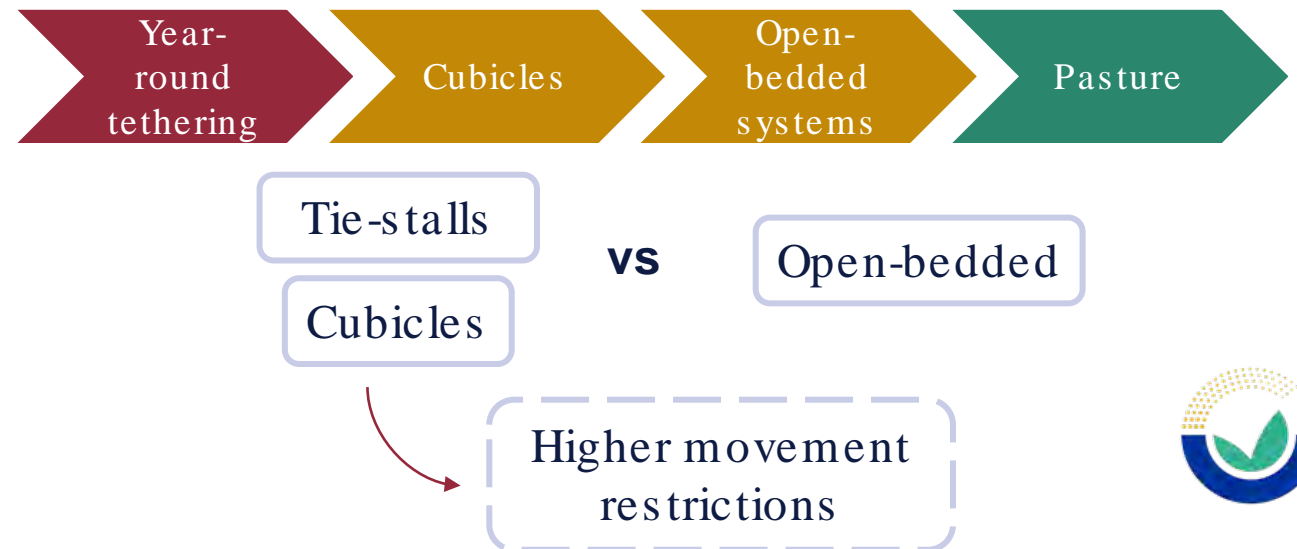
- Inability of an animal to move freely or comfortably due to factors such as limited space or inadequate flooring.
- Closely related, resting problems due to inadequate design and properties of the lying area

ABMs

- Gait, hygiene and lesion score
- Natural postures (lying down & rising up)

System Comparison

- Housing system itself
- Design and features of particular housing systems
- Stocking densities
- Extent of outdoor access



ASSESSMENT 2: WELFARE CONSEQUENCES

Restriction of movement/resting problems: recommendations



Dairy cows should **not be permanently housed in tie-stalls** because of the continuous and severe restriction of movement and social behaviour, and the risk of thwarting of lying down and rising up movements as well as prevention of comfortable resting postures.



In a transition period, housing in tie-stalls with **regular access to a loafing area, or access to summer pasture**, could be used to reduce the impact on restriction of movement, resting and social behaviour.



In cubicle housing systems, **at least one cubicle per cow** should be provided.

ASSESSMENT 2: WELFARE CONSEQUENCES

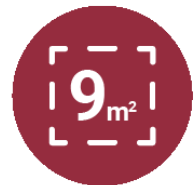
Restriction of movement/resting problems: recommendations



Dry, soft and deformable lying surfaces, preferably **deep bedding**, should be provided. For deep-bedded cubicles, a **minimum depth of 30 cm** should be provided if bedding is placed on concrete, or a minimum depth of **5 cm** of compressed material if on the top of mats or mattresses.



Access to **well-managed pasture** (i.e., well-drained, provision of shade) should be provided because it offers opportunity to walk freely, ease of changing posture, and a comfortable lying area.



A **total indoor area** – including lying area - of at least **9 m²/cow** should be provided.



Minimum width and length of cubicles as well as other features that should be provided for cubicles are recommended (see specific recommendations in the opinion).



ASSESSMENT 3: FARM CHARACTERISTICS TO CLASSIFY LEVEL OF WELFARE

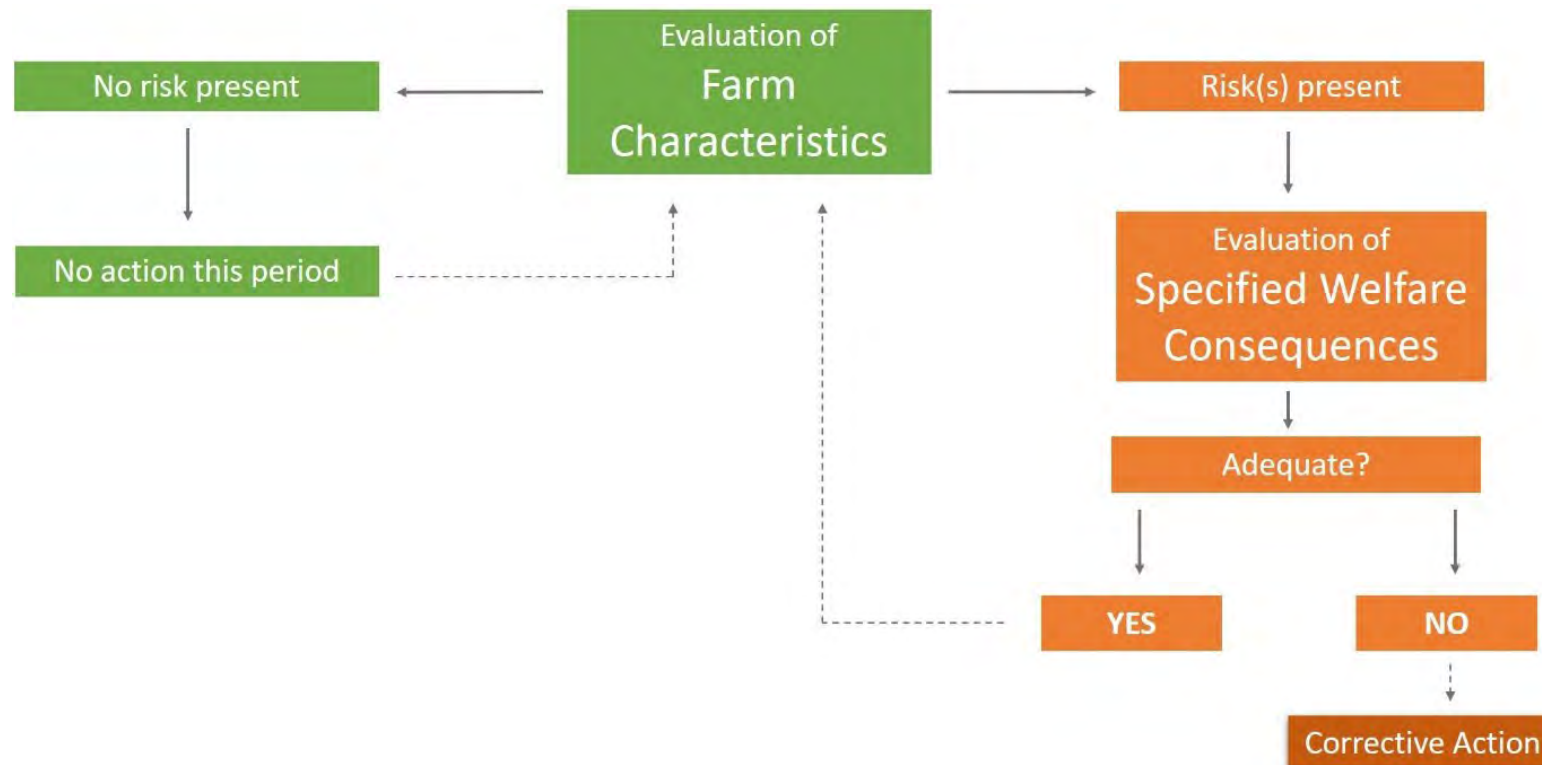


ASSESSMENT 3: FARM CHARACTERISTICS

Aim: Identification of farm characteristics that could be used to categorise farms at risk of poor welfare

Method: expert knowledge elicitation (EKE) to identify these farm characteristics

Framework for a risk-based assessment of dairy cow welfare for EU farms:



ASSESSMENT 3: FARM CHARACTERISTICS

Results: Five farm characteristics identified that characterise farms at risk of poor welfare (in order of importance attributed by the experts)

1. Farms with more than one cow per cubicle at maximum stocking rate
2. Farms with a limited total space (including outdoor loafing areas) for housed cows (<7 m²/cow)
3. Farms on which cubicle dimensions are inappropriate for the size of the cows
4. Farms with high annual on-farm mortality (i.e. more than 8% including emergency slaughter) rates
5. Farms on which cows have less than 2 months per year access to pasture

Recommendations: If one or more of these farm characteristics are present, it is recommended to conduct an assessment of cow welfare on the farm in question.



ASSESSMENT 3: FARM CHARACTERISTICS

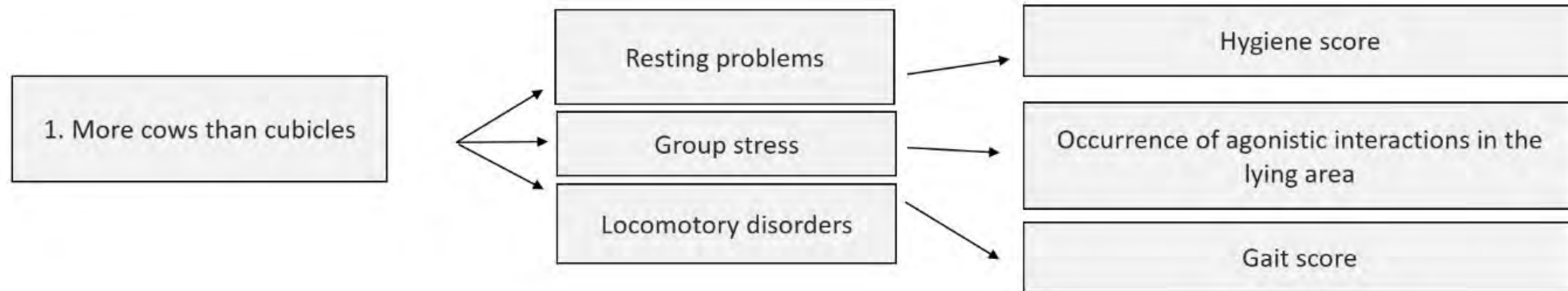
Assessment of cow welfare on the farm in question

For farms with one or more of the five characteristics, welfare consequences can be assessed using specific farm-level assessments (based on animal-based measures).

Example: Farm characteristic 1

Association 'farm characteristic – welfare consequences – ABMs'

(thresholds for the ABMs reported in the opinion)



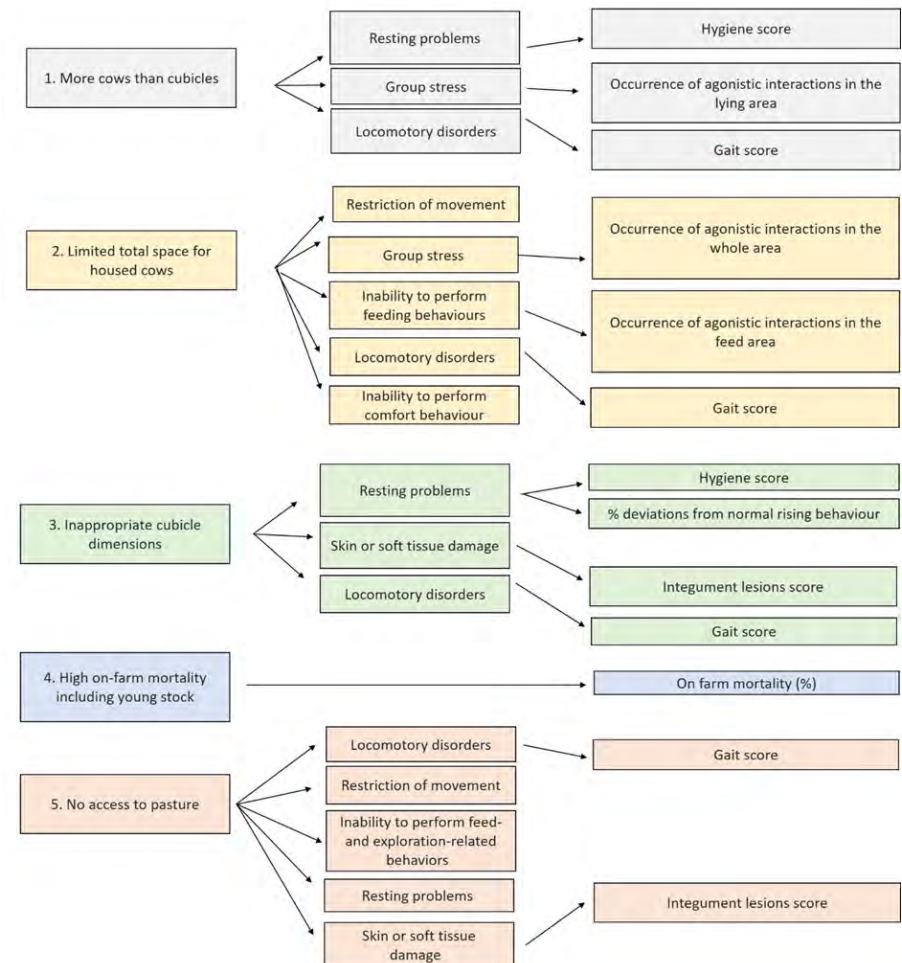
ASSESSMENT 3: FARM CHARACTERISTICS

Complete assessment for the 5 characteristics can be found in the Scientific Opinion.

Recommendations

It is recommended that the risk-based scheme developed from the EKE is piloted to validate its usefulness in practice prior to implementation.

FARM CHARACTERISTIC → WELFARE CONSEQUENCE → HERD-LEVEL ASSESSMENT



More details in the Scientific Opinion [Welfare of dairy cows on farm | EFSA \(europa.eu\)](https://www.efsa.europa.eu/en/efsajournal/doc/7993)

SCIENTIFIC OPINION

efsa JOURNAL

ADOPTED: 29 March 2023

doi: 10.2903/j.efsa.2023.7993

Welfare of dairy cows

EFSA Panel on Animal Health and Animal Welfare (AHAW),
Søren Saxmose Nielsen, Julio Alvarez, Dominique Joseph Bicot, 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, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio Velarde,
Arvo Viltrop, Alice De Boyer des Roches, Margit Bak Jensen, John Mee, Martin Green,
Hans-Hermann Thulke, Elea Bailly-Caumette, Denise Candiani, Eliana Lima,
Yves Van der Stede and Christoph Winckler

Abstract

This Scientific Opinion addresses a European Commission's mandate on the welfare of dairy cows as part of the Farm to Fork strategy. It includes three assessments carried out based on literature reviews and complemented by expert opinion. Assessment 1 describes the most prevalent housing systems for dairy cows in Europe: tie-stalls, cubicle housing, open-bedded systems and systems with access to an outdoor area. Per each system, the scientific opinion describes the distribution in the EU and assesses the main strengths, weaknesses and hazards potentially reducing the welfare of dairy cows. Assessment 2 addresses five welfare consequences as requested in the mandate: locomotory disorders (including lameness), mastitis, restriction of movement and resting problems, inability to perform



ACKNOWLEDGEMENT DAIRY COWS

- EFS A 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, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio Velarde, Arvo Viltrop, Alice De Boyer des Roches, Margit Bak Jensen, John Mee, Martin Green, Hans-Hermann Thulke, Elea Bailly-Caumette, Denise Candiani, Eliana Lima, Yves Van der Stede and Christoph Winckler

- Working group welfare of Dairy Cows

Alice De Boyer des Roches, Margit Bak Jensen, John Mee, Martin Green, Hans-Hermann Thulke, Søren Saxmose Nielsen, Marie Haskell, George Stilwell and Christoph Winckler

- EKE experts

Eliana Lima, Denise Candiani, Mariana Aires, Hans-Hermann Thulke, Christoph Winckler, Alice de Boyer des Roches, George Stilwell, John Mee, Søren Nielsen, Marie Haskell, Margit Bak Jensen, Martin Green

- EFS A staff

Eliana Lima, Denise Candiani, Mariana Aires, Maria Mountricha, Elea Bailly-Caumette





Thank you for your
attention!