



EFSA OPINION ON WELFARE OF CALVES ON FARM

Christoph Winckler

Chair of the working group on the welfare
of calves

SCOPE OF THIS WORK

The **European Commission** requested EFSA to give an independent view on the protection of calves related to the *welfare of calves*:

Scope:

Bovine animals up to 6 months
Born on dairy farms – not in suckler herds



Calves kept on dairy farms for replacement (females)

Calves for white veal (unweaned calves for meat, mostly males)



GENERAL TERMS OF REFERENCE (TOR)

ToR 1

Describe the current **husbandry systems**

ToR 2

Describe the relevant **welfare consequences**

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 male dairy calves raised for producing “white” veal meat and the risks associated with individual housing, insufficient space, and feed restriction (such as deprivation of iron and fibres)

Specific scenario 3. The welfare of dairy calves and the risks associated with limited cow-calf bond.



EFSA to propose

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

Specific scenario 2. The assessment of ABMs collected in slaughterhouses to monitor the level of on-farm welfare of male dairy calves raised for producing “white” veal meat



DATA AND METHODOLOGY



Literature review



Expert Knowledge Elicitation (EKE)

“Farm to fork” model



Specific scenarios: space allowance, fibre, iron, group size and age at grouping



Uncertainty analysis

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





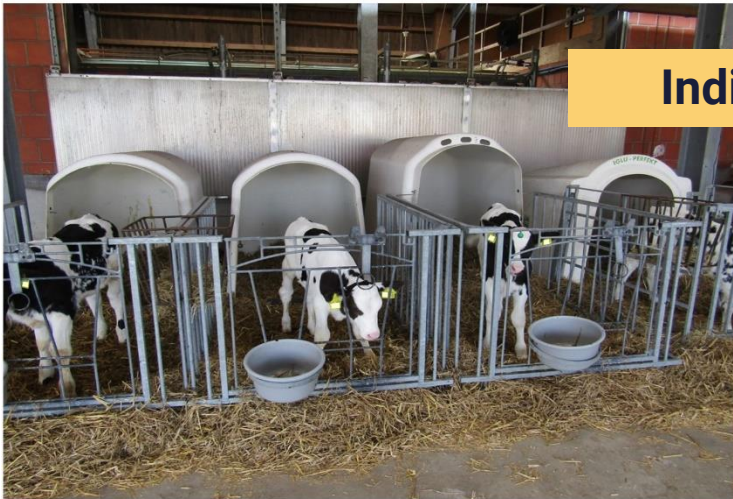
RESULTS: HUSBANDRY SYSTEMS



RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

DAIRY FARMS – BEFORE WEANING

Individual housing



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Small groups with milk feeding by bucket /trough



© G. Stilwell

Cow-calf contact



© S. Waiblinger



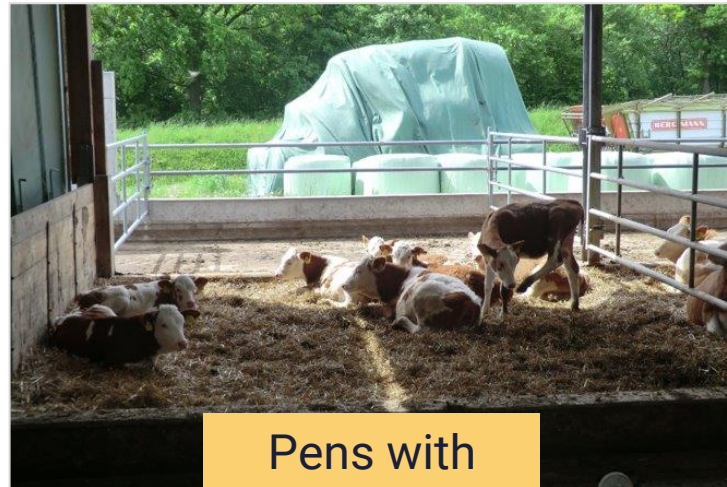
RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

DAIRY FARMS – AFTER WEANING TILL 6 MONTHS



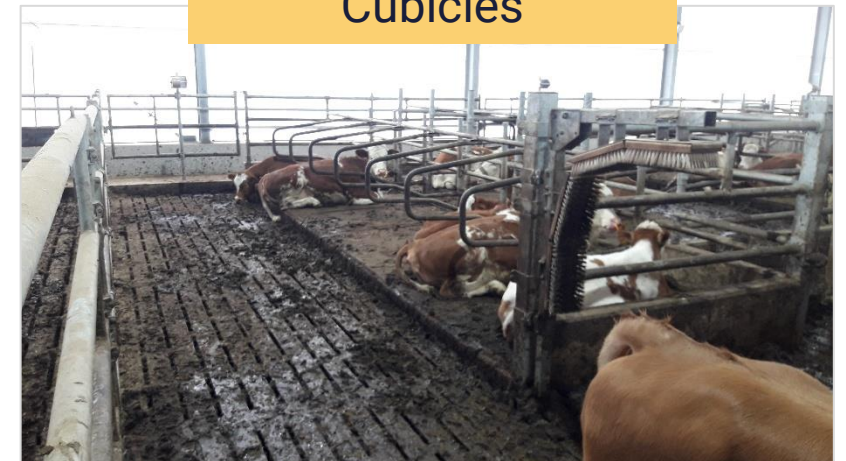
Fully or partially
slatted floor without
bedding

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Pens with
littered floor

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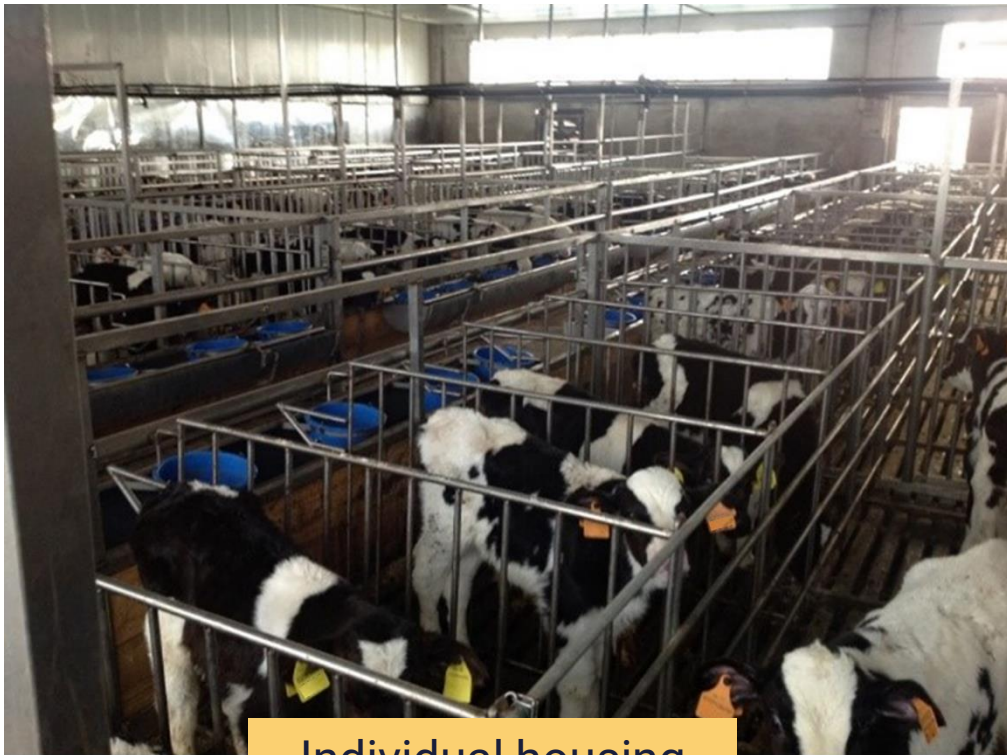


Cubicles

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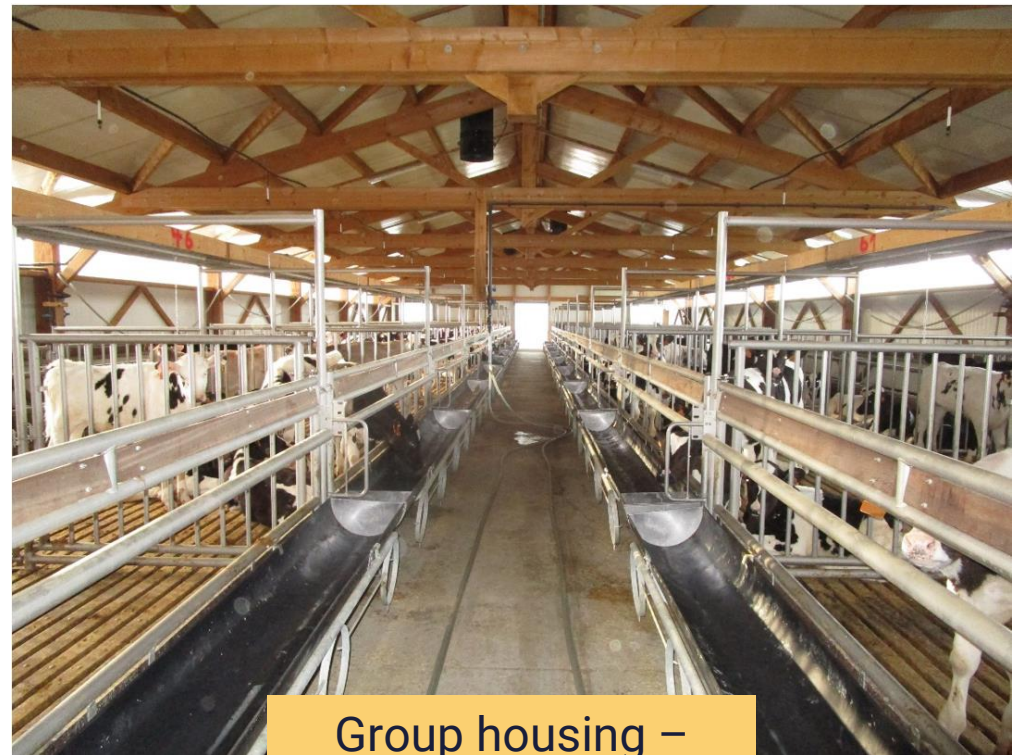
HUSBANDRY SYSTEMS VEAL CALVES

VEAL FARMS



Individual housing

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Group housing –
Small groups

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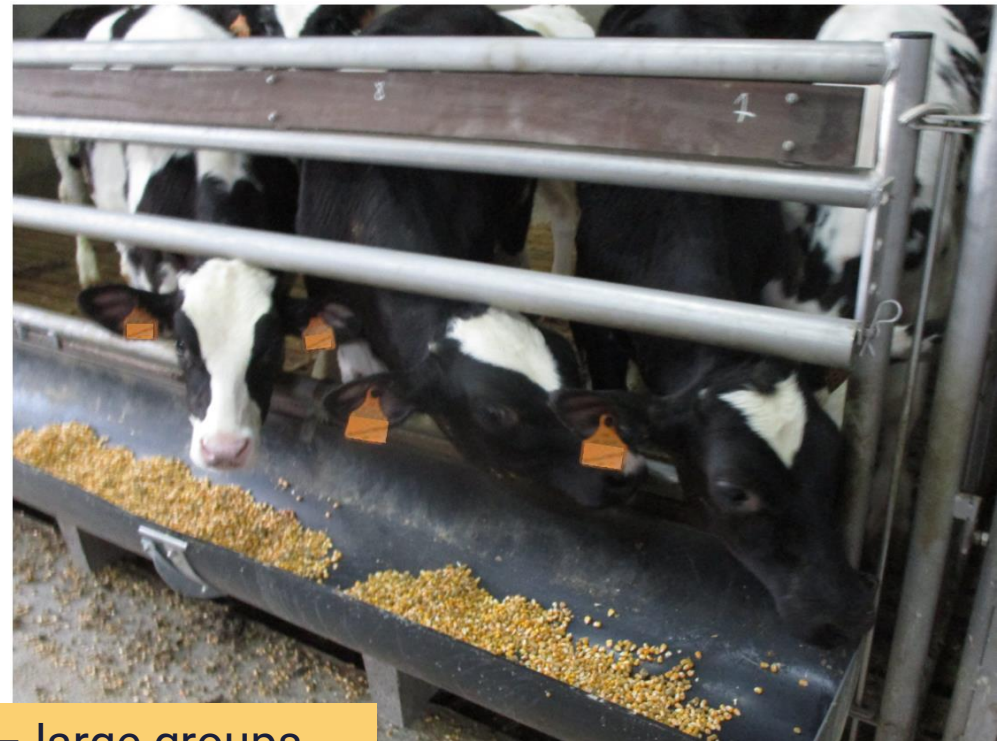
HUSBANDRY SYSTEMS VEAL CALVES

VEAL FARMS



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Group housing – large groups



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RESULTS: WELFARE CONSEQUENCES (TOR 2)

Welfare consequences
Respiratory disorders
Inability to perform exploratory or foraging behaviour
Gastro-enteric disorders
Inability to perform sucking behaviour
Group stress
Inability to chew and ruminate
Resting problems
Inability to perform play behaviour
Restriction of movement
Prolonged hunger
Isolation stress
Metabolic disorders
Separation stress
Heat stress
Handling stress

15 welfare consequences were identified as **highly relevant**

- ABMs (e.g., play behaviour)
- Hazards (e.g., insufficient space allowance per calf)
- Preventive measures (e.g., avoid individual housing systems)



HUSBANDRY SYSTEMS

RECOMMENDATIONS

- Adequate **colostrum** management
- Provision of large milk amounts (~ 20% body weight per day until at least 4 weeks of life)
- Keeping calves from an early age onwards in **stable groups**
- **Long roughage** in racks
- **Water** through an open surface
- **Access to shade or insulated shelters**
- Provision of **brushes**
- Good **ventilation**
- Transport events, commingling and regrouping should be **avoided**

Further quantitative recommendations provided for grouping, space, iron and fibre



SPECIFIC SCENARIO 1 - VEAL CALVES: REQUIREMENTS OF SPACE, GROUP SIZE, IRON, AND FIBRE



A photograph of several black and white cows in a barn, eating from a long metal trough filled with hay. The cows are wearing yellow ear tags. The scene is dimly lit, and the trough is filled with a mix of hay and grain. The image is framed by a dark blue circular border.

**SPECIFIC SCENARIO 1 –
REQUIREMENTS OF SPACE**



SPECIFIC SCENARIO 1: VEAL CALVES – LIMITED SPACE

WELFARE CONSEQUENCES

- Restriction of movement
- Resting problems
- Inability to perform play behaviour

RELATIONSHIP BETWEEN SPACE AND BEHAVIOUR

SPACE ALLOWANCE	IMPACT ON BEHAVIOUR
1.8 m ²	Higher probability of respiratory disease
2 m ²	Reduced lying times
3 m ²	Resting in a relaxed position
20 m ²	Locomotor play behaviour*

*estimated by Expert Knowledge Elicitation (EKE)

See Section 4.16.2.5 of the Scientific Opinion for more details



SPECIFIC SCENARIO 1: VEAL CALVES – LIMITED SPACE

RECOMMENDATIONS – SPACE ALLOWANCE

Space allowance

- Current minimum space allowance (i.e. 1.8 m² per animal) should be increased to **at least 3 m² per animal**
- **3 m² per animal** to increase time spent lying in a relaxed posture and likely an increase in general activity
- **At least 20 m² per animal** to allow for full locomotor play behaviour





SPECIFIC SCENARIO 1 –

**REQUIREMENTS OF GROUP SIZE AND AGE AT
GROUPING**



SPECIFIC SCENARIO 1: VEAL CALVES – GROUPING

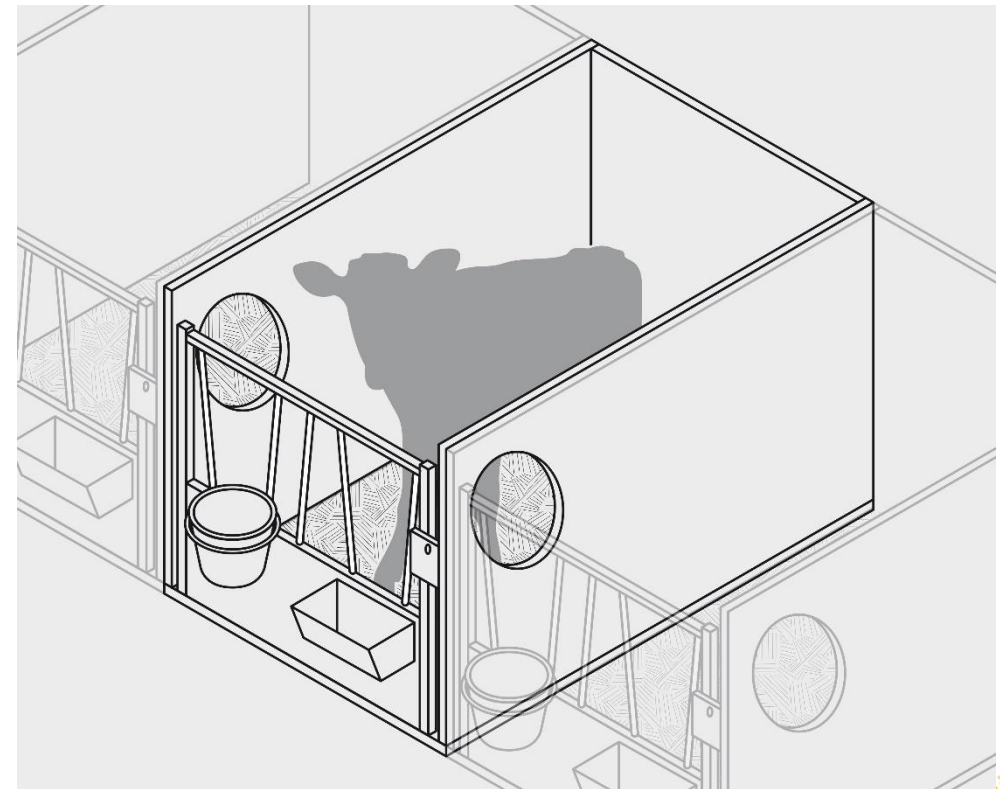
INDIVIDUAL HOUSING

WELFARE CONSEQUENCES

Isolation stress

Impaired social behaviour development

Impaired learning ability



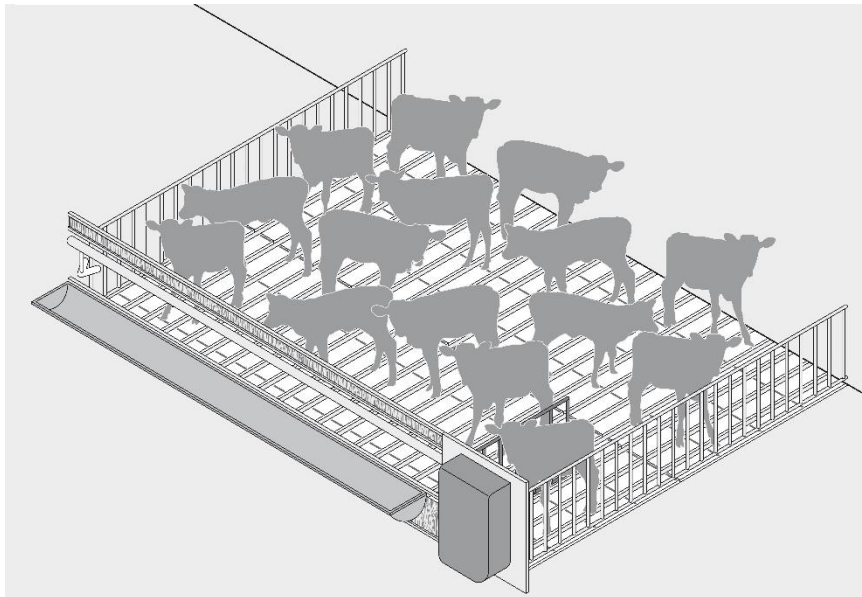
SPECIFIC SCENARIO 1: VEAL CALVES – GROUPING

HOUSING IN LARGE GROUPS

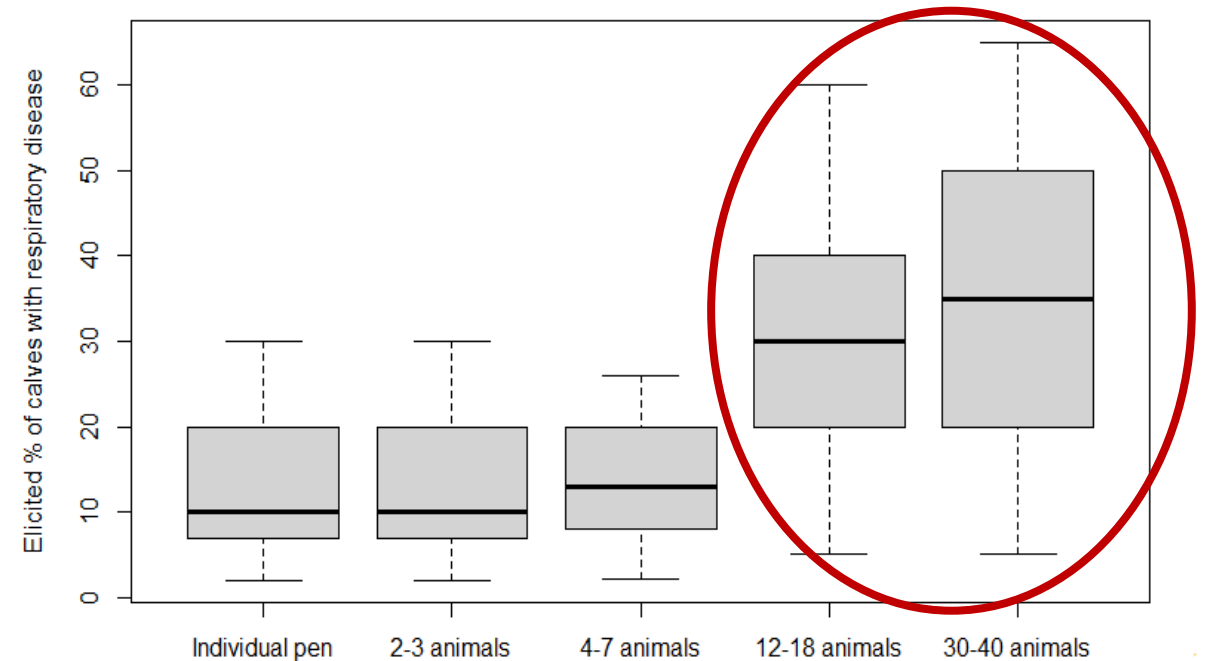
WELFARE CONSEQUENCES

Group stress

Respiratory disorders



Elicited respiratory disease prevalence per group size



SPECIFIC SCENARIO 1: VEAL CALVES – GROUPING

RECOMMENDATIONS

- Unless they have contact with the dam, calves should be moved to and **kept in pairs or small groups (2-7 animals) within the first week of life** (i.e., before day 7)
- Calves should not be kept individually at the veal unit. Veal calves should be housed in **groups of ~ 7 animals** at least **until the age of 6 weeks**
- Calves should be kept with a familiar pen mate(s) from the dairy farm of origin after arrival at the veal unit and **groups should be kept stable** as much as possible
- Aspects such as ventilation and pen air volume should be well managed, but further research is needed for specific recommendations on these parameters



A photograph of several black and white cows in a barn, eating hay from a long metal trough. The cows are wearing yellow ear tags. The scene is dimly lit, with the primary light source coming from the left, creating a soft glow on the cows' faces and the hay. The background shows the metal bars of the stalls.

SPECIFIC SCENARIO 1 –

IRON REQUIREMENTS



SPECIFIC SCENARIO 1: VEAL CALVES – IRON



Natural variation in haemoglobin levels during first weeks of life

WELFARE EFFECTS

Haemoglobin concentration (mmol/L)	4.34	Higher infection rates
	4.5	<i>Current minimum haemoglobin value</i>
	4.6	Impaired weight gain
	5.3	Increased cardiovascular and respiratory responses to physical effort
	> 6	No welfare effects observed

RECOMMENDATIONS

- **Avoid Hb < 5.3 mmol/L in veal calves**
- Collection, record keeping and **accessibility** of haemoglobin data from white veal production for assessment of **welfare effects of Hb values between 4.5 and 5.6 mmol/L**
- Diet of veal calves should be composed of **feedstuff high in iron such as roughage** (e.g., hay)





SPECIFIC SCENARIO 1 –

FIBRE REQUIREMENTS



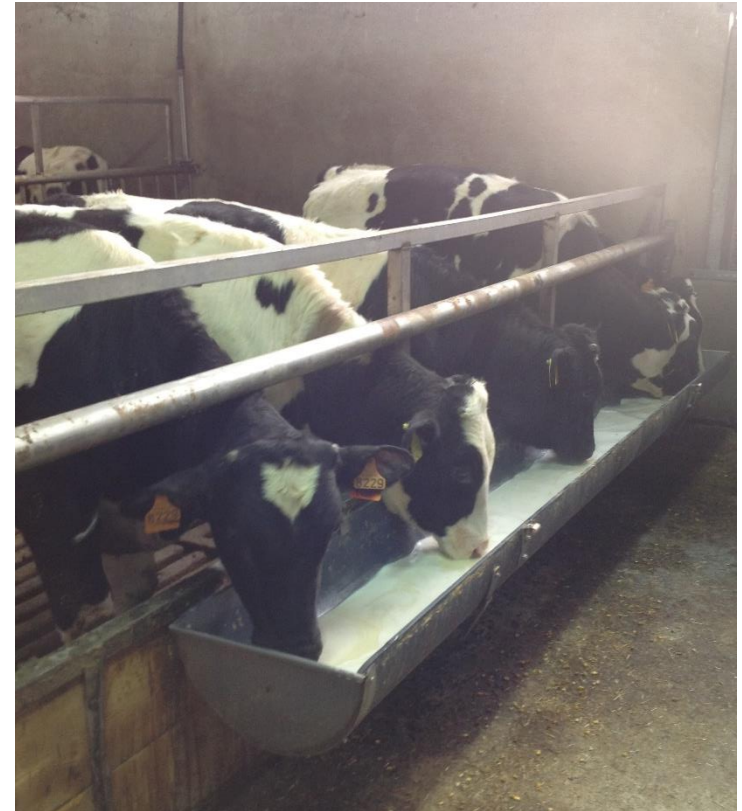
SPECIFIC SCENARIO 1: VEAL CALVES – FIBRE

**Standard diet of
white veal calf**
Milk + mostly corn
Limited fibre intake



WELFARE CONSEQUENCES

Inability to chew and ruminate
Gastro-enteric disorders (e.g.
abomasal ulcers)



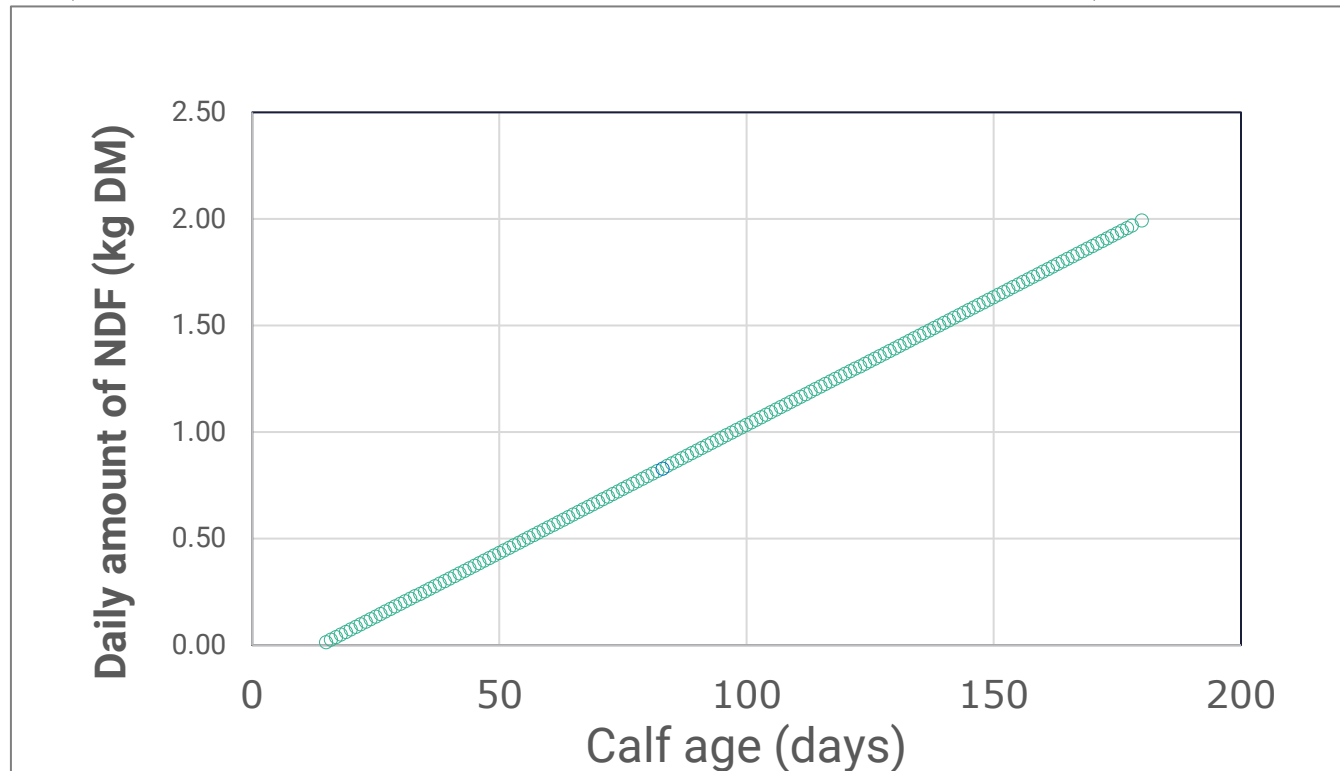
Current feeding plans (0.19 kg NDF/ day):
White veal calves only show 1/3 of expected rumination times

RECOMMENDATION Ingestion of **1 kg of NDF (DM) per day** for
calves to show full extent of rumination

SPECIFIC SCENARIO 1: VEAL CALVES – FIBRE

RECOMMENDATION

AMOUNT OF FIBRE (NDF) TO BE DISTRIBUTED OVER TIME
(BETWEEN 2 WEEKS AND 6 MONTHS OF AGE)



Age // weight (LW)	2 - 8 weeks / 40 kg	9 - 18 weeks / 80 kg	19 - 25 weeks / 130-300 kg	Total
Kg NDF DM	11	65	90	166



SPECIFIC SCENARIO 2 – VEAL CALVES - ABM COLLECTED IN ABATTOIRS



SPECIFIC SCENARIO 2 – WELFARE INDICATORS COLLECTED IN ABATTOIRS

SPECIFIC SCENARIO 2. The assessment of ABMs collected in slaughterhouses to monitor the level of on-farm welfare of male dairy calves raised for producing “white” veal meat

Approach

IDENTIFICATION OF COMMON WELFARE PROBLEMS IN VEAL OBSERVED ON FARM

EVALUATION AND SELECTION OF ABMs FOR COLLECTION IN ABATTOIRS

RESULTS & RECOMMENDATIONS



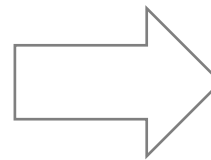
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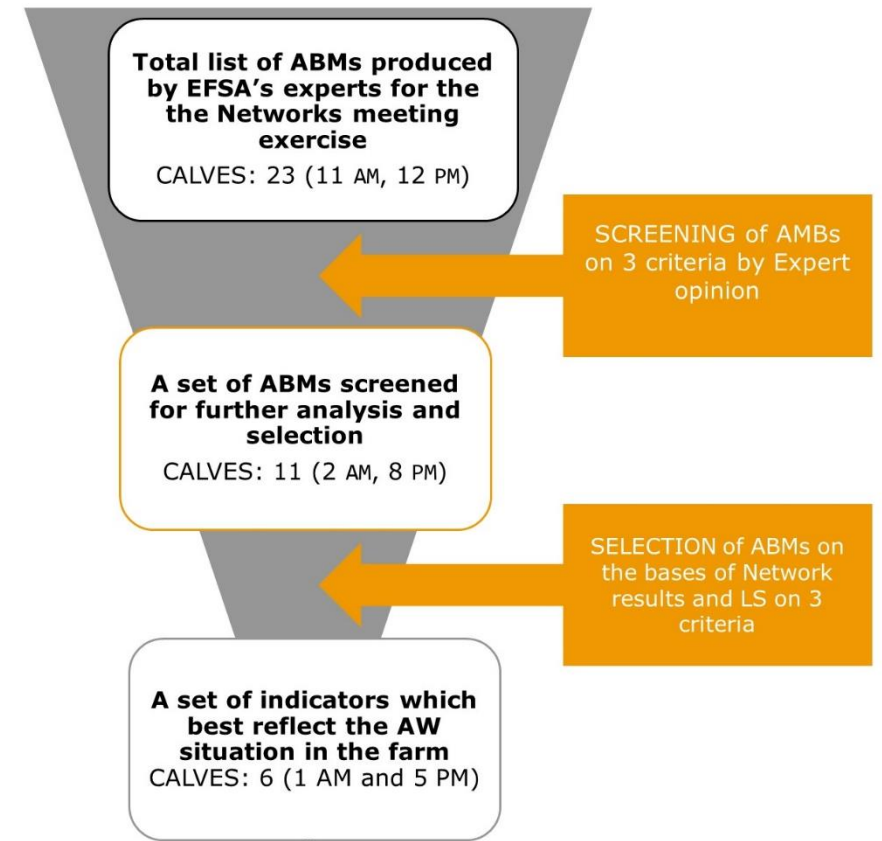
SPECIFIC SCENARIO 2 – WELFARE INDICATORS COLLECTED IN ABATTOIRS

CRITERIA FOR SELECTION

1. Relevance to animal welfare
2. Relationship with the farm (and not transport or lairage)
3. Existing data in the scientific literature
4. Feasibility for large scale collection



Stepwise process followed



Reasoning on best indicators

am = ABMs measured *ante-mortem*
pm = ABMs measured *post-mortem*



SPECIFIC SCENARIO 2 – WELFARE INDICATORS COLLECTED IN ABATTOIRS

Common welfare issues in veal:

Anaemia

General health disorders (gastro-enteric and respiratory problems)

Resting problems

There are **no abattoir ABMs** to detect behavioural welfare consequences



SUGGESTED ABMS

1. Body condition score
2. Carcass condemnations
3. Carcass colour
4. Abomasal lesions
5. Lung lesions
6. Bursa swelling



SPECIFIC SCENARIO 2 – WELFARE INDICATORS COLLECTED IN ABATTOIRS

RECOMMENDATIONS

- Collection of data on **body condition score, carcass condemnations, carcass colour, abomasal lesions, lung lesions, and bursa swelling**
- To be complemented with behaviour data collected on farm
- Data **already collected** for commercial purposes such as **carcass colour** should be made available
- **Harmonised systems and systems for automatic and continuous assessment** should be developed



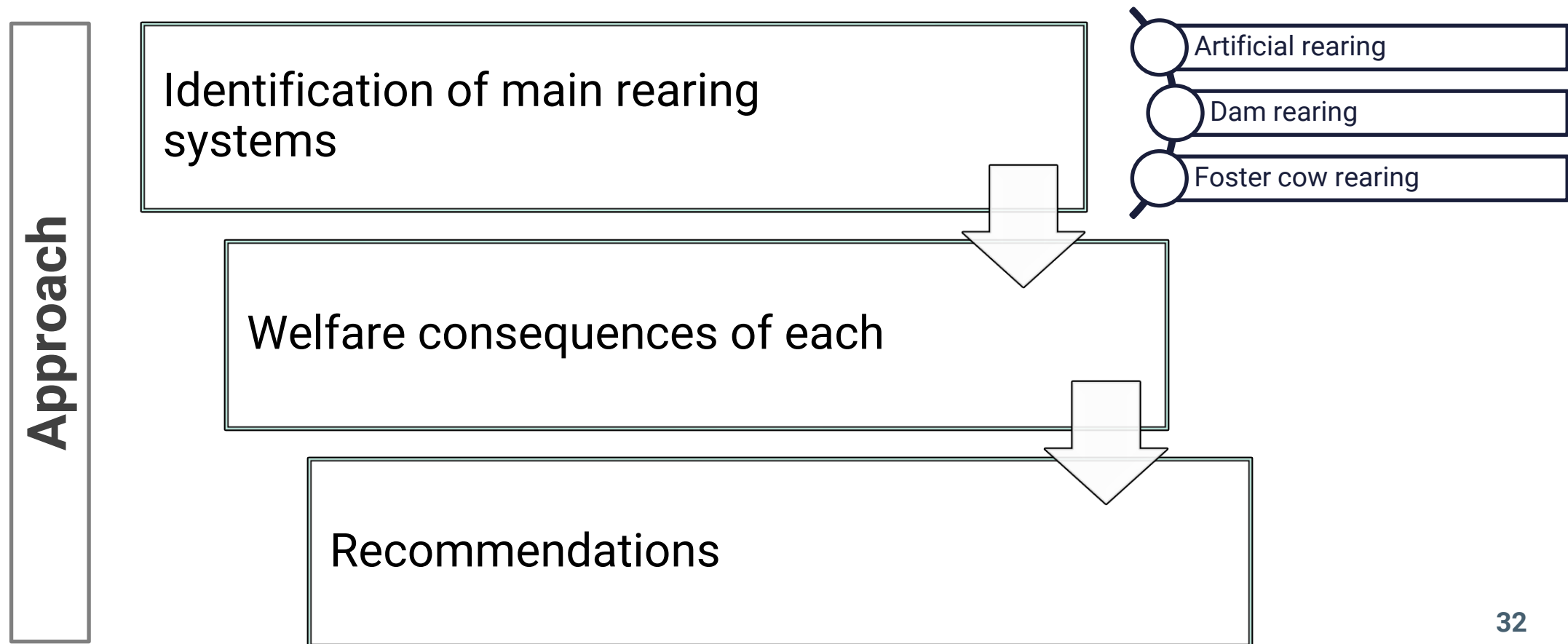
A black and white cow is leaning over a grassy field, looking down at a small black and white calf that is lying on the grass. The background shows a bright blue sky with some light clouds. The image is framed by a yellow curved border on the right and bottom.

SPECIFIC SCENARIO 3 – LIMITED COW-CALF CONTACT



SPECIFIC SCENARIO 3 – RISKS OF LIMITED COW CALF BOND

SPECIFIC SCENARIO 3. The welfare of dairy calves and the risks associated with limited cow-calf bond



SPECIFIC SCENARIO 3 – RISKS OF LIMITED COW CALF BOND

CALF REARING SYSTEMS

Artificial rearing

- Conventional system
- Separation at birth



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Dam or foster cow rearing

- Not common
- Duration of contact varies
- Foster cow rearing: 2-3 calves/cow



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See Section 4.18.4 of the Scientific Opinion for more details

SPECIFIC SCENARIO 3 – RISKS OF LIMITED COW CALF BOND

DAM REARING COMPARED TO INDIVIDUAL HOUSING

POSITIVE WELFARE EFFECTS

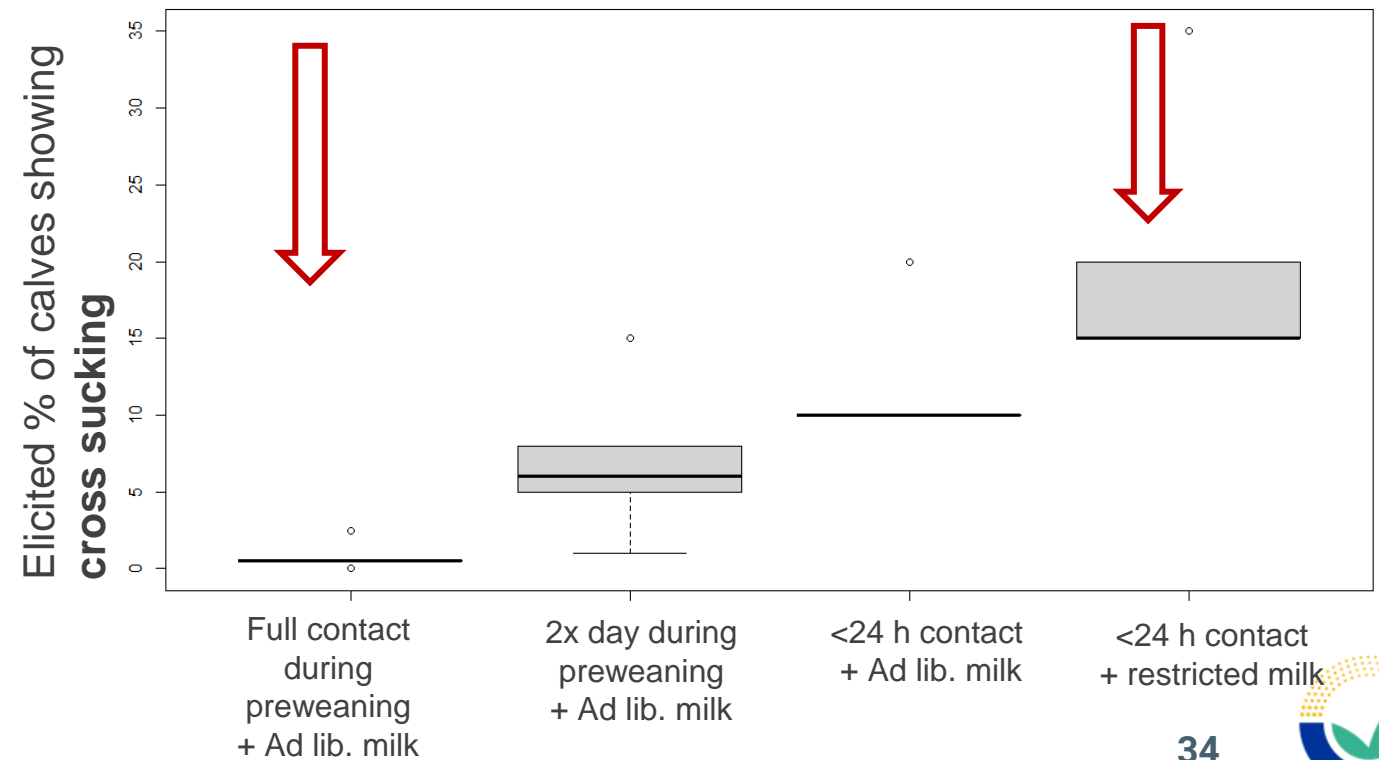
- Reduced transmission of disease
- Higher calf vitality
- More developed social behaviour
- Higher weight gain

Reduced cross-sucking behaviour →

NEGATIVE WELFARE EFFECTS

- Separation stress

% of calves showing cross sucking depending on contact with the dam



SPECIFIC SCENARIO 3 – RISKS OF LIMITED COW CALF BOND

RECOMMENDATIONS

- The calf should be kept with the dam for **a minimum of ~24 hours** and be housed with another calf after that.
- Prolonged cow-calf contact **should increasingly be implemented** due to the welfare benefits for calf and cow. In the **future**, calves should have contact with the dam during the **whole pre-weaning period**.
- Further research is needed to:
 - better understand how to implement cow-calf contact in a larger scale
 - identify the best options in practice
 - define best practices for foster-cow rearing



SUMMARY

Avoid individual housing

Keep animals in small groups of 2-7 animals of similar age for social behaviour.



Space allowance

Calves need to have enough space to be able to rest in a relaxed position - at least 3m² per animal.

To be able to perform full play behaviour they need 20 m².



Comfortable bedding

For their comfort provide a deformable bedding.



Cow-calf contact

Cow and calf need to be together for at least 1 day after birth.



More details in the Scientific Opinion [Welfare of calves on farm | EFSA \(europa.eu\)](#)

Publication Info [1]



SCIENTIFIC OPINION

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Welfare of calves

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Christian Gortazar Schmidt, Mette Herskin, Virginie Michel, Miguel Angel Miranda Chueca,
Barbara Padalino, Paolo Pasquali, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio
Velarde, Arvo Viltrop, Margit Bak Jensen, Susanne Waiblinger, Denise Candiani, Eliana Lima,
Olaf Mosbach-Schulz, Yves Van der Stede, Marika Vitali and Christoph Winckler

Abstract

This Scientific Opinion addresses a European Commission request on the welfare of calves as part of the Farm to Fork strategy. EFSA was asked to provide a description of common husbandry systems and related welfare consequences, as well as measures to prevent or mitigate the hazards leading to them. In addition, recommendations on three specific issues were requested: welfare of calves reared for white veal (space, group housing, requirements of iron and fibre); risk of limited cow-calf contact; and animal-based measures (ABMs) to monitor on-farm welfare in slaughterhouses. The methodology developed by EFSA to address similar requests was followed. Fifteen highly relevant welfare consequences were identified, with respiratory disorders, inability to perform exploratory or foraging



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 calves**

Margit Jensen, Susanne Waiblinger, Elisabetta Canali, Christoph Winckler (chair)

- **Hearing experts**

Marta Brscic, George Stilwell, Joop Lensink, Laura Webb

- **EFSA staff**

Mariana Aires, Denise Candiani, Mariana Geffroy, Eliana Lima, Olaf Mosbach-Schulz, Yves Van der Stede, Marika Vitali

EKE support

Karen Laing, Hans-Hermann Thulke





EFSA OPINION ON WELFARE OF DAIRY COWS ON FARM

Christoph Winckler

Chair of the working group on the welfare of
dairy cows

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

DATA AND METHODOLOGY



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Literature review

Statistic analysis from EU (Eurostat), national statistics



Expert Knowledge Elicitation (EKE)

Uncertainty analysis

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



ASSESSMENT 1: HOUSING SYSTEMS

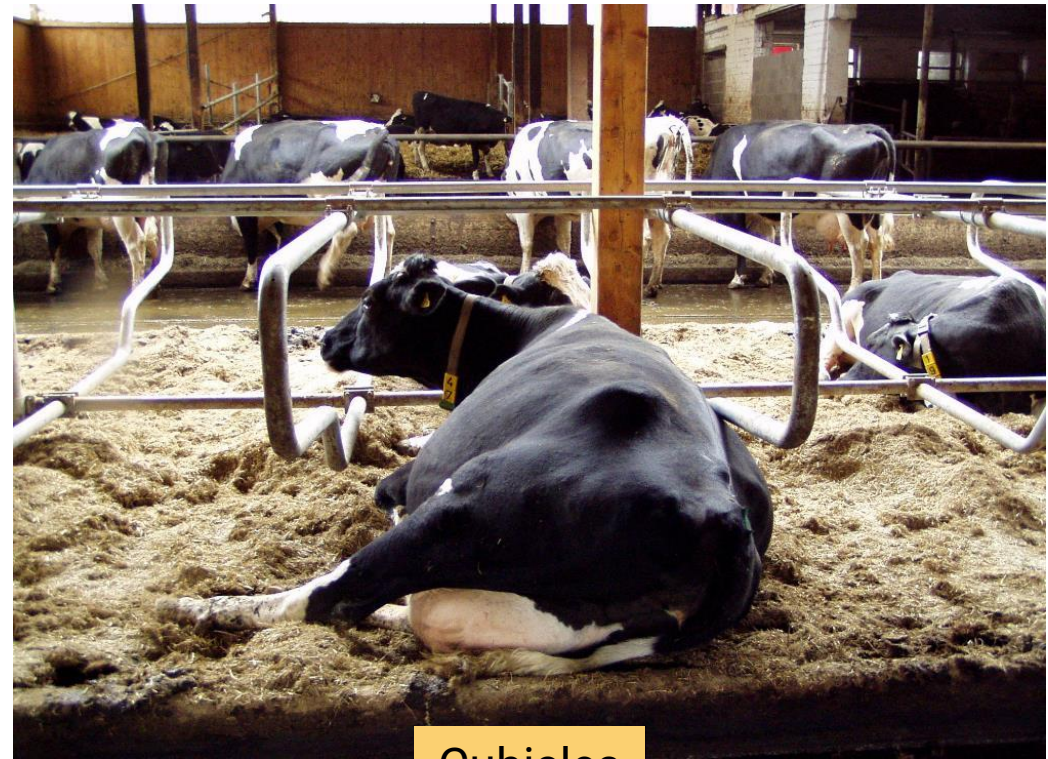


RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

Dairy Farms



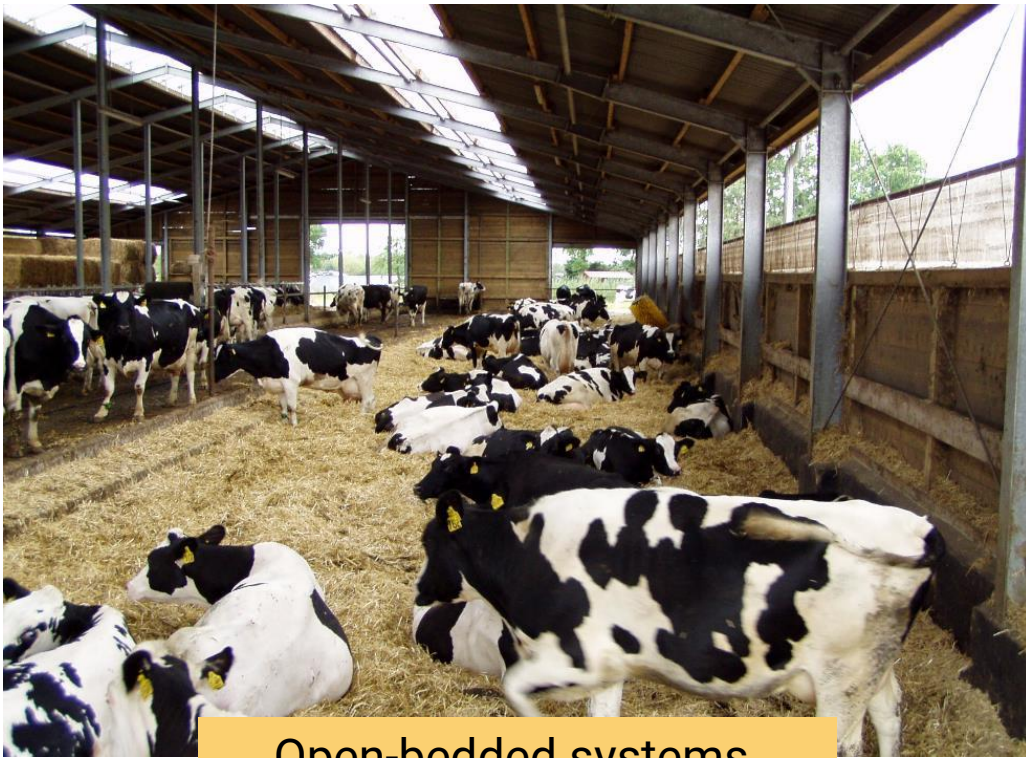
Tie-stalls



Cubicles

RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

Dairy Farms



Open-bedded systems



Systems with access to outdoor area

ASSESSMENT 2: WELFARE CONSEQUENCES



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

Mastitis: conclusions

Description

Inflammation of the mammary gland. Can be distinguished in clinical and subclinical.

Clinical: pain and behavioural changes

Subclinical: unknown effects on welfare

ABMs

- Clinical cases
- Individual Somatic Cell Count (SCC)

System Comparison

No major differences between systems

Only one housing-related hazard: bedding

Sand-bedded cubicles

vs

Organic bedding materials



Lower SCC



ASSESSMENT 2: WELFARE CONSEQUENCES

Mastitis: recommendations



Assessment of key mastitis hazards, which are mostly cow and management related, should be undertaken regularly and a farm-specific **plan for the control**, including treatment and prevention of mastitis, should be formulated based on disease patterns and risks present on-farm.



Udder health should be **routinely monitored** on farm using both the **incidence rate** of clinical mastitis and individual cow **somatic cell counts** in order to timely take appropriate management decisions.

ASSESSMENT 2: WELFARE CONSEQUENCES

Restriction of movement/resting problems: conclusions

Description

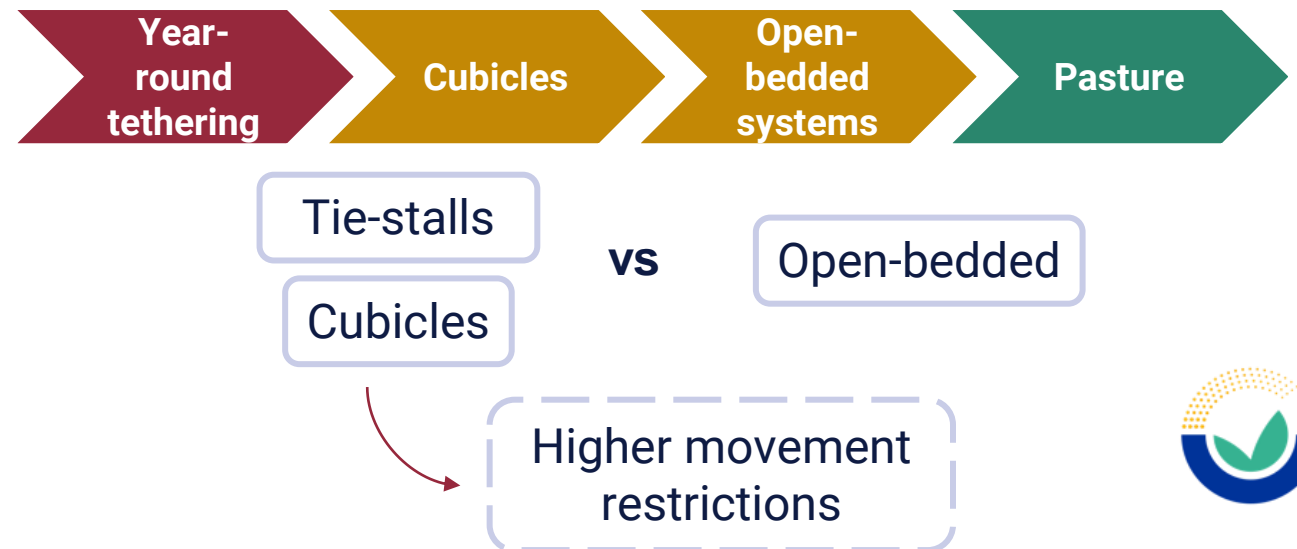
- Inability of an animal to move freely or comfortably due to factors such as limited space or inadequate flooring.
- Closely related, resting problems due to inadequate design and properties of the lying area

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

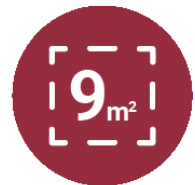
Restriction of movement/resting problems: recommendations



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 2: WELFARE CONSEQUENCES

Inability to perform comfort behaviour: conclusions

Description

Self-grooming
(by use of tongue, hooves,
horns or tail, or objects)



Maintain
integument

allo-grooming (licking a
conspecific)



Social behaviour

ABMs

Observations of:

- self-grooming
- allo-grooming
- brush use

System Comparison

Cubicles

vs

Open-bedded

Tie-stalls

Better hygiene
and cleanliness



ASSESSMENT 2: WELFARE CONSEQUENCES

Inability to perform comfort behaviour: Recommendations



Tethering should not be practised except for limited time periods for events such as veterinary treatments or milking, because it severely restricts the ability to perform comfort behaviour.



In cubicles, **flooring should be slip-resistant** to allow postures associated with self-grooming to be adopted.



Brushes should be available in all loose-housing systems, but further research on the appropriate number per cow and location of brushes is needed.

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 3: FARM CHARACTERISTICS TO CLASSIFY LEVEL OF WELFARE

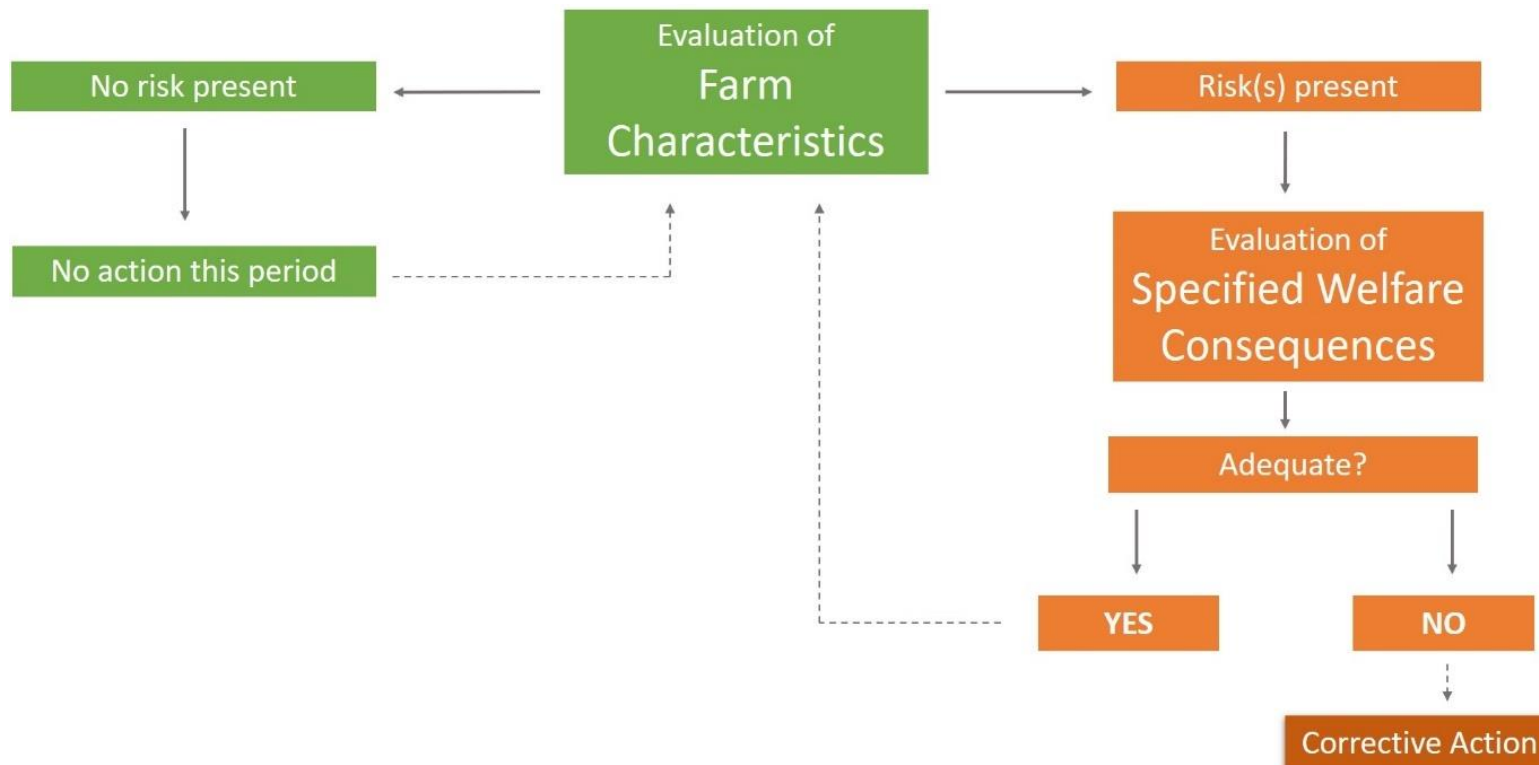


ASSESSMENT 3: FARM CHARACTERISTICS

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

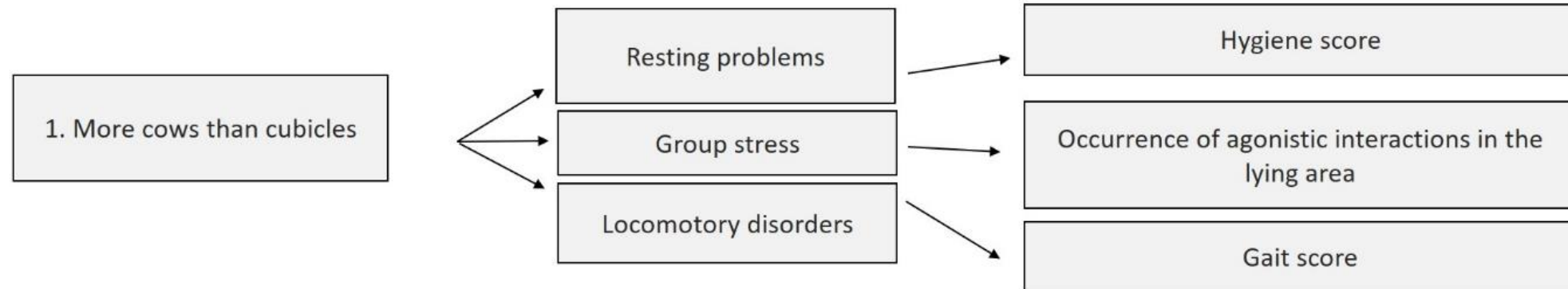
Assessment of cow welfare on the farm in question

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)



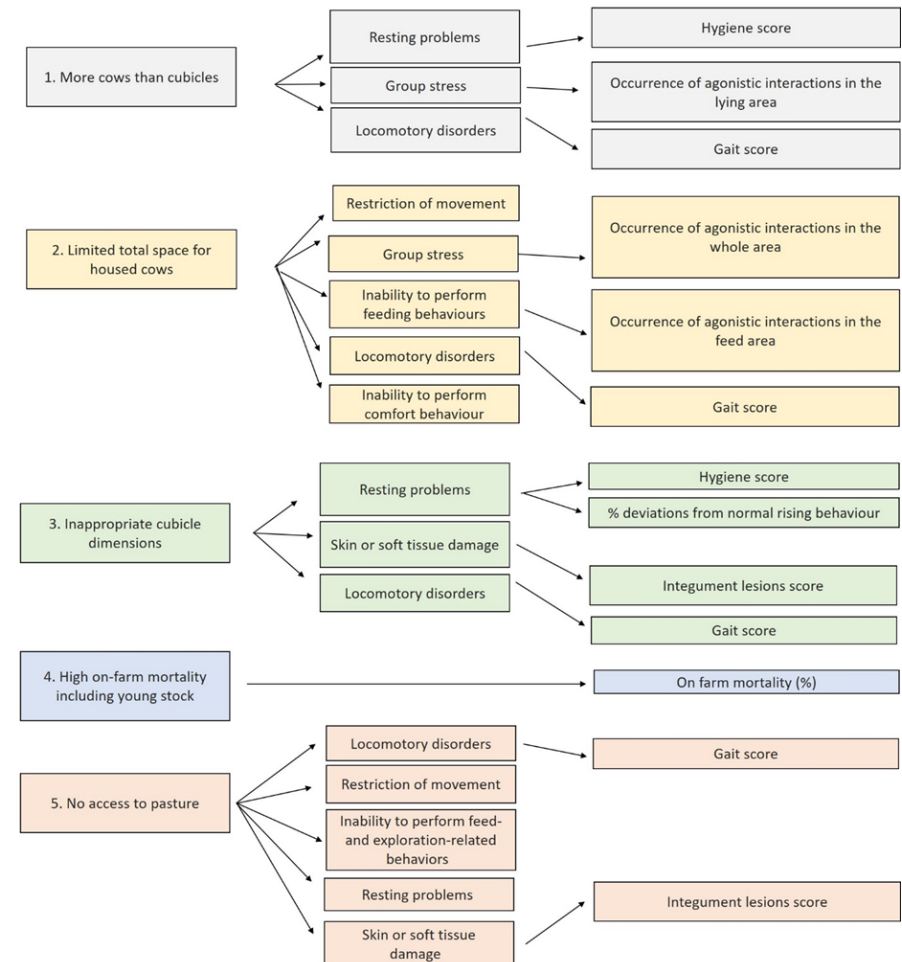
ASSESSMENT 3: FARM CHARACTERISTICS

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

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Welfare of dairy cows

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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



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Thank you for your participation in this info session !

DATA AND METHODOLOGY – F2F MODEL

MODEL TO ASSESS EFFECTS OF AN EXPOSURE VARIABLE ON ANIMAL WELFARE

