26 September 2022

# Methodology used for F2F mandates

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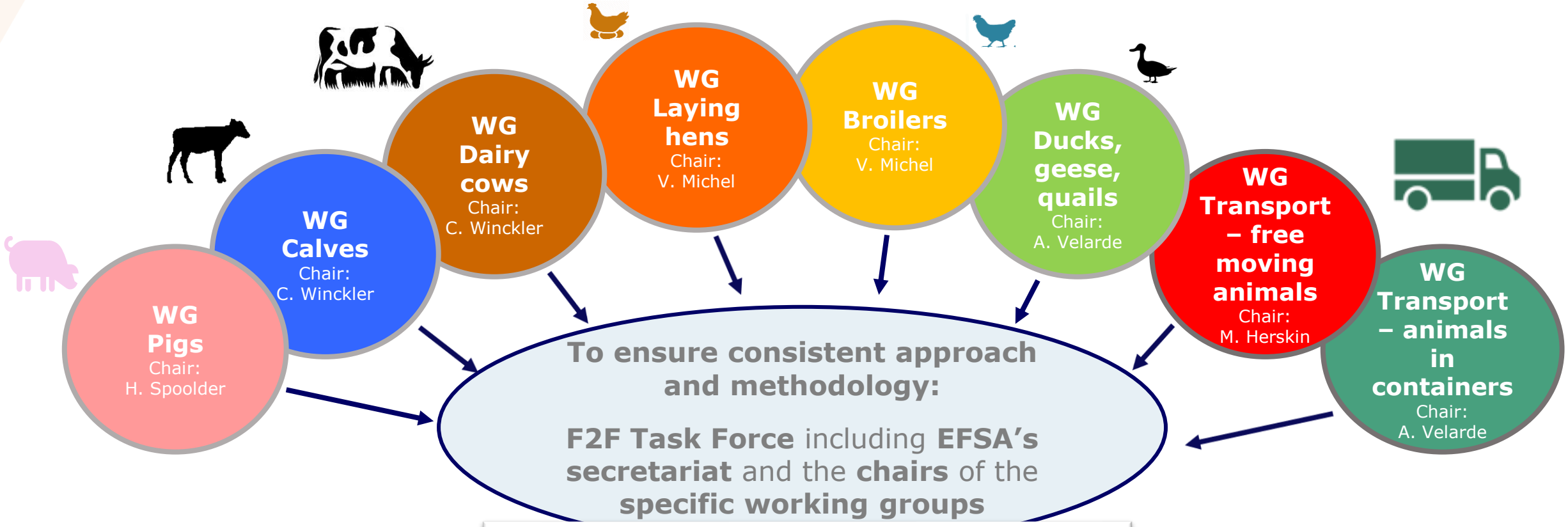
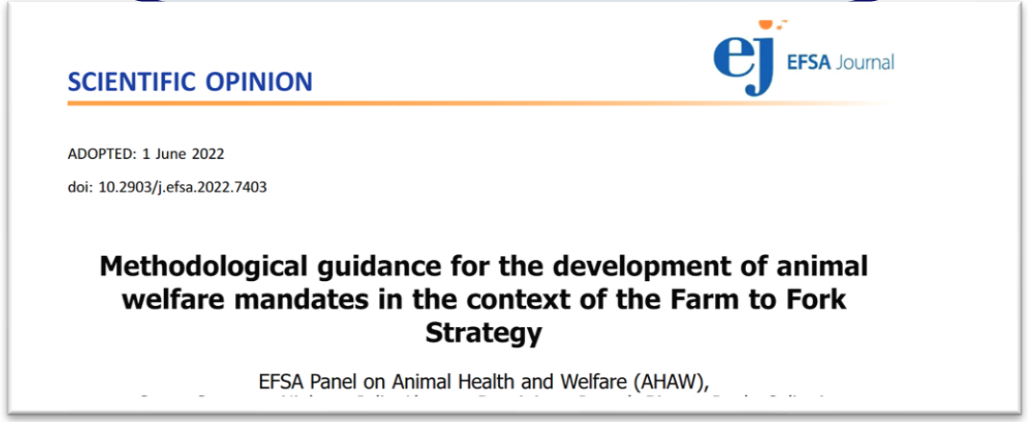
Trusted science for safe food

European Food Safety Authority

# Addressing the F2F mandates



SCIENTIFIC OPINION

EFSA Journal

ADOPTED: 1 June 2022

doi: 10.2903/j.efsa.2022.7403

**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),

# F2F Mandates on husbandry of farmed animal species – **Terms of Reference**

**Part I : General Terms of Reference (TORs)**

For each category of animals: 

1. Describe, based on existing literature and reports, the **current husbandry systems**
2. Describe the **relevant welfare consequences**. Relevance should not be based on a full risk assessment but on EFSA experts' opinion regarding the severity, duration and occurrence of each welfare consequence 
3. Define qualitative or quantitative measures to assess the welfare consequences (**animal-based measures**) 
4. Identify the **hazards** leading to these welfare consequences 
5. Provide **recommendations to prevent, mitigate or correct the welfare consequences** (resource- and management-based measures) 

# F2F Mandates on husbandry of farmed animal species – **Terms of Reference**

**Part II : Specific scenarios**

Scenarios, for which the EC has identified practical difficulties or insufficient information in ensuring the welfare of animals.

EFSA requested to propose:

1. Detailed **animal-based measures** 
2. Detailed **preventive and corrective measures** with, where possible, **qualitative** (yes/no question) or **quantitative** (minimum/maximum) **criteria** (i.e. requirements to prevent and/or mitigate the welfare consequences) 

*Example:*

The welfare of **male dairy calves raised for producing "white" veal meat** and the risks associated with 

… **feed restriction** (such as deprivation of **fibre**)

# F2F Mandates on animal transport – **Terms of Reference**

European Food Safety Authority

## Part I : General Terms of Reference

For each category of animals:

1. Describe the **current transport practices**
2. Describe the **relevant welfare consequences, animal-based measures, hazards, preventive, mitigative or corrective measures**


## Part II : Specific scenarios

1. Export by livestock vessels
2. Export by road
3. Roll-on-roll-off
4. End-of-career animals
5. Unweaned calves
6. Horses
7. Special health status animals

# Methods – **General TORs**

**Tools**

- Literature review: scientific publications, reports, grey literature, etc.
- Expert opinion and group discussion
- Framework of 33 welfare consequences

# Methods – **33 welfare consequences**

**Health- and physical state-related welfare consequences**

- e.g. gastro-enteric disorders, heat stress, prolonged hunger

**Behaviour-related welfare consequences**

- e.g. restriction of movement, inability to perform exploratory and foraging behaviour, group stress

**Welfare consequences related to the sensorial state**

- e.g. motion stress, sensory under- and/or overstimulation

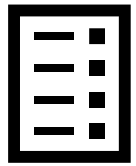
Connected with experiencing negative affective states such as pain, fear, frustration, discomfort etc.

| | | |
|---|---|---|
| **9** | **Inability to perform exploratory or foraging behaviour** | The animal experiences stress and/or negative affective states such as frustration and/or boredom resulting from the thwarting of the motivation to investigate the environment or to seek for food (i.e., extrinsically and intrinsically motivated exploration). |

# Methods – **General TORs**

**Tools**

- Literature review: scientific publications, reports, grey literature, etc.
- Expert opinion and group discussion
- Framework of 33 welfare consequences
- Approach to identify the highly relevant welfare consequences per animal category/transport practice
- Definition of characteristics of (feasible) animal-based measures
- Approach for estimation of uncertainty



# Methods – **Specific TORs**

**Tools**

- Literature review, expert opinion and group discussion → narrative assessment
- Expert Knowledge Elicitation (EKE) to develop quantitative/qualitative criteria to prevent welfare consequences using an assessment model

*Example:*

The welfare of **male dairy calves raised for producing "white" veal meat** and the risks associated with

… **feed restriction** (such as deprivation of **fibre**)

→ Which amount of fibre should be provided to veal calves from an animal welfare perspective?

# Methods – **EKE model assumptions**

1. The **effect on welfare of an exposure variable** can be quantified by comparing the expression of an ABM (e.g. behaviour) observed in the animals under no exposure at all and under high exposure

   e.g. rumination behaviour when access to fibre is unrestricted (no exposure) compared to very restricted access to fibre (high exposure)

2. The **closer the demonstration of the behaviour to the one observed under unrestricted conditions, the better the welfare**

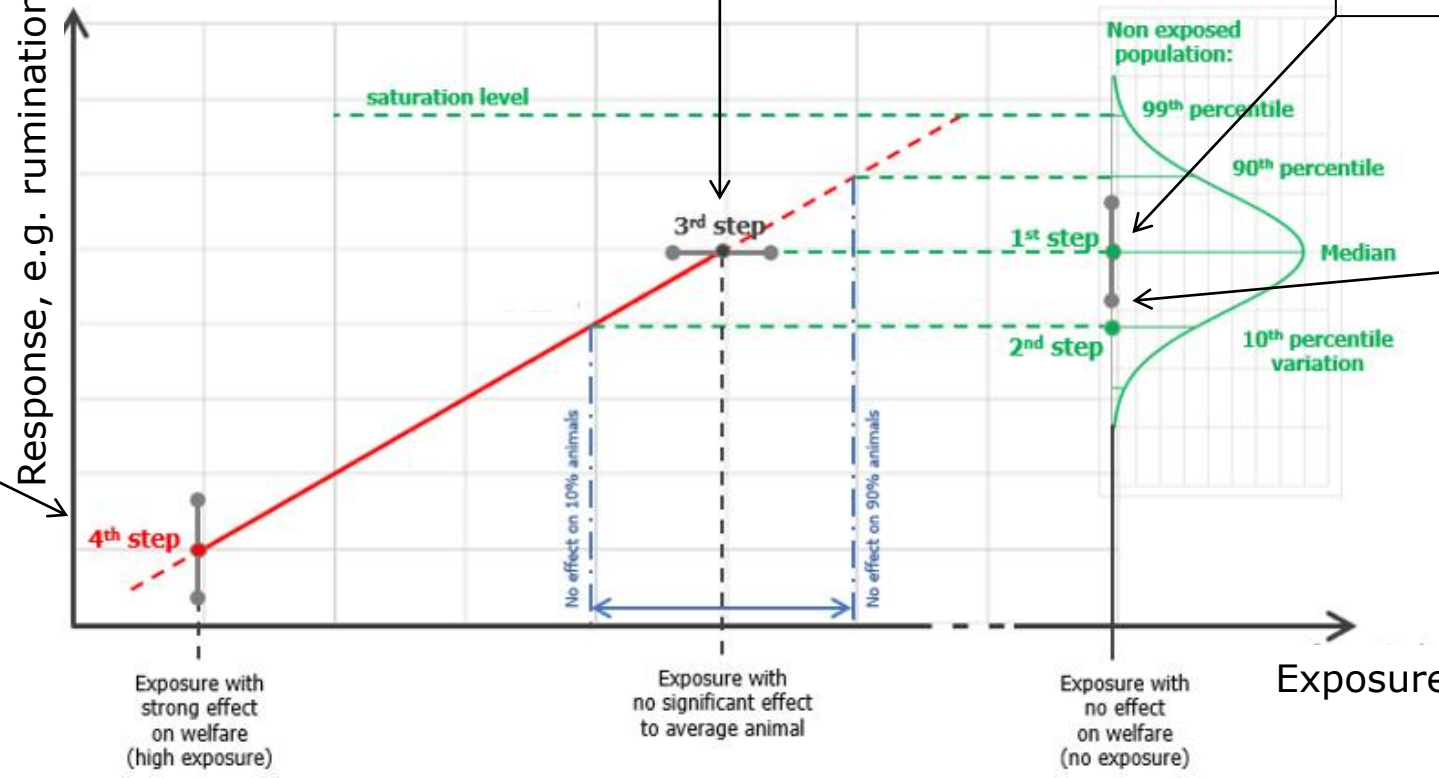
# Methods – **Model to assess effects of an exposure variable on animal welfare**

#3: Minimum exposure allowing same level of expression

#1: Median expression in an unexposed population

#2: Variability in the unexposed population

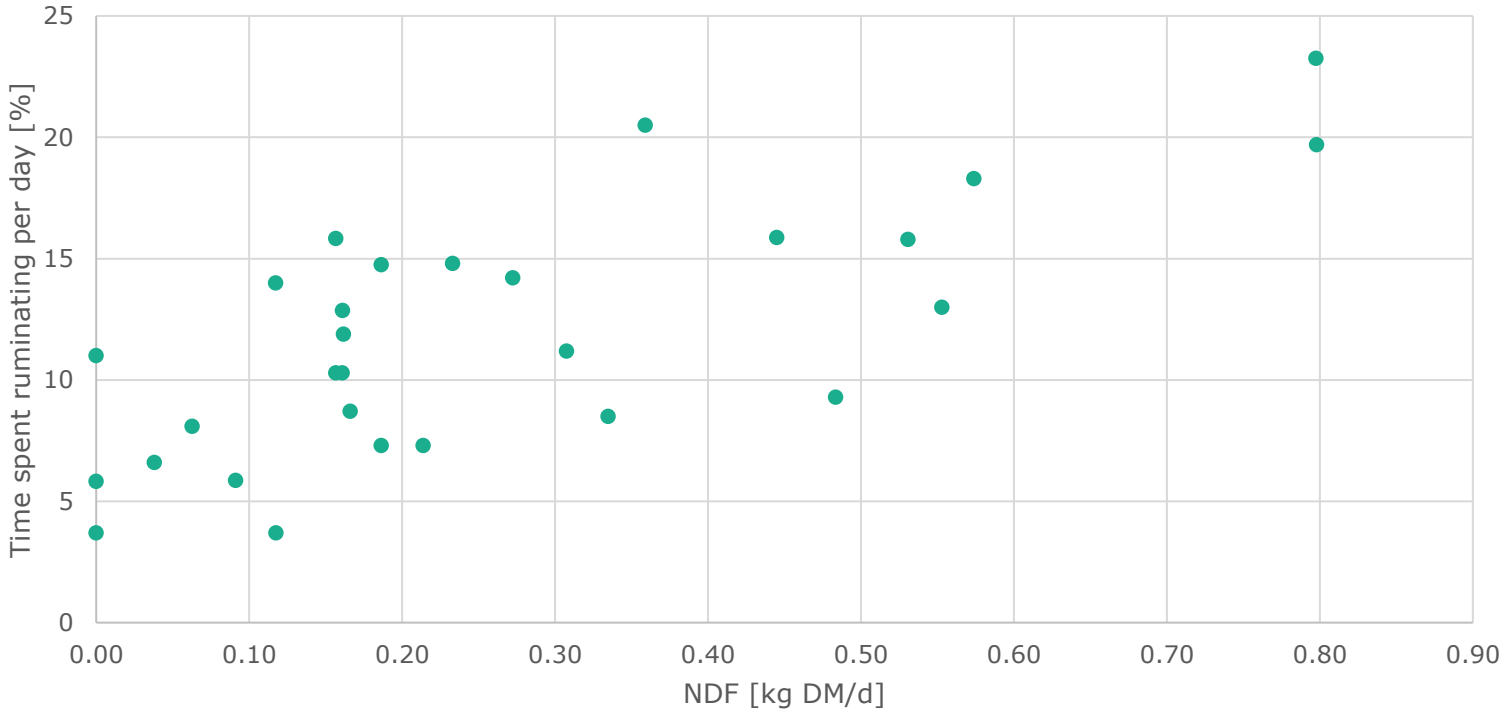
#4: Median expression under high exposure



# Methods – **EKE parameters**

| **EKE parameters** | **Definitions and assumptions** |
|---|---|
| **Animal category to be considered** | Calves reared for white veal meat, aged between 2 weeks and 6 months |
| **The exposure variable of interest for the EKE** | kg of NDF provided to the calf per day (on dry matter basis, DM) |
| **Welfare consequence** | Inability to chew and ruminate |
| **Animal based measure** | Percentage of time a calf aged between 2 weeks and 6 months spends ruminating per day. |
| **Unexposed population** | Group of calves in a suckler herd, aged between two weeks and six months, with ad libitum access to pasture and fibre, and continuous access to the dam's milk. |

# Methods – **Sources of evidence considered**




**Data extracted from experimental studies on the relationship between amount of fibre provided (in kg of NDF) to a calf and percentage of time spent ruminating per day.**

**Data sources**

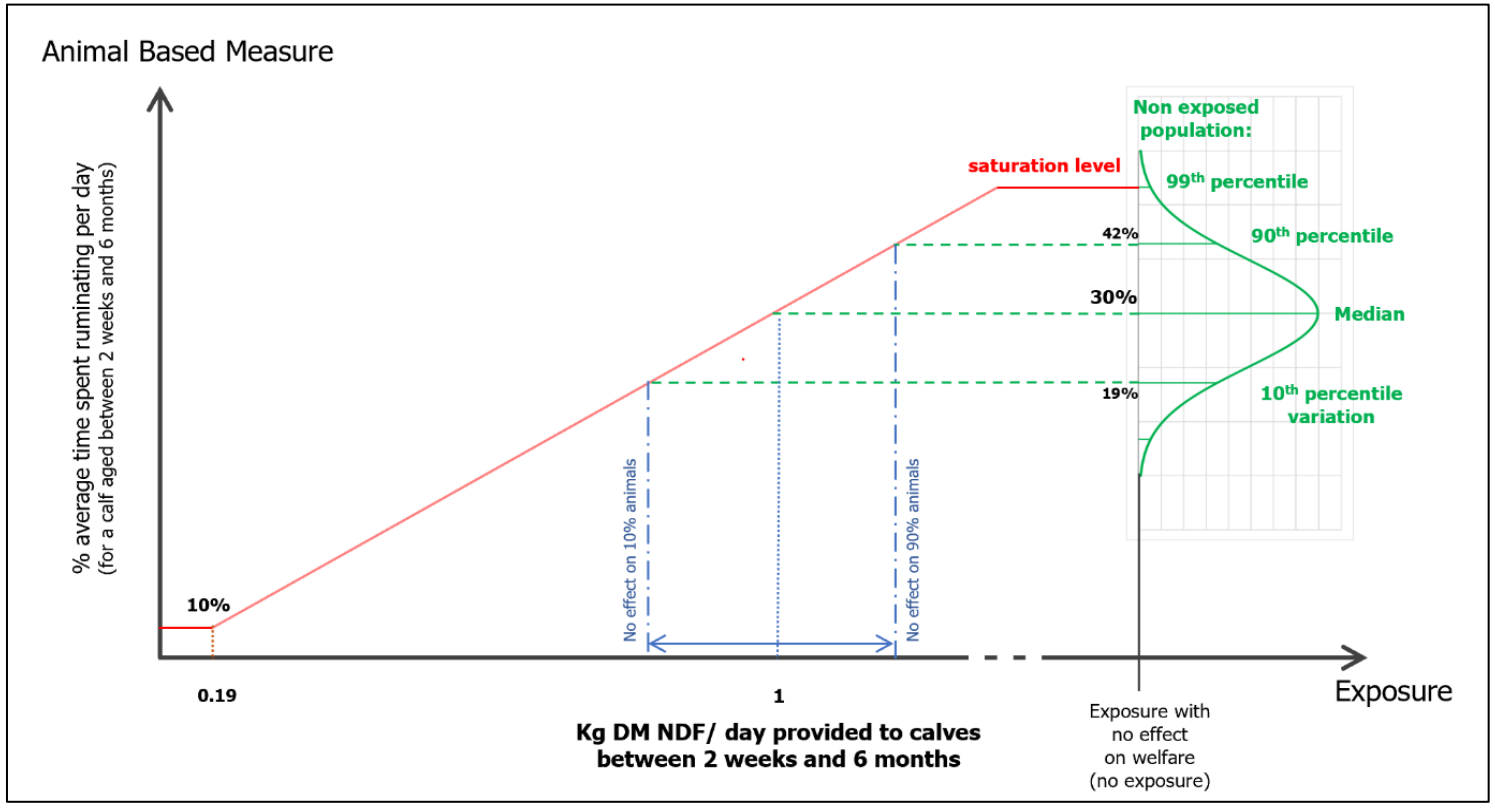
**Exposed population:**
Brscic et al., 2014;
Mattiello et al., 2002;
Webb et al., 2012; 2013; 2014; 2015

**Unexposed population:**
Swanson and Harris, 1958;
Chambers et al., 1959;
Hutchinson et al., 1962;
Dennis et al., 2018

# Methods – **Example: EKE outcome**

**Amount of fibre to be provided to a calf to allow unrestricted rumination times**

An ingestion of **1 kg of NDF (DM) per day** (90% credibility interval 0.64 kg to 1.36 kg) allows calves to show the same level of rumination shown by the median animal of the unexposed population (30% of time, which is assumed to correspond to full extent of rumination).



# Conclusions

Methodological guidance allows working groups **appropriate level of flexibility in the assessment**

- Literature review & expert opinion
- Comprehensive list of welfare consequences
- Expert Knowledge Elicitation model & narrative assessments
- Uncertainty assessment

# Methodological guidance

## Published in June 2022

Can be found here:

[Methodological guidance for the development of animal welfare mandates in the context of the Farm to Fork Strategy (wiley.com)]

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**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 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, Miguel Ángel Miranda Chueca, Virginie Michel, Barbara Padalino, Paolo Pasquali, Helen Clare Roberts, Hans Spoolder, Karl Stahl, Antonio Velarde, Arvo Viltrop, Sandra Edwards, Sean Ashe, Denise Candiani, Chiara Fabris, Eliana Lima, Olaf Mosbach-Schulz, Cristina Rojo Gimeno, Yves Van der Stede, Marika Vitali and Christoph Winckler

Abstract