



WELFARE OF SHEEP AND STATE OF PLAY OF THE EFSA DRAFT SCIENTIFIC ON THE MAIN WELFARE RISKS RELATED TO THE FARMING OF SHEEP FOR WOOL, MEAT AND MILK PRODUCTION

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Mandate to EFSA on sheep welfare (M-2013-0197)

Background

1. *Council Directive 98/58/EC lays down general minimum standards for the protection of animals kept for farming purposes*
2. *EU Strategy for the protection and welfare of animals 2012-2015 No previous EFSA opinion on sheep welfare*
3. ***STAKEHOLDERS COLLABORATION***: *Global stakeholders (IWTO) and Third Countries Governments are developing sustainable livestock production policies and guidelines, including the welfare of sheep*
4. *Ongoing EU-funded Animal Welfare Indicators (AWIN) project to identify welfare indicators for sheep*



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Terms of reference- sheep welfare

- 1. To identify the main factors and welfare consequences and perform the risk characterisation for the farming of sheep for wool, meat and milk production, taking into account differences in genetic lines, local production systems, environmental conditions and nutrition.*
- 2. Based on the risk assessment carried out following point 1 and on the analysis of breeds' distribution, to identify the main welfare risks common to the different production typologies and main breeds in order to develop a matrix linking breeds/common risks/welfare consequences/risk characterization.*
- 3. Based on the outcome of the above terms of reference, to identify the animal-based measures that can be used to assess the welfare of sheep and the main welfare risks identified*

Deadline: December 2014



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Link to EFSA Scientific Opinion:

<http://www.efsa.europa.eu/en/efsajournal/doc/3933.pdf>



EFSA Journal 2014;12(12):3933

SCIENTIFIC OPINION

Scientific Opinion on the welfare risks related to the farming of sheep for wool, meat and milk production¹

EFSA Panel on Animal Health and Welfare (AHAW)^{2,3}

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

This scientific opinion is the outcome of a scoping exercise aimed to identify the main welfare consequences and associated risk factors for sheep across, and within, categories of management systems and production types. The exercise included the construction of a risk (conceptual) model, a literature review and an expert knowledge elicitation, involving an online survey and a technical hearing, in order to rank the welfare consequences on the basis of the amount of suffering and prevalence. Sheep farmed for wool, meat and milk production were the target population, focusing on ewes and lambs. Based on the degree of human contact, use of housing, nature of pasture management and provision of supplementary feeding, sheep management systems were characterised as: shepherding, intensive, semi-intensive, semi-extensive, extensive, very extensive and mixed. The conceptual model proposed seventeen welfare consequences. In ewes, the importance of the welfare consequences was rated differently in different management systems; however, across all systems, the most important welfare consequences were: thermal stress, lameness and mastitis. Prolonged hunger was rated to be more frequent in extensive and very extensive management systems, and mastitis in ewes reared for milk production. For lambs, there were few differences among management systems with thermal stress, pain due to management

- **Lack of quantitative data**
- **Scoping exercise and qualitative assessment of the selected management systems, mainly based on experts opinion**



Risk Managers

Risk Assessors

General Scientific
Review or Update

Outbreaks or
public/political
concerns or
Regulatory
Framework

Problem Formulation

- What problems are associated with current conditions?
- If current conditions appear to pose a threat to animal welfare, what options exist for altering those conditions?

- Under the given decision context, what risk and other technical assessments are necessary to evaluate the possible risk management options?

Data Need &
Availability

Target population,
Exposure scenarios
Welfare consequences
conceptual model

Factor Identification

- The process of planning a RA and ensuring its level of complexity should be consistent with the need to inform decision makers.

- What are the necessary welfare factors to assess the existing scenarios?
- What are the risk effects of the proposed options?
- What are the levels of uncertainty and variability?

Risk Assessment

Consequence
Characterisation

Exposure
Characterisation

Characterisation Welfare
Changes

Qualitative assessment

Semi-quantitative
assessment

Quantitative assessment



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Addressing the mandate: problem formulation and identification of main exposure scenarios

- *Target population:*
 - *Sheep farmed for wool, meat and milk production*
 - *2 categories: ewes and lambs*
- *Exposure scenarios*
- *Welfare consequences identification and ranking*
- *Risk factors identification*
- *ABMs identification*



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Definition of the RA scenarios

Management systems characterization

A) Genetic lines- breed characteristics

B) Management systems

- 1. Shepherding**
- 2. Intensive system**
- 3. Semi-intensive**
- 4. Semi-extensive**
- 5. Extensive system**
- 6. Very extensive system**
- 7. Mixed system (various combination of 1 to 6)**





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Matrix to define the main elements characterizing the most commonly applied management systems

	Shepherding (continuous presence of the stockperson with the sheep)	No outdoor access	Housing (during night and part of the day)	Kept in fenced pastures (including rotational grazing)	Supplementation
Shepherding (SH)	YES				
Intensive system (IN)	NO	YES			
Semi-intensive (SI)	NO	NO	YES		
Semi-extensive (SE)	NO	NO	NO	YES	
Extensive system (EX)	NO	NO	NO	NO	YES
Very extensive system (VE)	NO	NO	NO	NO	NO
Mixed system (combination of 1 to 6)					



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TOR 2: 17 main welfare consequences for sheep

<i>Good feeding</i>	1. Prolonged hunger
	2. Prolonged thirst
<i>Good housing and environment</i>	3. Resting problem
	4. Thermal stress
	5. Restriction of movement
<i>Good health</i>	6. Lameness
	7. Injuries
	8. Skin disorders
	9. Respiratory disorders
	10. Gastro-enteric disorders
	11. Metabolic disorders
	12. Reproductive disorders
	13. Mastitis
	14. Neonatal disorders
<i>Appropriate behaviour</i>	15. Pain
	16. Occurrence of abnormal behaviours
	17. Chronic fear

Building the RA: experts' judgement process

Main purpose and outcome of the SO: **scoping exercise to identify main welfare consequences and factors for and across systems (potential follow-up by more specific RA)**

A steps approach to experts knowledge:

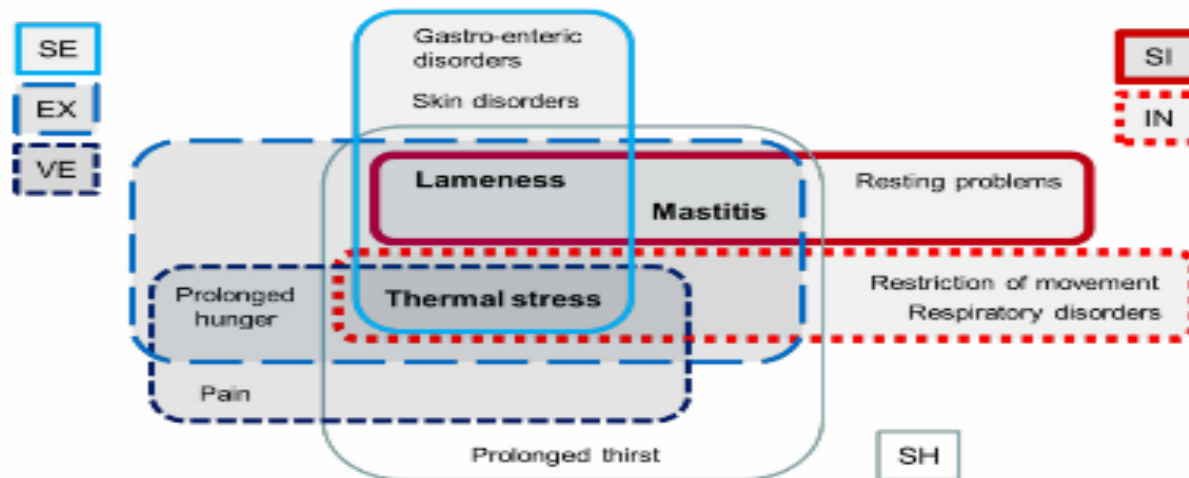
1. Identification of the main welfare consequences for the main management systems: **on-line survey launched on 7 May** (163 complete responses)
2. Identification of main risk factors related to those consequences and of additional relevant consequences and factors, if not identified by the WG: **extended WG meeting with hearing experts on 26 June**
3. EFSA on-line public consultation on the draft opinion from 25th September till 5th November 2014



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Results extracted from the EFSA SO

Most important welfare consequences identified for ewes



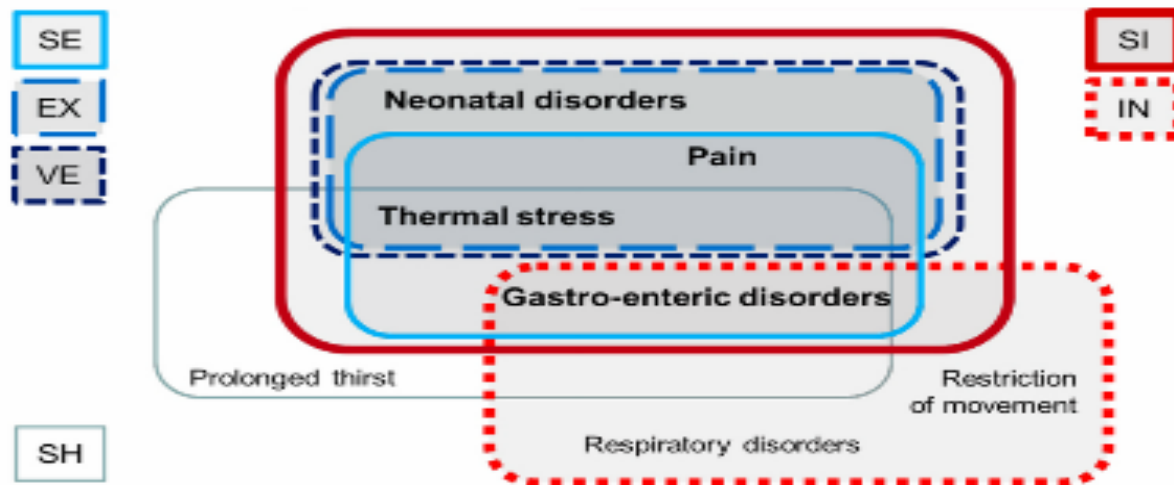
SH: shepherding; IN: Intensive; SI: Semi-intensive; SE: Semi-extensive; EX: Extensive; VE: Very extensive. Welfare consequences ranking highest across the management systems (bold text) are overlapped by multiple boxes



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Results extracted from the EFSA SO

Most important welfare consequences identified for lambs



SH: shepherding; IN: Intensive; SI: Semi-intensive; SE: Semi-extensive; EX: Extensive; VE: Very extensive. Welfare consequences ranking highest across the management systems (bold text) are overlapped by multiple boxes

From consequences to **factors**

Examples of risk factors for ewes in intensive systems

Restriction of movements

Increased stocking density, poor housing conditions

Thermal stress

Inappropriate housing (micro-environment, ventilation)

Overcrowding, extreme climate, delay in shearing

Respiratory disorders

Poor air quality (micro-environment, ventilation, stocking density, ammonia level), increased exposure to pathogens (poor hygiene, resistant pathogens strains), reduce immune competence (inadequate vaccination and anti-parasitics)

Results extracted from the EFSA SO

LAMBS – INTENSIVE SYSTEMS

Main welfare consequences according to the average uncertainty corrected impact score		Risk factors leading to the welfare consequence
Top three consequences plus the ones not clearly different	Respiratory disorders	Poor air quality (micro-environment, ventilation, stocking density, ammonia level) Increased exposure to pathogen (poor hygiene, resistant pathogen strains) Reduced immune competence (inadequate colostrum, vaccination and anti-parasitics)
	Restriction of movement	Increased stocking density Poor housing conditions (e.g. flooring)
	Gastro-enteric disorders (including infections, endoparasites or toxins)	Reduced immune competence (inadequate colostrum, vaccination and anti-parasitics) Increased exposure (stocking density, hygiene) to pathogen (parasites, bacteria) Unbalanced diet (frequency concentrate supply, lack of fibre)
Top five consequences plus the ones not clearly different	Thermal stress	Inappropriate housing (micro-environment, ventilation) Stocking density (overcrowding) Extreme climate
	Pain	Ear notching-poor practice when ear tagging or use of inappropriate tags Poor handling Castration Tail-docking
	Neonatal disorders (including starvation/mis-mothering/exposure complex)	Deficiency of ewe nutrition during pregnancy Dystocia Prolificity Mis-mothering due to crowding or ewe stress at parturition



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Animal-based measures

Lambs

Body condition score and gut fill (prolonged hunger), painting, respiratory rate, shivering, huddling behaviour (thermal stress), locomotion scores, lameness, etc.

Ewes

Body condition scores and tooth loss (prolonged hunger), painting, respiratory rate, shivering, (thermal stress), udder consistency and somatic cell counts (mastitis), locomotion scores (lameness), etc.

While ABMs exist for most welfare consequences, many require further validation. Their sensitivity and specificity have rarely been investigated.



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Conclusions

- Wide range of farming systems; risk assessment based on a broad categorisation for 7 management working systems.
- 17 important welfare consequences for sheep identified using the Welfare Quality principles and criteria as a framework.
- Scarcity of the scientific literature leads to a qualitative approach based on expert knowledge elicitation
- Across all systems, the main welfare consequences for ewes are thermal stress, lameness and mastitis.
- For lambs, little different among management systems with thermal stress, pain, gastro-enteric and neonatal disorder as main welfare consequences
- Animal based measures exist but may require further validation

Thank you for your attention!



http://ec.europa.eu/dgs/health_food-safety/information_sources/animals_events_en.htm