

Date

The Welfare of Animals during Transport

(cattle, horses, pigs, sheep & goats)

Name

EFSA

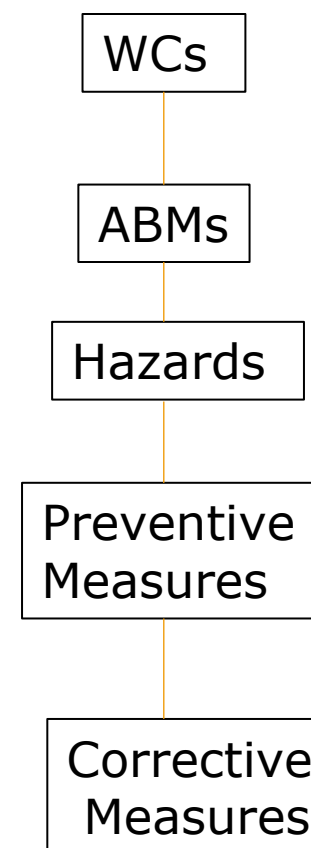
Trusted science for safe food

The mandate: the assessment

- For cattle, small ruminants, pigs, horses, rabbits and poultry,
- EFSA will describe, the current practices regarding transport by road, roll-on-roll-off vessels, livestock vessels, by rail and by air;

EFSA will for each stage of transport:

- – Describe the relevant **welfare consequences** for each category of animals during each step of the process.
- – Define qualitative or quantitative measures to assess the welfare consequences during transport (**animal based measures**),
- – Identify the **hazards** leading to these welfare consequences,
- – Provide **recommendations** to prevent, mitigate or correct the welfare consequences



- 1. Export by livestock vessels: cattle and sheep
- 2. Export by road: cattle and sheep
- 3. Roll-on-roll off (Ferries): cattle and sheep
- 4. End-of-career animals – transport of dairy cows, breeding sows, and laying hens to slaughter
- 5. Unweaned calves - Transport of unweaned calves over long journeys by road;
- 6. Transport of horses on long journeys to slaughterhouses;
- 7. Special health status animals - Transport of ruminants and pigs where unloading them before the final destination might jeopardize their health status.

Transport and its stages

A



Stage 1: Preparation

- Planning
- Feed removed
- Assessment of fitness for transport

Stage 2: Loading/unloading

- Animals enter or exit truck

Stage 3: Transit

- Movement
- Breaks not intended to rest animals are included

Stage 4: Journey breaks

- Breaks intended to rest animals
- In truck or unloaded

The phases were created for the purpose of the opinions – to allow for a thorough assessment of animal welfare from pre-loading and until after unloading

Some Conclusions

- An important phase that may predispose animals to WC throughout journeys
- Education and training of handlers is an important preventive measure
- Important hazard: mixing of animals
- Lack of access to water and/or feed will predispose animals to WC such as hunger and thirst in later stages
- Fitness for transport is vital

Some Recommendations

- Define fitness for transport
- Set thresholds using AMBs
- Professional groups (e.g., farmers, stockpersons, drivers, haulers, inspectors and veterinarians) should be well-educated and trained, and questions on responsibility between the groups should be clarified.

- **Highly relevant WC:** handling stress, injuries, heat stress
- **Major hazards:** inappropriate handling, unsuitable facilities, sensory input (noise, sights smells), high temperatures
- Delays -> increased exposure to hazards
- Animals can be trained to this procedure



Recommendations

- Handlers should be educated and trained
- Facilities should be fit for purpose
- Delays should be avoided

- The transit starts when the ramp has been closed and ends when the first animal unloads.
- Even under favourable conditions, animals are exposed to potential stressors that can compromise their health and welfare.
- Examples of **highly relevant WC**: heat stress, motion stress, resting problems, restriction of movement, prolonged hunger and thirst.
- Important **hazards**: high temperatures, low ventilation rate, high stocking density, truck movement, reduced intake of feed and/or water

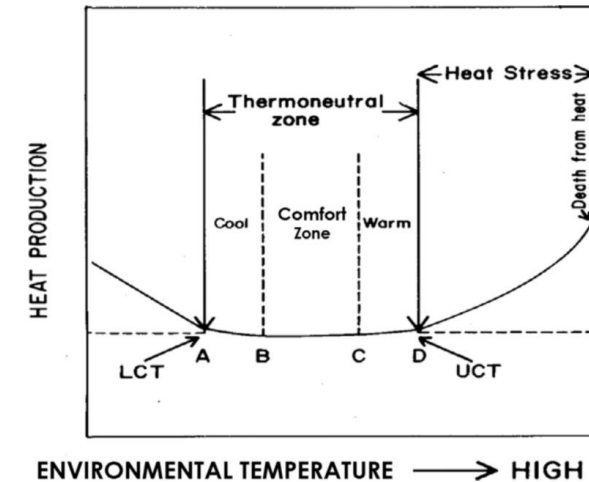


Conclusions

- Not all welfare consequences can be prevented
- For some of the hazards exposure will continue at least as long as the journey continues
- The severity of the welfare consequences depends on the exact conditions

Transit stage – heat stress

- Microclimatic conditions inside vehicles are influenced by the **temperature, humidity, ventilation, heat generated by the animals and solar radiation**.
- Thermal comfort zone (TCZ): a zone of thermal well-being, the preferred or chosen environment.
- Thermoneutral zone (TNZ), the upper limit of which is **UCT** = the point above which an animal must significantly increase the use of physiological mechanisms to prevent a rise in body temperature above normal.
- The risk and severity of heat stress is high when the thermal conditions reach the UCT.
- EFSA recommends that temperatures are kept below the upper threshold of the TCZ, and that temperatures should not exceed the UCT



Animal category	TCZ	UCT
Horses	20	25
Sheep, shorn	25	32
Other sheep		28
Cattle		25
Weaners	25	30
Finishers	22	25
Sows	20	22

- The minimum space allowance set by the needs of the animals during transport.
- **Adjust to truck movements**, rest in typical position & get up/down, eat & drink, thermoregulate
- Recommendations given on the use of an allometric equation [$A = k \times W^{2/3}$] (where A is area in m² per animal and W is liveweight in kg),
- One single space allowance recommended by EFSA assuming microclimatic conditions are kept below the UCT
- Within the ranges of space looked at the more space the less injuries and falls

Animal Category	K value recommendation	Example	Recommended min space allowance (m ² /animal)
Sheep	0.036	40Kg	0.43
Cattle	0.034	400kg	1.84
Weaner Pigs	0.027	30Kg	0.26
Finisher Pigs	0.027	110 Kg	0.62
Sows	0.027	240 Kg	1.04

Horses transported in a single stall : an additional 40cm in width and an additional 40cm in length.

Horses transported in groups: no more than 200 kg/m²

- Low vertical space can be associated with reduced ventilation, lack of space for natural posture and movements
- Necessary to avoid welfare consequences such as **heat stress** and **restriction of movement**



Animal category	Recommended minimum vertical space, cm
Sheep	At least 15 cm free space above animals in vehicles with mechanical ventilation and 30 cm in naturally ventilated vehicle
Horses	75 cm above withers of tallest animal
Cattle	[wither height x 1.17 + 20 cm]= 40 cm above withers of tallest animal
Pigs	N/A

Transit stage – journey duration

- For each of the highly relevant welfare consequences, EFSA has assessed the **development over time**
- 3 categories of welfare consequences 
- The assessment is based on transport according to EFSA recommendations on microclimatic conditions and space allowance

Type of WC	WC	Development over time, h
Continuously present	Motion and sensory stress	
	Group stress	
	Resting problems	
Progressively developing	Thirst	Sheep: 12 Cattle: 9 Pigs: 8 Horses: 3
	Hunger	Sheep: 12 Cattle: 12 Pigs: 12 Horses: 12
Sporadic	Health conditions/Injuries - pain and/or discomfort	

Based on evidence on continuous WC involving stress and negative affective states, for the benefit of animal welfare, journey duration should be kept to a minimum

Journey breaks (On truck & Control Posts)

- On a stationary truck animals are exposed to **prolonged hunger, prolonged thirst, an inability to rest and increased risk of heat stress**
- Cattle, sheep, pigs and horses travelling in group **should be unloaded from the truck** to effectively provide food, water and rest.
- Welfare consequences at CPs: handling stress, injuries, group stress, biosecurity risks -> **number of times animals stop there should be as low as possible**
- **Groups** of animals from trucks **should be maintained at CPs**
- CPs **may not fulfill their intended function.**
- Journey **breaks at CPs needs to be long enough** for each animal to eat, drink and rest.

	Horses	Cattle	Sheep	Pigs
Recommended length of stay at Control Posts	12-24 h	24 h	16-24 h	24 h

Conclusions

- Same as for road transport but very long journeys
- Some **concerns** identified are **difficult or impossible to control** such as:

Delays in leaving the EU

No certified resting points along the journey

The handling/treatment and the type of slaughter upon arrival.

The actual legal protection of these animals after leaving the EU is unknown.

Recommendations

- All the recommendations from road transport apply here

Conclusions

- The **technical/structural requirements** and suitability for use of the livestock vessels **not covered**
- Concerns were **waiting times** at ports, **starvation** (sheep), **heat stress**, noxious **gases, space requirements, motion stress** and **handling upon arrival**.
- Very **little is documented** regarding the relationship between **hazards and ABMs**
- Some of the concerns identified for the export are difficult or impossible to control such as... the handling and they type slaughter upon arrival.

Recommendations

- Same as the recommendations made for microclimatic conditions and space allowance for cattle and sheep during road transport
- Sufficient ventilation should be ensured.
- Transporters must have contingency plans in case of emergencies
- Animals should not be shipped when the effects of weather conditions are likely to cause them injury or suffering.
- Research to evaluate the welfare of cattle when transported in livestock vessels is recommended.

Roll-on Roll-off ferries (Recommendations)

- Sufficient **ventilation** on the deck
- Voyage duration should **not be considered resting time**.
- **Contingency plans** in case of emergencies and disruptions
- Animals should not be shipped considering the effects of **weather conditions**
- **Lactating cows** should **not be transported** on a Roll-on-roll-off if the total journey is to be **longer than 12 h**, as milking is impossible.

Cull animals: main recommendations

- The recommendations made for road transport are equally applicable to cull animals.
- If the cull animals **are fit** for transport, the journey to a slaughterhouse should be kept to a **minimum**, be **direct** and **not involve any unloading and reloading** at any interim premises.
- If these animals are **not fit** for transport and are without the prospect of recovery in a reasonable period of time, they should **be killed on farm** as soon as is possible.





- During transport, intervals between milk meals should not exceed 12 h, and not be less than 6 h.
- After a milk meal, calves should be allowed to rest (lying) in a calm place for 3 h to digest their meal.
- In order to allow calves to be loaded/unloaded and a 3-h post-meal rest, journeys should not exceed 8 h.
- Space allowance: $K = 0.027$
- Not exposed to temperatures higher than 25 C



Animals that cannot be unloaded from a truck until the destination has been reached due to the risk of being exposed to disease

Conclusions and recommendations from road transport also apply here, with some extra additional concerns due to the lack of possibility to unload the animals.

The available evidence to evaluate the welfare of cattle during journeys where animals cannot be unloaded is very scarce.

Therefore, research is needed to develop vehicles and procedures, including stationary resting periods, to ensure that the welfare of cattle during this type of transport is protected.

Thank you.