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The Welfare of Animals during Transport

(cattle, horses, pigs, sheep & goats,
domestic birds and rabbits)

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Trusted science for safe food

The mandate: the welfare 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

In addition EFSA will assess the following:

- 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.

Some Conclusions

- Preparation will impact the entire journey
- WCs: Handling stress and group stress
- Lack of access to water and/or feed
- Fitness for transport is vital

Some Recommendations

- Define fitness for transport
- Set thresholds using AMBs
- Professional groups should be well-educated and trained
- Responsibility between the groups should be clarified

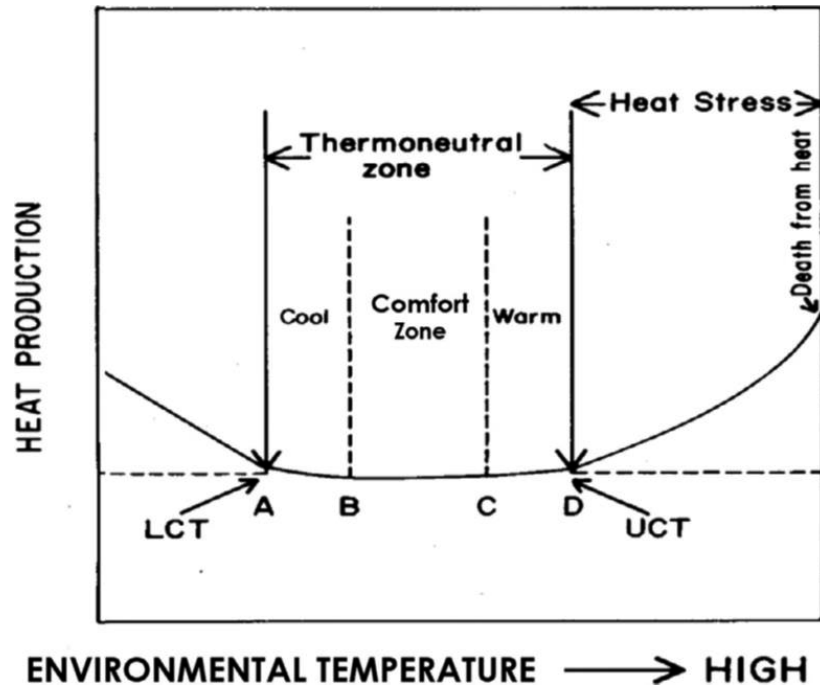
- WCs: handling stress, injuries, heat stress
- Hazards: inappropriate handling, unsuitable facilities, noise, sights, smells, high temperatures
- Delays -> prolonged exposure to hazards
- Animals can be trained



Recommendations

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

Transit stage – heat stress



Hazards: high temperatures, low ventilation rate, high stocking density, truck movement, reduced water, no feed.

- Heat inside vehicles is influenced by the **temperature outside**, **humidity**, **ventilation**, **heat generated by the animals** and **solar radiation**
- 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 (including unweaned)		25
Weaners	25	30
Finishers	22	25
Sows	20	22

- The minimum space allowance set by the needs of the animals during transport.
- **Balance**, rest, eat & drink, thermoregulate
- Within the ranges of space looked at the more space the better (less injuries and falls)
- 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

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

*Unweaned calves K value recommendation= 0.027

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

Transit stage – vertical space allowance

- vertical space needed for natural posture, movement and ventilation
- 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 space above animals in vehicles with mechanical ventilation and 30 cm in naturally ventilated vehicle
Horses	75 cm above withers of tallest animal
Cattle (inc. Unweaned)	Height*1.17 +20cm 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
- Due to stress the transports should be as short as possible
- But in setting a max. journey time take into account thirst, hunger, fatigue, respiratory disease etc.
- The assessment is based on transport according to EFSA recommendations on microclimatic conditions and space allowance
- Unweaned calves 8 hour transport duration

Type of WC	WC	Development over time, hours
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
Sporadic	Health conditions/Injuries - pain and/or discomfort	

Resting on Truck

- 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.

Resting at Control Posts

- 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



By Road

Conclusions

- Same issues 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

Same as for road transport



By Sea

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

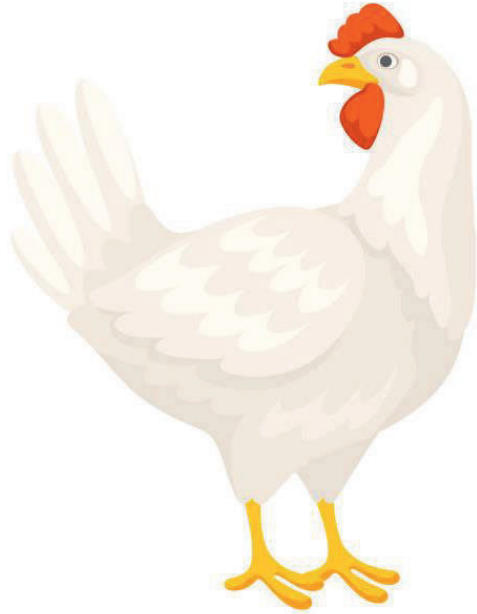
Research

Use space and heat recommendations from road transport



Welfare of domestic birds and rabbits transported in containers

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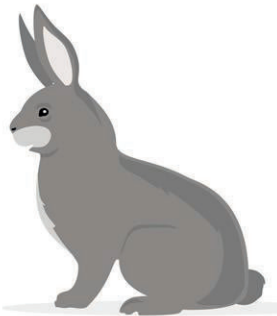
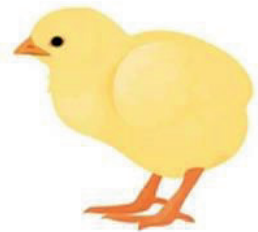


Three sections of the opinion

**Domestic
birds**

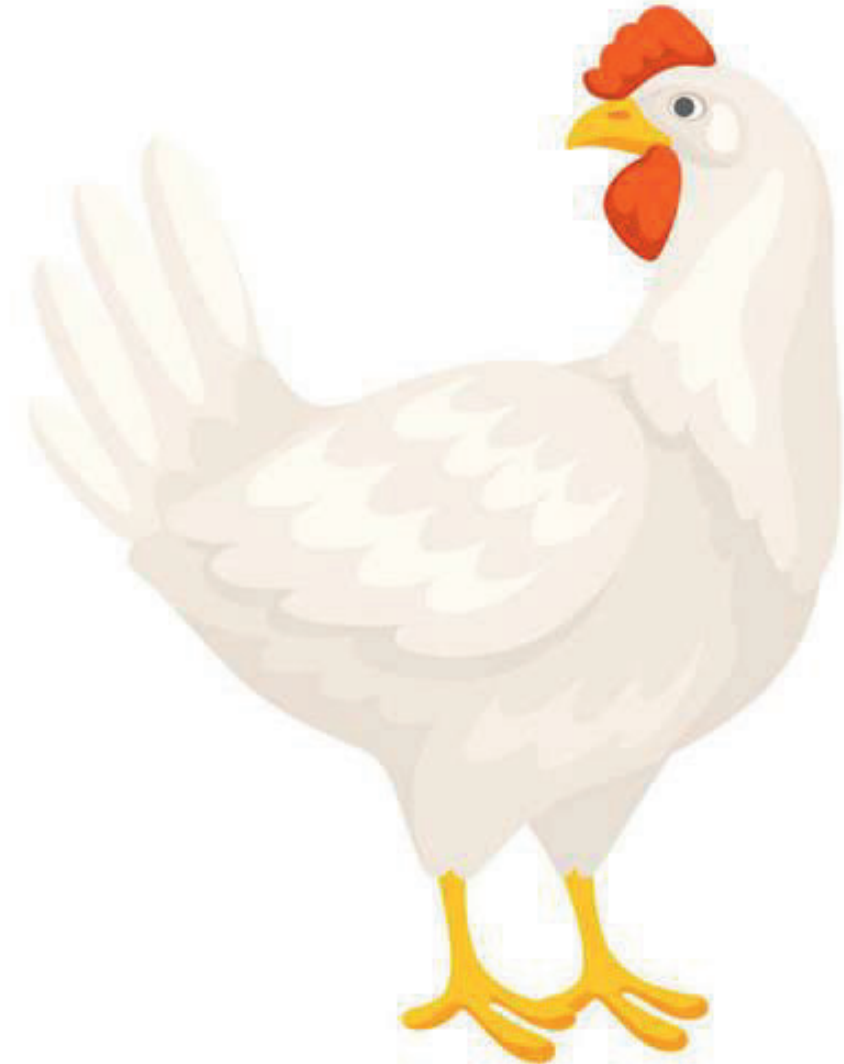
**Day-old
chicks**

Rabbits



Section 1

Main recommendations for domestic birds



Domestic birds: Fitness for transport

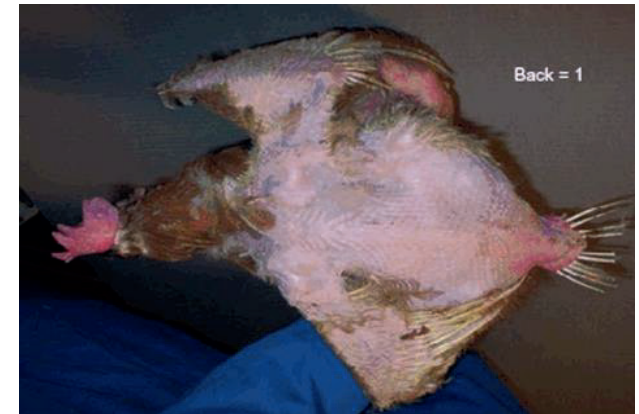
- Fitness for transport of each animal to be assessed prior to catching
- Conditions making domestic birds unfit for transport are listed. Some examples:



wounded hen



hen with prolapse

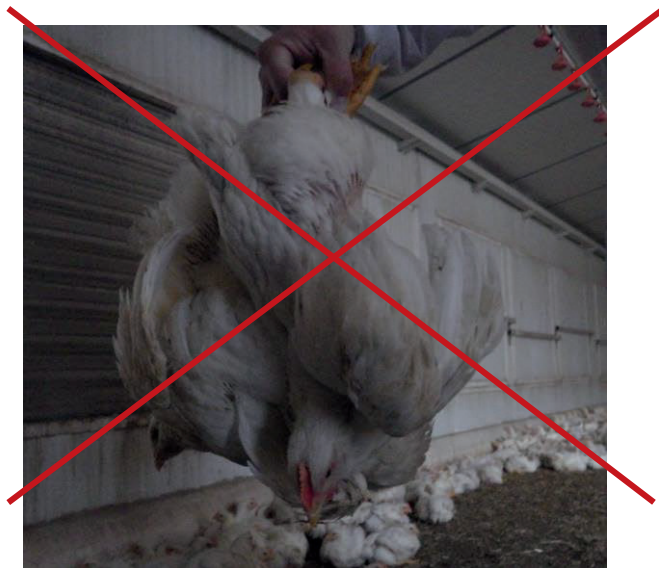


poor feather cover in laying hens

- More research to define fitness for transport and risks associated to transport of unfit animals
- Farm staff should receive training to recognise birds unfit for transport as well as training to provide appropriate treatment or to cull unfit animals humanely.

Domestic birds: handling stress

- Training of staff
- Domestic birds should be **carried upright** by holding the wings against the body, and **not inverted** or by their neck or wings.



- The Animal-Based Measures (ABMs) for handling stress such as '**escape attempts**', '**piling up**' and '**distress calls**' should be assessed during catching and crating of the loading stage, during unloading at the arrival stage and during the uncrating stage.

Floor space

- **sufficient space allowance to sit all at the same time** without overlapping.
- Use allometric **equation**

'space allowance (cm²/bird) = 290 x live weight (kg^{2/3})'

Vertical space

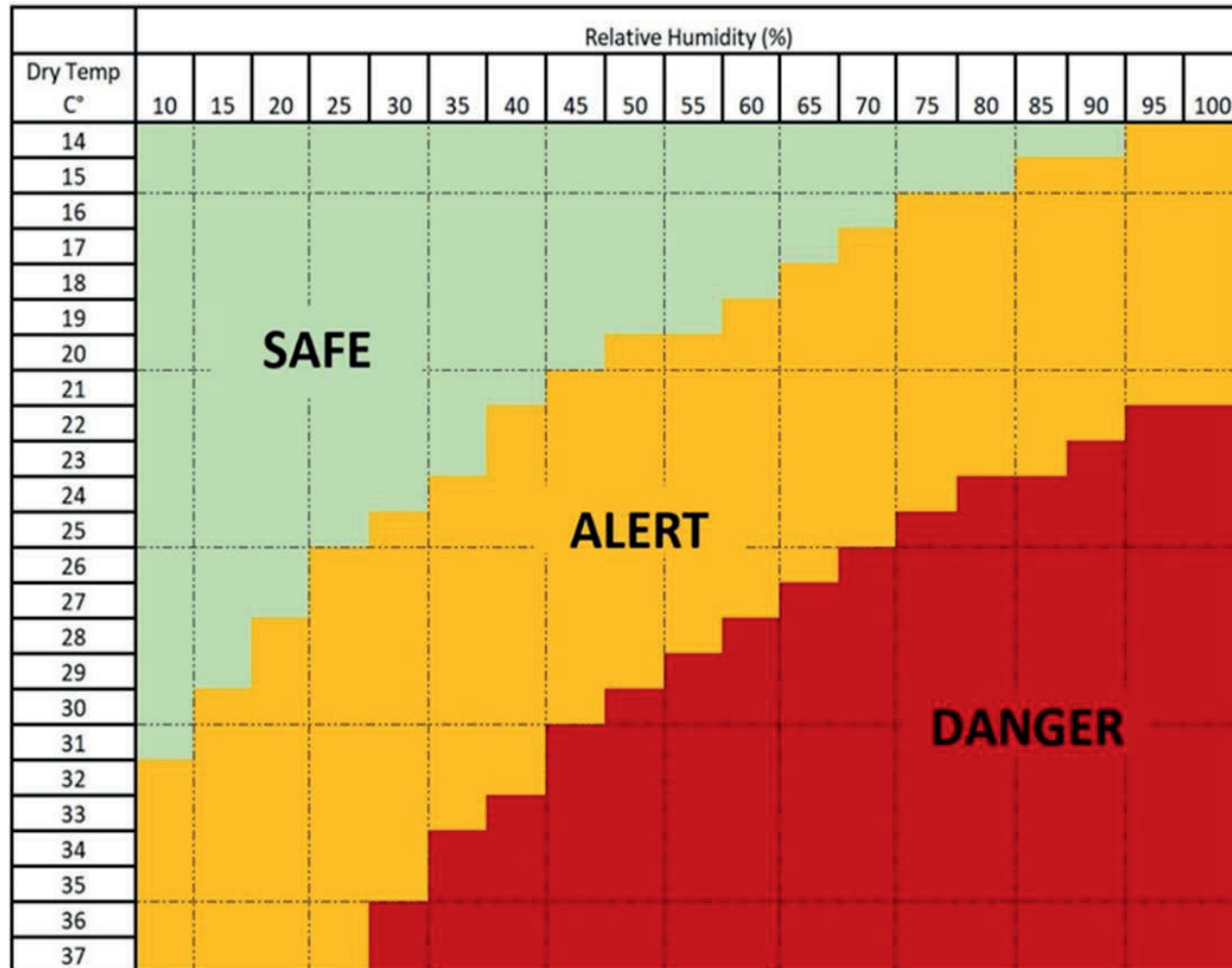
- **height of the container** to allow that the comb or head does not touch the ceiling when birds sit with their head and neck in a natural posture or when they change position

ABMs

'**sitting posture**' and '**head posture**' during loading and during unloading at arrival (not feasible during journey)



Domestic birds: thermal stress (heat)

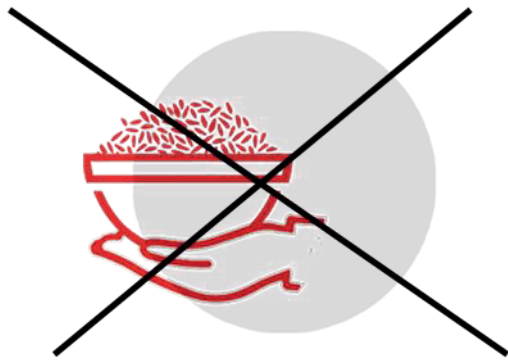


Apparent Equivalent Temperature (AET) index (dry-bulb temperature and relative humidity)

- Temperature and relative humidity **to be monitored** and recorded **inside** the transport containers.
- Domestic birds should travel in the **safe zone**
- Never travel in the danger zone
- Most efficient measure is to transport animals in vehicles using **effective mechanical ventilation** or air conditioning.
- **ABM** to be used: **panting**

Domestic birds: prolonged hunger

- The **total feed withdrawal duration** starts when feed is removed on farm and ends when all animals are removed from containers.



**12 h
max
for birds**

**10 h
max
for hens**

- Feed withdrawal on farm should be avoided as there is no scientific evidence of a welfare benefit of fasting domestic birds before transport.
- Birds should be unloaded without any delay and provided with feed and water (on destination farm) or be slaughtered immediately after arrival.
- **No feasible ABMs**

Domestic birds: Duration of the journey

- **Transport duration** to be considered as the whole time the animals are kept in the containers

time of feed withdrawal

+

time needed to crate all animals for the transport

+

time the animals are in the containers/crates

+

time needed to uncrate the animals

- Based on developing welfare consequences, **journeys up to a maximum of 12 hours**, including on farm feed withdrawal

**12 h
max
for birds**

**10 h
max
for hens**





Section 2

- **Main recommendations for day-old chicks**



- Hatching the birds on-farm should be considered in order to eliminate the transport and the welfare consequences of prolonged hunger and thirst associated with it.
- Maximum time before access to feed and water **must not exceed 48 h**.
- This time should be measured from the first chicks to hatch until the last chick has access to feed and water.
- If the expected transport duration is longer than 48 h:
 - feed and water should be provided at the hatchery before the transport.
 - During transport

Heat stress



- **cloacal temperature** not above **41°C**
- **body surface temperature** not above **38°C**
- **dry-bulb temperature** not above **35°C**

Cold stress

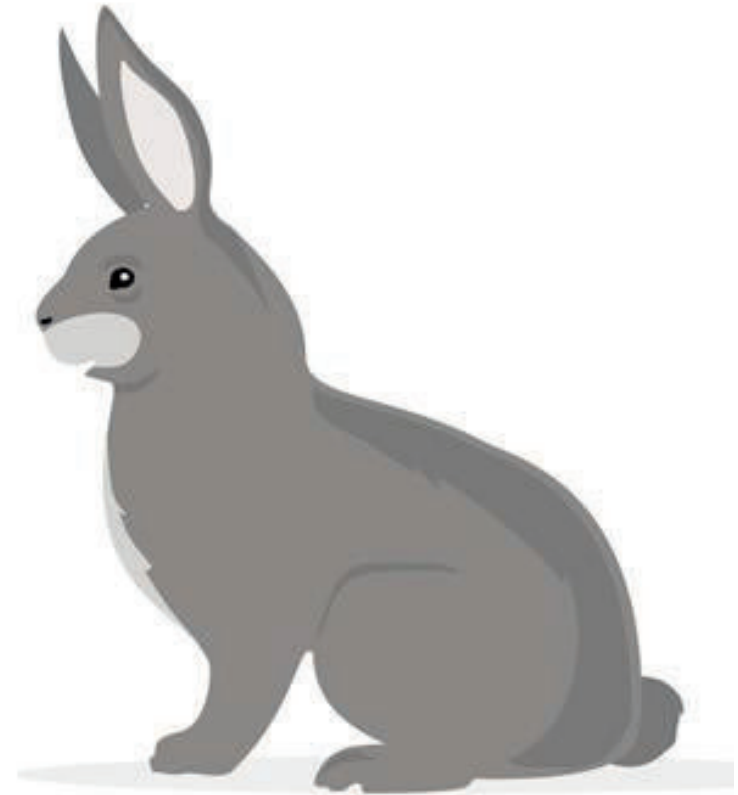


- **cloacal temperature** not below **40°C**
- **body surface temperature** not below **34°C**
- **environment** not below **30°C**

Section 3

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Main recommendations for rabbits



Floor space

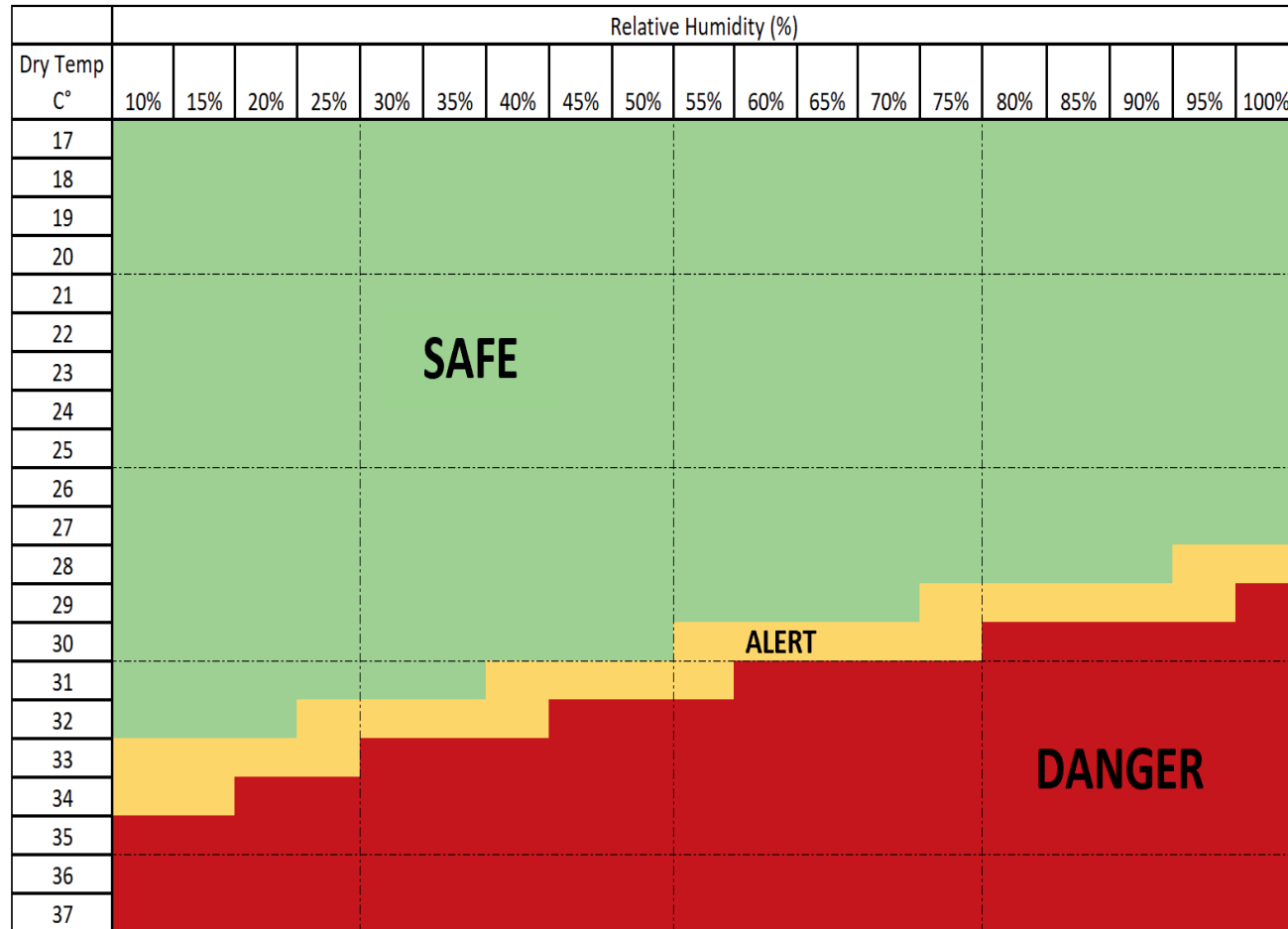
- **sufficient space allowance to sit**
- **minimum space allowance** to be calculated with the generic **allometric equation** 'space allowance (cm²/rabbit) = 270 x live weight (kg^{2/3})'

Vertical space

- **height of the container** at least 35 cm for slaughter rabbits (up to 3 kg) to sit with their ears extended.
- **height of the container** at least 40 cm for rabbit breeders (between 4.5 kg and 6 kg) to sit with their ears extended.



Rabbits: thermal stress



Temperature-Humidity Index (THI) (dry-bulb temperature and relative humidity)

- Rabbits should travel in the **safe zone**
- Never travel in the danger zone
- Temperature and relative humidity **to be monitored** and recorded inside the transport containers.
- Most efficient measure is to transport animals in vehicles using **effective mechanical ventilation** or air conditioning.

**Thank you for your
attention!**