

Transport guide extreme temperatures



Be aware of the risks of thermal stress

Heat stress can be caused by:

- Hot weather conditions
- Poor ventilation
- Overstocking

Cold stress can be caused by:

- Cold weather conditions
- Water ingress by rain or snow
- Overventilation

Thermal stress (hot or cold) can lead to:

- Weight loss
- Dehydration
- Fatigue/exhaustion
- Abnormal behaviour
- Disease
- Death



In cold weather conditions, ventilation rates are often low. This brings the additional risk of low air quality, which may lead to respiratory problems.



Consider the type of pigs that you transport

Pigs don't sweat, so regulating temperature and humidity during transport is essential for their welfare. Make sure temperatures inside the trailer stay within the thermo-neutral zone. This varies with the size of the animals:

Piglets <15 kg	20-35°C
Growing/finishing pigs 16-110 kg	15-30°C
Finishing pigs 111- 160 kg	10-28°C

Truck design



Make sure deck height is adequate

Deck height should be sufficient to ensure correct ventilation inside the truck. Deck height depends on the live weight of pigs and should be at least:

< 10 kg	45 cm
10-25 kg	62 cm
50-70 kg	70 cm
100-120 kg	88 cm
>120 kg	100 cm



Check temperature and humidity sensors

During long transport (more than 8 hours), the truck shall contain a monitoring system for temperature and preferably also humidity.

Sensors should be:

- ✓ Placed at animal level, at least 80-100cm above the floor.
- ✓ Connected to a warning system.

Temperature and humidity inside the animal compartment should be:

- ✓ Monitored in the cabin and/or through a warning system.



Check water supply system

A water supply system including a water tank and water troughs is mandatory for journeys longer than 8 hours. The water tank should be filled before departure and monitored throughout, and topped-up during stops as required.

Drinking devices should:

- ✓ Be easily accessible for all pigs to prevent competition, fights, thirst or heat stress.
- ✓ be specifically designed for the category of pigs that are transported, and the animals must be used to the system
- ✓ Be clean
- ✓ Have no sharp edges or protrusions



Check ventilation

Passively ventilated trucks:

- ✓ Should have ventilation openings sufficiently large, traversing the whole length of the vehicle at animal height.
- ✓ Should have a container roof adequately designed for ventilation and air quality.

IN HOT WEATHER, CLIMATE-CONTROLLED VEHICLES SHOULD BE USED

Actively ventilated trucks (mandatory for journeys longer than 8 hours):

- ✓ Should be able to keep temperatures inside the truck within 5 and 30°C (with a tolerance of 5°C).
- ✓ Should have a capacity of at least 60 m³/h/100 kg pig weight (even on short journeys).
- ✓ Should be capable of operating for more than 4 hours, independently of the vehicle engine.
- ✓ Should, in case of fully-conditioned trucks, function at any temperature.



Make sure there is an emergency generator so the fans can be kept running if the engine breaks down.

Planning



Make a journey plan

Include the following elements related to extreme weather:

- ✓ Analysis of the weather forecast
- ✓ Up-to-date contingency plan that addresses emergencies related to adverse weather conditions.
- ✓ Description of the route of travel and estimation of its duration. The organizer should minimize the delay by avoiding known road works and diversions.



The risks of thermal stress are especially high in the following situations:

- Long journeys (more than 8 hours)
- Journeys from colder to warmer countries inside and outside the EU
- When the truck breaks down



Adjust the time-schedule based on weather conditions

In hot weather:

- ✓ Avoid traveling during the hotter parts of the day; travel during cooler conditions at night.

In cold weather:

- ✓ Wait until temperatures are higher.

LONG JOURNEYS ARE NOT ALLOWED WHEN TEMPERATURE WITHIN THE MEANS OF TRANSPORT CANNOT BE KEPT BETWEEN 5°C AND 30°C, WITH A 5 DEGREE MARGIN.

In practice, this means that long transports should not be allowed if the forecasted outside temperature along the route is $> 30^{\circ}\text{C}$

At departure



Check the proper functioning of ventilation, temperature and humidity sensors and sprinklers before loading the animals



In hot weather: prevent heat stress

- ✓ Increase the individual space by at least 30%.
- ✓ Increase headroom above the animals
- ✓ If temperatures in the truck are above 25°C: use adequate systems to cool animals down and open side flaps to avoid high humidity.



In cold weather: prevent cold stress

- ✓ Reduce space allowance if animals have more than the minimum allowed.
- ✓ Provide additional bedding or insulation.
- ✓ Adjust flaps or windows and use protective sheeting to protect all animals from rain/snow and wind chill. Make sure air circulation is not impeded.
- ✓ Add extra weatherboards to protect animals from wind or rain. Be careful to maintain adequate ventilation.
- ✓ Keep animals as dry as possible.
- ✓ Prevent freezing of drinkers/water lines by using heaters or adding mixtures such as glycerine and glucose to the water supply.
- ✓ Particularly for piglets: pre-warm vehicles by using heaters prior to loading.

On the road



In hot weather: prevent heat stress

When driving:

- ✓ Keep the vehicle moving to maintain a constant air flow.
- ✓ Minimise the journey time and number of stops.

When stopping:

- ✓ Park in the shade.
- ✓ Do not park near other vehicles.
- ✓ Put on ventilation. For passively ventilated trucks: put the vehicle in the right angle to the wind direction and make sure lateral flaps or shutters are fully open.
- ✓ Never leave the vehicle without working ventilation and an attendant nearby.



In cold weather: prevent cold stress

When driving:

- ✓ Regulate the vent flaps to increase or reduce the ventilation during transport.

When stopping:

- ✓ Reduce the opening of the vent flaps on the windy side and open on the other side.
- ✓ Park in an area that provides protection from the wind
- ✓ Add extra weather boards to keep wind or freezing rain out. Make sure ventilation is kept adequate



Check temperature and humidity sensors



Stop regularly to check the condition, behaviour and spatial distribution of the animals

If pigs are panting, they are experiencing heat stress:

- ✓ Provide drinking water as often as possible.
- ✓ Improve ventilation.
- ✓ Spray water on the pigs.

If pigs are shivering or huddling, they are experiencing cold stress:

- ✓ Improve protection from precipitation and wind.
- ✓ Adjust inside temperature.
- ✓ Use more bedding material.

If pigs have watering eyes, nasal discharge or if they are retching, they are suffering from bad air quality:

- ✓ Remove animals from situation or
- ✓ improve ventilation or
- ✓ otherwise lower level of noxious gas.

NB If these measures cannot be implemented, animals should be unloaded at the nearest place available.

On arrival



Protect pigs from adverse weather conditions during unloading



Provide adequate housing conditions

Temperature within the housing facilities should be kept within the thermo-neutral zone (see page 1). To achieve this, facilities should be equipped with:

- ✓ Building insulation to prevent frost.
- ✓ Adequate mechanical or natural ventilation.

If temperatures are not within the thermo-neutral zone:

- ✓ Too low: apply additional heating (especially for piglets).
- ✓ Too high: provide more floor space, additional fans for ventilation and water spraying.