

Transport guide extreme temperatures



Be aware of the risks of thermal stress

Heat stress can be caused by:

- ✓ Hot weather conditions (! High humidity)
- ✓ 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
- ✓ Disease
- ✓ Dehydration
- ✓ Fatigue/exhaustion
- ✓ Abnormal behaviour
- ✓ 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 sheep that you transport

Make sure that:

temperatures inside the trailer stay within the thermo-neutral zone. This varies with the fleece and ages of

Lambs	14-21°C
Fully fleeced sheep	0-25/28°C*
Shorn sheep	10-29/32°C*

* Upper temperature limit depends on whether humidity is high (>80%) or low (<80%).

Lambs and recently shorn sheep (up to 10 days after shearing) are susceptible to wind chill and should be transported in vehicles with enclosed fronts or provided with protection during weather that could cause heat or cold stress.

NEWLY SHORN SHEEP SHOULD NOT BE TRANSPORTED IF STAPLE GROWTH IS LESS THAN 7MM OR IF THEY HAVE BEEN SHORN LESS THAN 24 HOURS BEFORE START OF JOURNEY.

Truck design



Make sure deck height is adequate

Deck height should be sufficient to ensure correct ventilation inside the truck and to ensure that each animal can be observed during the journey to check their condition and behaviour.

Space above the highest point of the sheep should be at least 15 cm on vehicles with forced ventilation and 30 cm on passively ventilated vehicles.



Check temperature and humidity sensors

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

Sensors:

- ✓ Should be placed behind the cabin in the first floor for warm values and in the third floor at the end of the truck for cold values.
- ✓ A minimum of four sensors are required per deck.

Temperature and humidity should be:

- ✓ Monitored in the cabin.



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 animals to prevent competition, fights, thirst or heat stress

Drinking devices should:

- ✓ be easily accessible and specifically designed for sheep/lamb
- ✓ be clean
- ✓ have no sharp edges or protrusions



Check ventilation

Passively ventilated trucks:

✓ ...

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 live weight (even on short journeys).
- ✓ Should have adequate ventilation at ALL times.
- ✓ Should be capable of being adjusted.

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°C

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
- ✓ The choice of transport company and truck type
- ✓ Description of the route of travel and estimation of its duration. The organizer should minimize the delay by avoiding known road works and diversions.
- ✓ When weather forecast shows extreme temperatures, reschedule your journey.



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
- Too long loading time in hot climate conditions in stationary truck.



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.
- ✓ Load animals early in the morning.

In cold weather:

- ✓ Wait until temperatures are higher.

At departure



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



In hot weather: prevent heat stress

- ✓ Increase the individual space by at least 30%.
- ✓ Give 25% more space to unshorn sheep and lambs of ≥ 26 kg than shorn sheep and lambs.
- ✓ Do not use straw bedding. Better are wet sand, wet shavings, sawdust or rice husks.



In cold weather: prevent cold stress

- ✓ Reduce space allowance if animals have more than the minimum allowed.
- ✓ Provide additional bedding or insulation and remove wet bedding after each trip.
- ✓ Provide feed before loading.
- ✓ 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
- ✓ Use side covers to block air movement through trailers. Be careful to maintain adequate ventilation.
- ✓ Keep animals as dry as possible. Avoid loading wet sheep.
- ✓ Prevent freezing of drinkers/water lines by using heaters or adding mixtures such as glycerine and glucose to the water supply.
- ✓ Particularly for lambs: 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 times and number and duration 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.
- ✓ Provide more space if the vehicle is stationary for a longer period, unless it has forced ventilation.



In cold weather: prevent cold stress

When driving:

- ✓ Reduce ventilation from vent flaps.

When stopping:

- ✓ Reduce the opening of the vent flaps on the windy side and open on the other side. "When stopping":
- ✓ 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 sheep are panting, sweating, or drooling, they are experiencing heat stress:

- ✓ Provide drinking water as often as possible.
- ✓ Increase ventilation.

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

- ✓ Provide food if they show signs of hunger.
- ✓ Improve protection from precipitation and wind.

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

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

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



Sheep have difficulty drinking water from unfamiliar sources in a novel environment. Water the animals manually, especially during delays. This is the only guarantee that all the animals receive enough water.

On arrival



Protect sheep 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 lambs).
- ✓ Too high: provide more floor space and additional fans for ventilation.