



ANIMAL TRANSPORT GUIDES

Guide to good practices for the Transport of cattle

2017



For more information:
www.animaltransportguides.eu



Acknowledgements



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DISCLAIMER

The positions expressed in this report do not necessarily represent in legal terms the official position of the European Commission.



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0. Introduction

Since 1991, the EU has provided a common legal framework on animal transport which was then updated by [Regulation \(EC\) 1/2005](#) on the protection of animals during transport, hereafter referred to as '**the Regulation**'. It came into effect on the 1st of January 2007, and aims to provide a level playing field for operators while ensuring sufficient protection for the animals being transported. The content and impact of the Regulation has been the subject of a Scientific Opinion from the European Food Safety Authority ([EFSA, 2011](#)), followed in 2011 by an impact report from the Commission to the European Parliament and the Council ([Anon., 2011](#)). In this report, three key recommendations were formulated:

1. The Regulation has had beneficial impact on the welfare of animals during transport, but there is **room for improvement** of the situation;
2. An **amendment** of the Regulation **is not the most appropriate approach** to address the identified problems;
3. As regards the gap between the requirements of the legislation and available scientific evidence the Commission sees that this is best addressed by **the adoption of guides to good practice**.

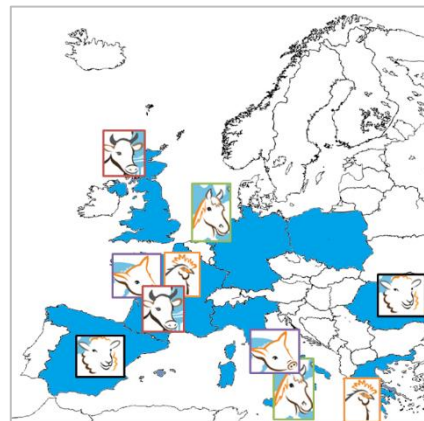
The European Commission has welcomed the production of "clear and simple guidelines to assess the fitness for transport" prepared by stakeholder groups for [bovines](#) in 2012, and [equidae](#) and [pigs](#) in 2016. It was then considered important to extend this approach to address all aspects of the welfare of livestock during transportation.

0.1 Approach and Acknowledgements

This Guide has been produced within the framework of the Animal Transport Guides project, commissioned by DG SANTE under contract SANCO/2015/G3/SI2.701422. The project started on the 10th of May 2015, **and its main aim was to develop and disseminate good and better practices for the transportation of livestock**. The foundation for this Guide was laid in the first project year, through an extensive literature search and resulting overview of a substantial number of available practices. These overviews of suggested practices can be found on the Animal Transport Guides website: <http://animaltransportguides.eu/>. There is one report for each of five livestock species (pigs, poultry, horses, sheep and cattle). In the second year, these very broad and diverse lists were discussed and largely rewritten, to develop the present five Guides to Good Practices. This involved an intensive process of stakeholder consultation.

The first step in moving from the collection of practices to a draft Guide of Good Practices was taken at member state level. Teams consisting of academic partners from two countries per species (the '**Duo Countries**') took the lead.

- ✓ Sheep: Spain and Romania
- ✓ Poultry: Greece and France
- ✓ Pigs: Italy and France
- ✓ Horses: Italy and the Netherlands
- ✓ Cattle: United Kingdom and France



The academic partners identified practices that are at the level of current EU legislation ('**Good Practices**') and practices that are aspiring more ('Better Practices beyond EU legislation', or simply '**Better Practices**'). The partners then proceeded to ask national stakeholder groups in their own countries to reflect on these suggestions for good and better practices. To support this process and work towards consensus, an iterative Delphi procedure of anonymised input collection was used. Well over 100 stakeholders were involved in this step, representing a variety of backgrounds. The largest number of stakeholders indicated they were farmers (19 individuals), transporters (27), slaughterhouse personnel (13), NGOs (12) and competent authorities (27). Representatives from animal trade, academia and vehicle manufacturers also took part in this consultation process. All discussions were carried out in the national language of the member state involved. The final results of this Delphi procedure were five "Draft Guides to Good Practice". These were not published, but used as the basis for the final Guides.

The final Guides for each of the five livestock species were developed through a second round of consensus building at European level, with the help of '**Focus Groups**'. These focus groups had an international basis: the delegates were asked to represent knowledge, experience and opinions beyond those of their own country. **Table 0.1** below shows the composition of these five focus groups.

Table 0.1 Composition of international Focus Groups, involved in the production of the final Guides to Good Practice. The numbers indicate the number of representatives per stakeholder category.

	Sheep	Poultry	Pigs	Horses	Cattle	Total
Farmers	3	5	3	1		12
Vehicle manufacturers			2			2
Animal traders	1				2	3
Transporters		3	2	3	5	13
Slaughter-houses	2	5		1		8
Official veterinarians		2	1	2	2	7
Animal scientists	2	3	2	2	2	11
Animal welfare organisations	2	3	2	4	5	16
Total	10	21	12	13	16	72

A first series of meetings of the five focus groups was organised at the end of May 2016. During these meetings, the draft guides were presented by the academic partners. A road map to turn the draft guides into the current final versions was then agreed with the stakeholders. All focus groups held subsequent meetings in Brussels, to discuss and reach consensus on the wording of each single practice to be included in the final Guides. Different species groups had different numbers of meetings, and the last ones were held in March 2017.

To support and help guide the process of writing, the Animal Transport Guides project team set up a '**Stakeholder Platform**'. This group of people provided advice throughout the first two years of the project on how to tackle issues that affect all five species guides. The Platform was composed of representatives from 13 international organisations or stakeholder groups: the International Road transport Union (IRU), the Federation of Veterinarians of Europe (FVE), Eurogroup for Animals, Copa-Cogeca, Association of Poultry Processors and Poultry Trade (AVEC), the German Breeders Organisation (ADT), Eyes on Animals, the Irish Ministry of Agriculture, vehicle manufacturer Pezzaioli, Union Européenne du Commerce du Bétail et des Métiers de la Viande (UECBV), European Forum of Farm Animal Breeders (EFFAB), the German Transporters Organisation (BDT), and the Greek Ministry of Agriculture. The Platform met 5 times in Brussels over two years.

As part of the development of the five Guides, the species Focus Groups and the Stakeholder Platform choose 17 topic areas which deserved extra attention. The practices in these areas were collected in 17 so called '**Fact Sheets**', aiming to summarise and illustrate in an accessible way the most critical aspects of the journey or the most vulnerable categories of animals. Linked to the present Cattle protocol, 4 Fact Sheets were produced: **Transport of lactating cows, Long Distance Transport, Loading and Unloading** and **Transport of Calves** These four, and those related to the other Guides, are published in eight European languages.



The target audience for the fact sheets are farmers, drivers, local veterinarians and abattoir staff. The target audience for the Guides to Good Practice are transport organisers, competent authorities and policy makers. The Guides and the Fact Sheets can all be found on the project's website: <http://animaltransportguides.eu/>.

The development of the Fact Sheets and the Guides would not have been possible without the highly constructive discussions at national and international level with the many stakeholders mentioned above. **Their help with this process was essential, and the authors are grateful for the time and knowledge they contributed to the writing of the Guides.**

0.2 Aim of this Guide

The present Guide to Good Practice aims to **improve the welfare of animals** during transportation **by providing practical tools** to meet the requirements of the Regulation and to suggest practices which go beyond legislation.

Transport is a stressful situation for animals. This guide lists practices that aim to support entrepreneurs in increasing the quality of the transport of animals in accordance with the Regulation, thus limiting stress to animals and promote animal welfare.

The practices in this guide are based on scientific knowledge, scientific literature, experiences and information from stakeholders. No distinction is made by source, unless this is regarded as relevant for better understanding or checking of the background. They can be used to develop company specific guidelines or Standard Operating Procedures for transporters and other stakeholders, or as a reference source for dealing with aspects of transportation in a way which is practical and that supports animal welfare.

This document is not of legally binding nature and does not affect the requirements of the EU legislation on animal transport or other relevant pieces of legislation. Nor does it commit the European Commission. Only the Court of Justice of the European Union is competent to authoritatively interpret Union law. The reader is therefore invited to **consult this guide in connection with the relevant provisions of the legislation** and refer, when necessary, to the relevant competent authorities.

0.3 Main welfare risks during cattle transport

Transport involves several **potential stressors** that can affect animal welfare negatively. The new and unfamiliar environment, movement restrictions due to confinement, vibrations, sudden and unusual noises, animal fitness, mixing with other animals, temperature and humidity variations together with inadequate ventilation and often feed and water restrictions all have an impact on the animals' state. The effects of all these factors on livestock are influenced by the experience and condition of the animals, the nature of the journey, and the duration of transport. **Long journeys** have been identified as being potentially more detrimental to the general welfare status of the animals, because of the longer duration of exposure to the stressors mentioned above. Therefore, it is clear that stressful journeys including hostile transport environments or conditions may influence animal health and welfare negatively. This has an **impact** upon **productivity** and **profitability** through changes in animal body weight, hydration state and meat quality in slaughter animals.

Poor and erratic **driving** may impose forces in the animals which increase the risk of impacts and injuries and through postural instability will predispose animals to fatigue particularly on long journeys [4.2 Driving](#).

Inadequate consideration of altering **space** allowance / head room in response to a range

of factors may also pose risks [2.3.2 Space allowance](#). Weather and **thermal conditions** should be considered and space should be adjusted to minimise the risk of thermal stress [2.3.4 Monitoring of transport environments during long journeys](#). In this light, transportation of horned and pregnant animals also requires additional space above the minimum standards required under the Regulation.

Transportation of **young calves** (particularly on long journeys) imposes specific challenges. In particular feeding and watering in compliance with the Regulation is often very difficult to achieve as calves will not use the equipment provided. Calves can only be successfully fed and watered (or provided with milk/substitute/electrolytes) after unloading and this should take place at a control post, market or assembly centre [6.3 Feeding and watering](#). This problem will impact upon journey times permitted (19 hours) under the Regulation as young calves have to be provided with feed/water after as little as 8-9 hours.

Another important practical consideration and a significant risk to welfare is the scheduling of **milking of lactating cattle** when transported. It is essential to ensure that facilities and personnel are available at the relevant times and locations during a properly planned journey (e.g. immediately upon arrival at the final destination or intermediate port) to avoid delays in milking [2.2 Planning the journey](#).



Significant stress may be associated with **loading** or to handling prior to loading [3.3 Handling during loading](#) also considering that animals may have undergone periods of water or feed deprivation prior to loading and transport. **Journey times** are frequently extended due to traffic congestion and this may compound welfare impacts during times of extreme temperatures [2.2.2 Contingency plans](#).

International and intra-community trade involving prolonged journeys, especially those requiring movement over water may result in specific additional welfare challenges in conditions of transport (e.g. if by boat or, less commonly, air) and disease risk.

Familiarity of cattle within a group, sympathetic handling at loading and unloading, shorter journey times, consideration of space allowance and careful driving appear to reduce the risk of poor welfare and injury during transportation. Transporting **horned animals** increases the risk of injury to other stock being transported.

The present guide has been structured to allow consideration of these points and issues and to address them in the context of the six recognised stages of the journey.

0.4 Animal based measures

The ultimate aim of providing the right conditions during driving should be to provide good welfare, **so that the animals are healthy and fit when they come off the truck** at the destination. The current legislation, existing guidelines on Fitness to Travel ([Eurogroup for Animals et al., 2012](#)), most quality assurance schemes and also the present guides offer many suggestions on what these conditions should be. They advise for instance on space allowances, frequency and duration of resting and the feed and water requirements of the animals. This advice is based on years of experience or thorough research which has identified the welfare risks associated with deviations from this advice: if space allowances are too low, animals may not get access to water, may get more easily injured, and may not be able to rest; if they do not rest enough, they will become exhausted, with detrimental effects for welfare and meat quality; etc.

It is important to realise that recommendations based on '**conditions**' (the resources on the truck or the handling and animal management by operators) **do not necessarily guarantee good welfare**: they merely offer advice to maximise the chance that the welfare of the animal will be good. The effect conditions have on the actual welfare status is influenced by other factors, as many of the (recommended) conditions are interacting with each other. Obvious examples are the interactive effects of a wet coat, and ambient temperature: if it is too hot then sprinkling may be desirable, but if it is freezing then you want to keep your animals dry. Another example is the relationship between the driving conditions and the length of the journey: following a rough journey, the benefits of resting the animals outside the vehicle outweigh the stress of offloading. However, if the journey has been smooth and on board conditions optimal, the benefits of offloading will be much lower and in some cases it may even be better to leave the animals on the truck.

Given these limitations of management and resource related practices, it is obvious that **animal based measures can be a useful monitoring tool** to help business operators to ensure welfare and, if necessary, take the appropriate corrective actions. Animal based measures (ABMs), such as injuries, panting, shivering, body and skin conditions, can be interpreted as direct indicators of animal welfare. The use of ABMs during live animal transport is not as novel and innovative as it may sound. Such indicators were included in tools for transporters for a long time and **good professional drivers and keepers already base their actions on the 'signals' they get from the animals** they work with. During routine checks they will not (just) look at the temperature gauge to see if ventilation is adequate: they will look at the animals for signs of panting or shivering. They don't judge tiredness by the length of the journey, but by looking at animal posture and resting behaviour.

Animal Based Measures can be of use **before, during and after** a journey (see **Table 0.2**). They can be used during routine checks to assess how the transport is going, and if action is necessary to improve animal welfare. They can also be used after a journey, when animals are unloaded, to know how the animals have experienced the transportation. Knowing this will help the transporter (and others who handle the animals) to improve the conditions during the next journey with a different consignment.

Table 0.2 To achieve the objective of 'good' transport regarding the welfare of bovines, the following ABMs could be used in monitoring tools.

Parameter	Description
Dead on arrival	Animal that has stopped breathing and has no pulse (cardiac arrest) on arrival.
Severe lameness or non-ambulatory	An animal is considered severely lame when it shows inability to bear weight on one or more limbs while not lying. An animal is considered non-ambulatory when it cannot rise or is unable to stand unaided, but is still alive.
Slipping	Animal showing a loss of balance during loading/unloading without a non-limbic part of the body touching the ground.
Falling	Animal showing a loss of balance during loading/unloading causing other part(s) of the body (beside legs) to touch the floor.
Shivering, panting or sweating	Shivering is defined as the slow and irregular vibration of any body part, or the body as a whole (skin movements due to flies are not assessed as shivering!). Panting is defined as breathing in short gasps carried out with the mouth. Animals with visible signs of sweating during the transport on their skin (wet animals, dried sweat spots, salt deposits) are counted as sweating animals.
Cleanliness	Cattle are considered dirty if $\geq 25\%$ of the body surface is covered with dirt.
Exhausted	Signs of severe fatigue or exhaustion are e.g. chin or limbs resting at partitions or troughs, closed eyes, high drive to rest in recumbent position.
Other severe health problems	Any severe clinical health problem that is easy visible and may have been initiated or impaired by transport (management) and is not already covered by the parameters above.

0.5 Structure of the guide

Transport spans a **chain of events** from preparation to unloading. To facilitate the use of the guide in every day practice, it will be structured according to six stages of the journey:

1. Administrative issues
2. Preparation and planning
3. Handling and loading animals
4. Travelling
5. Stay at control posts, markets and assembly centres
6. Unloading animals

Stages 2 – 6 follow transport activities in chronological order. The first 'stage' is added because administrative issues, including staff competence, training etc. are important for the execution of almost all activities during transport of animals. Each stage is subdivided into a number of aspects, and for each of them this guide presents 'good practices' as well as 'better practices beyond EU legislation'. See below for definitions.

The practices are not equally important in terms of their expected impact on animal welfare. Therefore, this guide suggests topic areas which are very important, and areas which are relevant but less important. The very important topics will be 'boxed' throughout this guide.

The digital version of this Guide includes words or references with so called '**hyperlinks**'. Clicking on these links (usually with 'Control' + 'left mouse click') will lead to another related part in this Guide, or to background information in documents or on websites, providing of course the reader has internet access on his reading device.

0.6 List of definitions

For the purpose of this guide,

- '**Good practices**' are defined as: procedures and processes that ensure compliance with requirements of legislation or regulations, designed to protect the animals' welfare.
- '**Better practices beyond EU legislation**' are defined as providing additional guidance on how procedures and operations can be improved to exceed any legally defined minimum welfare requirement, and to increase the welfare status of the animals during the relevant periods and procedures. They will be abbreviated to 'better practices' throughout the document.

In addition to the above operational definitions of good and better practices, the following is a list of terms used in this guide that may need a precise description to avoid confusion. Where appropriate, they have been taken from the Regulation (**Table 0.3**).

Table 0.3 List of terms used in this guide

Assembly centre	Places such as holdings, collection centres and markets, at which domestic Equidae or domestic animals of bovine, ovine, caprine or porcine species originating from different holdings are grouped together to form consignments
Attendant	A person directly in charge of the welfare of the animals who accompanies them during a journey
Competent authority	The central authority of a Member State competent to carry out checks on animal welfare or any authority to which it has delegated that competence
Control post	Places where animals are rested for at least 12 hours or more pursuant the rules for journey times and resting periods set up by the Regulation. They must be approved by the competent authorities.
Journey	The entire transport operation from the place of departure to the place of destination, including any unloading, accommodation and loading occurring at intermediate points in the journey
Keeper	Any natural or legal person, except a transporter, in charge of or handling animals whether on a permanent or temporary basis
Long journey	A journey that exceeds 8 hours, starting from when the first animal of the consignment is moved
Navigation systems	Satellite-based infrastructures providing global, continuous, accurate and guaranteed timing and positioning services or any technology providing services deemed equivalent for the purpose of this Regulation
Official veterinarian	The veterinarian appointed by the competent authority of the Member State

Organiser	(i) a transporter who has subcontracted to at least one other transporter for a part of a journey; or (ii) a natural or legal person who has contracted to more than one transporter for a journey; or (iii) a person who has signed Section 1 of the journey log (when applicable)
Place of departure	The place at which the animal is first loaded on to a means of transport provided that it had been accommodated there for at least 48 hours prior to the time of departure. However, assembly centres approved in accordance with Community veterinary legislation may be considered as place of departure provided certain conditions (see Article 2 r of the Regulation).
Place of destination	The place at which an animal is unloaded from a means of transport and accommodated for at least 48 hours prior to the time of departure; or slaughtered
Transporter	Any natural or legal person transporting animals on his own account, or for the account of a third party
Vehicle	A mean of transport fitted with wheels which is propelled or towed

1. Administrative issues

1.1 Introduction

A series of **documents are required by the EU legislation to transport live animals** which must accompany the consignments and might be required at all time by the competent authorities. Having properly prepared the documents required will **prevent unnecessary delays** and additional checks by the authorities.

In addition, **good record keeping** is the cornerstone of quality monitoring: it contributes to **transparency** and supports **quality evaluation**. Records can be used to highlight aspects that went well and to identify weaknesses that need to be addressed. Such evaluations can be done at the level of a specific event such as a single journey, and also by aggregating data at the level of multiple transports. Record keeping is indispensable for **maintaining and promoting adequate standards**.

It is important that data requested to be recorded are **clear and understandable** and easy and quick to log. They should be able to be assessed objectively, and be justified for and proportional to the intended goals, i.e. safeguarding the welfare of the transported animals. Records should not be longer than necessary and what is "needed to know" should prevail over what is "nice to know". Promoting and using **electronic records** facilitates meeting the administrative requirements. Furthermore, synergy can be obtained by linking animal welfare records with health and food safety records.

Transporters should carry the **appropriate documentation with them during the journey**. They are likely to be checked for these papers by the competent authorities either during transport or at any transfer or arrival. In particular, **certificates of competence** must be held by drivers or attendants responsible for transporting domestic Equidae, domestic animals of bovine, ovine, caprine or porcine species and poultry over 65 km. In the EU member states these are mainly independently assessed qualifications specific to the species and duration of journeys involved.

As is indicated in the Regulation, **professional drivers** and attendants should achieve **knowledge of the legislation** in relation to the following topics:

- animal transport,
- animal physiology (in particular drinking and feeding needs)
- animal behaviour and the concept of stress,
- practical aspects of handling of animals,
- the impact of driving behaviour on the welfare of the transported animals and on the quality of meat,
- emergency care for animals and safety considerations for personnel handling animals.

Drivers and attendants need to be able to adequately translate this knowledge into practice. Insufficient knowledge of these issues is regarded as the main risk for impaired animal welfare during transport.

The competent authorities have to ensure that the requirements of Annex IV of the Regulation have been included in a **theoretical examination of applicants**. The content and duration of training courses, the professional qualifications which can be taken into account, and the type of examination are the responsibility of each member state.

1.2 Administration

Good practices regarding Administration

1. Everyone transporting animals carries **documentation on the means of transport** stating their origin and their ownership, their place of departure, the date and time of departure, their intended place of destination, and the expected duration of the intended journey.
2. Furthermore the following document might be necessary to accompany the transport animals in the EU:
 - An **transporter authorisation** for transports exceeding 65 km and up to 8 hours (Type I) and over 8 hours (Type II),
 - **A certificate of approval for transport vehicles** for over 8 hours,
 - **A certification of competence** of drivers and attendants transporting domestic Equidae, or domestic animals of bovine, ovine, caprine or porcine species or poultry,
 - **A journey log** for long journeys of domestic Equidae, or domestic animals of bovine, ovine, caprine or porcine species (not for poultry),
 - **Animal health certificates (where required e.g. trade between Member States or when exporting to non-EU countries)**
 - **Food chain information** regarding slaughter animals.
3. The transporter shall submit the journey log to the competent authority before the journey commences and is held and fulfilled by the driver during the journey.
4. Animal health certificate and journey log shall be submitted via the electronic application TRACES.
5. On long journeys of domestic Equidae, or domestic animals of bovine, ovine, caprine or porcine species, transporters shall use a **navigation system** compliant with the current legislation.
6. Organisers archive all transport records, animal health certificates and journey logs of every transportation, for at least **three years**.

Better practices regarding Administration

7. Transport means provide information about the **net usable surface area** for each loading deck.
8. The data of the journey log are presented in an **electronic format** to be transmitted to the competent authorities.
9. The **categories of animals** within the species are indicated on top of the species (e.g. bulls, milking cows, calves).
10. Journey information is transmissible in real time to the Trade Control and Expert System (TRACES). The journey information required relates to:
 - Date and time of **loading of the first animal** of the consignment at the place of departure,

- Date and time of the **unloading of the last animal** of the consignment at the place of destination,
 - **Species and number** of animals in the consignment,
 - Species and number of animals **injured and dead** during the journey,
 - Date and time of **coupling and decoupling** of the trailer and the equipment should be mounted on the trailers and not on the pulling vehicle,
 - Estimated **total weight** of the consignment at the place of departure or at the place of any loading of the consignment,
 - Date, time and location of the **places of rest** or transfer.
11. Transport organisers keep transport contracts and journey logs in an archive for **at least 5 years**.

1.3 Competence and training

In general, only skilled workers can complete animal transportation with minimal impact on animal welfare. The skills required ('competence'), obtained through training and work experience in the animal transport chain, enable each operator:

- To have the necessary knowledge about the **impact** of their work **on animal** stress, fear and related injuries,
- To know about the **impact** of their work on the **quality of the meat** of transported animals,
- To recognise the main physiological signs to **judge the state of the animals** before loading, during loading and transport phases and at unloading (e.g. posture, nervousness and stress, etc.),
- To **adapt the journey** to specific conditions (variable sensitivity of breeds transported to stress and mortality, weather conditions, events which can occur during the trip),
- To know the **bio-security** rules.

Good practices regarding Competence and Training

12. Transport operators ensure that persons who handle livestock have a basic but detailed understanding of animals' behaviour and physical needs. For an overview of biological needs of cattle whilst travelling see [Chapter 2.4 Animal related](#)

- 13. Trainers impress upon keepers the potential **effects of their actions** upon animals in their charge.
- 14. Transport operators ensure that there is a **commitment to proper handling** from everyone, from the top down, involved with the livestock shipment.
- 15. Transport operators ensure compliance with the minimum legal training programme required for the Certificates of Competence in Europe according to the Regulation and national requirements if any.

Better practices on Competence and Training

- 16. A **Welfare Transport Officer** in charge of the training, certificates and check of the quality of the transport is appointed in the transport company.

17. The practical **abilities** of the transporter are **recorded and controlled** (e.g. through audits and checks in the field).
18. **Key parameters** are identified and **recorded** to assess the quality of the transport (e.g. the incidence of mortality, injuries and any animal based measures of animal welfare).
19. Transport companies ensure that drivers (and keepers) receive continuous and **updated training**.

1.4 Responsibilities

Good practices on Responsibilities

20. The **keepers and attendants** (including the owners and managers) of the animals are responsible for
 - a) the general **health**, overall **welfare** and **fitness** of the animals for the journey; these are assessed and recorded by **regular routine inspection**,
 - b) ensuring compliance with any required certification, either veterinary or other,
 - c) the **presence of an animal keeper / attendant** competent for the species being transported during the journey and with the authority to take prompt action; in case of transport by individual trucks, the truck driver may be the sole animal keeper during the journey,
 - d) the presence of an adequate number of animal keepers during loading, and
 - e) ensuring that **equipment and veterinary assistance** are provided as appropriate for the species and the journey.
21. **Business agents** or buying/selling agents are responsible for
 - a) selection of **animals that are fit** to travel, and
 - b) availability of suitable **facilities** at the start and at the end of the journey for the assembly, loading, transport, unloading and holding of animals, including for any stops at resting points during the journey and for **emergencies**.
22. In addition **animal keepers** or attendants are responsible for the humane handling and care of the animals, especially during loading and unloading, and for maintaining a record of journey events and problems and the completion of the journey log on long journeys. To carry out their responsibilities, they have the **authority to take prompt action**. In the absence of a separate animal keeper, the driver is the animal keeper.
23. The '**Organiser**' is responsible for planning the journey to ensure the care of the animals. This may be the transporter, the vehicle owner and/or the driver. In particular they are responsible for
 - a) choosing **appropriate vehicles** for the species transported and the journey,
 - b) ensuring that properly **trained staff** are available for loading/unloading of animals,
 - c) ensuring adequate competency of the driver in matters of animal welfare for the species being transported,
 - d) developing and keeping up-to-date **contingency plans** for all journey types (even when not mandatory) to address emergencies (including adverse weather conditions),

- e) producing a **journey plan** for **all** journeys (including where mandatory) which includes a loading plan, journey duration, itinerary and location of resting places,
 - f) loading only those **animals** which are **fit to travel**, for their correct loading into the vehicle and their inspection during the journey, and for appropriate responses to problems arising (if fitness to travel is in doubt, the animal should be examined by a veterinarian who is then responsible for declaring any animals unfit to travel),
 - g) welfare of the animals during the actual transport, and
 - h) **planning the journey, which** should take into account any disparity in the requirements for animal journey times and the requirements of the **social regulations relating to drivers' hours**, including the numbers of drivers required for long journeys to achieve complete compliance. This will ensure compliance with both sets of regulations. This may relate to both driver and animal rest times and a decision on the number of drivers required for long journeys.
24. **Managers of facilities** at the start and at the end of the journey and at resting points are responsible for
- a) providing **suitable premises** for loading, unloading and securely holding the animals, with water and feed when required, and with protection from adverse weather conditions until further transport, sale or other use (including rearing or slaughter),
 - b) providing an **adequate number of animal keepers** to load, unload, drive and hold animals in a manner that causes minimum stress and injury,
 - c) **minimising** the opportunities for **disease transmission** by detailed attention to vehicle and facility **cleaning, disinfection**, hygiene and environmental control, as well as provision of clean bedding,
 - d) providing appropriate facilities to deal with **emergencies**,
 - f) providing facilities and competent staff to allow the **humane killing** of animals when required, and
 - h) ensuring proper rest times and minimal delay during stops.

Better practices on Responsibilities

- 25. Ensure there are **clear definitions of responsibilities** of keepers, attendants, traders, transport organisers, farmers, assembly centre managers, drivers, control post owners and slaughterers, and that they are listed in the transport contract and to provide a checklist accessible by all staff including the driver(s) or attendants.
- 26. **Standard Operating Procedures** (SOPs) are established for each activity/task by the agent defined as responsible. These describe **precise protocols** for feeding, watering, renewal and replacement of bedding, animal inspection and monitoring and **definition of those individuals responsible** for each task. SOPs are continuously updated in accordance with new advice and/or guidance.

2. Journey planning and preparation

2.1 Introduction

Good preparation and planning for the transport of cattle is one of the most important stages of the journey. It is the **key to successful animal transport** in terms of compliance with legislation, best practice and high standards of animal welfare and economic benefit. Good planning **promotes smooth execution of transport** and is needed to **minimize the risk** that the involvement of the different parties is poorly synchronised. The complexity of the overall animal transport process necessitates well-structured integration of each of the activities according to defined sets of objectives, responsibilities and monitoring tasks. The **anticipation of unexpected events and problems** and the **provision of contingency plans** to supplement well defined Standard Operating Procedures are paramount. Next to the immediate **animal welfare concerns**, planning should include **animal health considerations** (biosecurity), **human health and safety aspects** and **economic consequences**. The importance of planning and preparation is also acknowledged by the EU legislators, and journey logs with a planning section are obligatory for long journeys.

From an animal welfare point of view, the 'preparation and planning' stage includes the following aspects:

- Planning the journey
- Vehicle preparation
- Animal related preparation
- Administration

2.2 Planning the journey

The journey shall be as **smooth and quick as possible** in order to limit exposure to transport stress. It shall be planned carefully to assure cattle welfare conditions during the whole transportation. As part of the planning for each journey, **arrangements shall be made to manage any delay**, breakdown or other emergency to minimise risks of impaired welfare during all transport.

The journey shall be **planned and prepared carefully** after the announcement by the farmer or trader of the date and the place of departure and the destination to the final client. Journey plans involve written arrangements regarding start and unloading places, contingency plans, and details on consignment sheets or arrangements that are in place for rest stops, particularly for long-distance journeys.

In particular, they shall include:

- **description of the route of travel** and estimation of its duration,
- analysis of **weather forecast**,
- choice of the **transport company** and of the truck (e.g. type I or II) and/or vessel depending on journey duration and weather conditions, cattle number and categories, i.e. breeders animals, calves, cull animals,
- The reservation for unloading **resting animals in a control posts** when applicable,

- a **contingency plan**,
- planned **number of drivers**,
- provisions for **bedding material**,
- provisions for **water and feed** to be delivered at control post, depending on trip duration,
- assurances **that the truck is ready** at the place and time appointed for departure.

Journey routes and scheduling of stops (including control posts on journeys over the maximum duration) are optimised using the appropriate **commercial software and systems**. Besides the Regulation on the protection of animals during transport, drivers also have to comply with legislation regarding driver hours ([Regulation \(EC\) 561/2006](#)). During the planning phase of the transport these two legal requirements are both taken into account. Besides the timing of the rest periods also the location where the vehicle will stop is addressed in the planning phase, taking into account biosecurity. A summary of the maximum journey times allowed by the Regulation is in the table below (**Table 2.1**).

Table 2.1 Maximum journey times allowed by the regulation.

	Basic Standard Vehicle	Higher Standard Vehicle		
Cattle	8	29 (14-1-14) (when given liquid, and fed if necessary, every 14 hours)		
	Basic Standard Vehicle	Higher Standard Vehicle		
		Travel	Rest	Travel
Unweaned calves	8	9	1	9

The expected overall journey duration for the planned route is determined realistically, taking into account time needed for loading and unloading. If after this journey time the animals have not reached their destination, they must be unloaded, fed and watered and be rested for a minimum of 24 hours at an EU approved control post, see [Chapter 6. Stay at control posts, markets and assembly centres](#).

2.2.1 Journey duration

The journey duration has to be estimated carefully and include the scheduled rests and stops at control posts. Taking the journey duration into consideration, the right type of vehicle and its equipment should be chosen.

Good practices on the nature and duration of the journey

27. The transport organizer shall choose the transport company according to its authorization, approval of means, ability, experience, capacity and available attendants and drivers.
28. The transport organizer shall define accurately the **journey duration** in agreement with the transport company. This should include the route map, rest stops for the

driver and stops in control posts during long journeys. He shall choose the route to minimise the total length of the journey.

29. **Clear and effective communication** between the transporter and the loading and unloading locations is essential. This should involve phone or electronic communication with farms, control posts, markets and slaughterhouses during journey planning to confirm arrangements and requirements and between the driver(s) and all other agents throughout the transport phase/journey.
30. For journeys where animals should be unloaded at a control post the competent authority demands **proof of a reservation** and proof of acceptance of the animals at a control posts *en route* which is mentioned in section 1 of the journey log. This procedure is a part of the checks carried out by the competent authority before long journeys.
31. Duration of the journey breaks should be long enough to **check the animals** for any signs of compromised health or welfare and to check feed and watering systems to ensure adequate supply is available.
32. Time should be allowed during stops to **treat individual animals** if required following inspection.
33. The transporter should **choose the vehicle according** to the type and number of animals to be transported and to the journey duration (truck equipment according Type I or II authorization).

Better Practices on the nature and duration of the journey

34. Schedule loading and transportation so that animals can be unloaded promptly at destination.
35. Ensure clear communication between drivers and personnel at the destination about responsibilities.
36. Attention should be paid to the impact of **thermal conditions** (heat and cold) and humidity **on all journeys** (long, standard or short). Appropriate strategies should be employed on all journey types to minimise the risk of thermal stress.
 - Avoid travelling in the hotter parts of the day by planning the journey to take advantage of cooler conditions at night
 - Plan short and long journeys to avoid known delays such as road works and diversions
37. The transport organiser should ensure that all required paperwork (e.g. livestock manifests, bills of lading, emergency contact information) is completed in compliance with regulations but should also provide all **completed documentation in a timely manner** to the transporter so that the vehicle can leave immediately after loading.

2.2.2 Contingency plans

The main goal of the transporter is to deliver the animals timely and in good welfare conditions, despite risks of delay on the road. Emergencies may occur, even when optimal preparation and planning has taken place. **The contingency plan aims at helping the driver and the transport company to ensure the security and the welfare of the animals in case of emergency.** The Regulation mentions these as a requirement for long journey transporter authorisation, but they are also useful for short journeys. Contingency plans are most useful when they are regularly trained and updated by the transporter.

They should address 4 questions: what **potential risks** may cause an emergency, **what can be done** when they occur, **who is to do what** and **how will the mitigating actions be carried out**. By being prepared, the transporter will be able to respond in an effective manner and reduce the impact of a delay or accident on the animals. **Figure 2.1** provides an example taken from the [Practical Guidelines to Assess Fitness for Transport of Equidae \(2016\)](#).

Annex III— Example of UK contingency plan

Council Regulation (EC) 1/2005
Contingency Plan Template For Type 2 Transporters

Please complete this Contingency Plan and submit to the following address with your application form for a Type 2 Transporter Authorisation:

This generic Contingency Plan is to be completed by the Transporter.

Section 1 – Contact Details

Name of Transporter

Address:

Contact Telephone Number Email Address

Section 2 – In case of an emergency:

- 1 Who is your nominated vehicle breakdown/recovery company?
- 2 What action will you take in the event of a traffic accident, road closure or weather conditions delay your journey?
- 3 What action will you take if the ferry/shuttle service has been suspended?
- 4 What action will you take in the event that your vehicle suffers an irreparable breakdown?
- 5 What action will you take if any animal(s) become ill during the journey?
- 6 What action will you take if any animal(s) needs to be euthanised?
- 7 What action will you take in the event that you encounter extreme temperatures (either hot or cold) during the journey?
- 8 What action will you take if there is confirmation of a Notifiable Disease in an area you're travelling through?

Transporter Signature

Name in BLOCK LETTERS Date

Figure 2.1. The structure of an emergency plan (as presented in the Practical Guidelines to Assess Fitness for Transport of Equidae, 2016)

Good practices regarding contingency plans

38. **If a delay occurs**, the welfare and safety of the animals must be considered paramount at all times. It is the driver's responsibility to keep the animals comfortable and safe and ensure the journey time is kept to a minimum.
39. The driver should make every reasonable effort to minimise the delay and ensure that **water, shade on a hot day, and adequate ventilation are available**.
40. If necessary, the **driver should seek the help of the police** to enable his journey to continue as soon as possible during long traffic hold-ups (i.e. if the road is closed due to an accident).
41. In the case of a **mechanical breakdown** of the vehicle, the nature of the breakdown should be determined and it should be estimated how long the repairs will take. If the repairs cannot take place at the site of the breakdown or they will take an extended period of time, **arrangements for another vehicle** will have to be made.

42. A contingency plan should be present in the vehicle. An example is provided in Figure 2.1. The plan should be known and understood by everyone involved in animal transport during any journey. It needs to describe how to handle unforeseeable incidents and delays to ensure the animals do not suffer significant harm. Delays can be caused by weather, traffic issues, accidents, road construction, mechanical breakdowns or plant shutdowns. The contingency plan must amongst other things include the provision for facilities to hold animals in emergencies.

43. In case of emergencies the contingency plan is activated by the driver and/or transporter, or whoever is first aware of the emergency.
44. The contingency plan should **include the following elements**:
 - a) Solutions how a **constant contact** can be organised between the transporter and the driver/s,
 - b) Solutions how a **contact to authorities** can be warranted (police/veterinarians),
 - c) A list of **contact-phone numbers** of all parties involved, including the phone-number of the insurance-company for the cattle,
 - d) Solutions how **local breakdown services** can be organised, how a taking over of the shipment can be organised (substitutes),
 - e) Solutions to **arrange repairs** in case of a damage to the vehicle,
 - f) Solutions to **unload animals** in case of emergency or delay: **places where animals can be unloaded** are identified throughout the planned route, and this information is readily available to the driver.
 - g) Solutions how **water, food and bedding** can be organised for animals in the case of unforeseeable long delays (e.g. at border crossings),
 - h) **Other matters** necessary to ensure the animals do not suffer significant harm as a result of delays during transport.
45. **Animals may become injured** during transport and it may be necessary to humanely kill an animal before it reaches its destination in order to prevent the animal suffering further pain or distress. Therefore the transporter should have

- readily available the **contact details of a veterinarian** or licensed slaughter man competent in humane killing at locations along the journey or at the destination.
46. Only drivers or attendants who have a certificate of competence and have received specific training in the field of animal emergency care, may **attend to animals injured** during transport.
 47. For **unweaned calves**, in case of engine failure, organise another truck for reloading.

Better Practices regarding contingency procedures

48. A contingency plan should also be drawn up and in place for **short transports under 8 hours**
49. In order to be properly prepared for an accident, each transport vehicle should contain the following:
 - a) Emergency **contact sheet** with 24-hour phone numbers for dispatch, destination point and local competent authorities, available veterinary surgeons, emergency services, emergency plant operators and insurance companies,
 - b) Emergency **warning devices** (e.g. flares, emergency triangles) consistent with European requirements.
 - c) **Camera** / mobile phone camera
 - d) Accident **information sheet**
 - e) Company **accident policy sheet**/Standard Operating Procedures,
 - f) Fire extinguisher**
 - g) **Spill containment** or cleaning kit
50. The transporter should constantly **monitor the comfort and condition** of the animals during any delay. For calves and cows to slaughter, during any delay **a driver should check the animals** he can see for signs of panting and take appropriate remedial actions.
51. The transporter, in the case of delay, should **contact the origination and/or the destination contact persons** to inform them of the nature of the delay and determine the best plan of action for themselves and for the well-being of the animals.
52. Provision for **convenient and simple emergency access** should be present on vehicles to make it easier to inspect the cattle and provide assistance to animals in need.
53. Emergency procedures are **periodically tested** and discussed with personnel through internal audits, and amended as necessary
54. Equipment kept for **emergency euthanasia** is well maintained and can be operated efficiently; documented training and equipment maintenance records are kept.
55. Information on how to transport animals (incl. issues related to emergencies) **is shared between transporters**, and what works or does not work is evaluated regularly.
56. For unweaned calves at risk of heat stress in low humidity circumstances, **water should be sprayed on the floor** of the truck.
57. In case of engine failure when transporting unweaned calves **there should be an emergency generator** – so the fans can be kept running and the temperature, air flow and oxygen can be controlled.

2.3 Means of transport

Vehicle design, maintenance, preparation and operation are key factors in ensuring high standards of animal health and welfare during transportation. A major risk to animal welfare is presented by the physical environment experienced on the vehicle, **in particular related to the thermal environment**. Therefore, **it is vital** to ensure that ventilation regimes are effective in maintaining internal conditions that are not only compliant with legal requirements but are as close to **the thermal optimal for the animals** being carried. Adequate and appropriate ventilation systems are essential because during journeys of any duration weather conditions may change imposing varying thermal loads upon the transported animals. Seasonal differences in weather conditions will constitute also a risk in terms of **thermal stress**. Container roof design is also an important factor to be considered.

On long journeys on which animals may **move across climatic zones the risk of thermal stress is increased**. Mechanical ventilation should remove heat and moisture to provide an environment in which any risk of thermal stress is minimised. Design and operation of such systems should be based upon an understanding of the animals' requirements over and above the specifications provided in current legislation. It is essential to understand the **principles of upper and lower critical temperatures** and thermo-neutral zones to ensure effective specification of ventilation requirements and operational strategies. Further factors including humidity and wetness of coat can also influence the acceptable temperature range.

Ventilation systems are either **free or forced systems**. Free ventilation systems are common in vehicles used for short (less than 8 hours) journeys, whereas forced systems are a requirement for long journey vehicles. According to the Regulation, the minimum air flow rate of fans should not be lower than 60m³/h per 100 kg live weight. The efficacy of forced ventilation systems becomes especially important with regard to **transports from Northern Europe to Mediterranean regions** and their hot climates. For instance, **frequent stops** due to traffic or border controls in hot climates **can lead to heating up the vehicle interiors resulting in heat stress for livestock**. Ventilation is also important in limiting the concentrations of ammonia from faeces and urine and of carbon dioxide from exhalations inside the vehicle.

Overloading can increase the risk of **bruising and therefore the risk of pain**. **Space allowance** can also **affect the behaviour of the animals**, in particular, the preferred position during transport, the ability of lying down and consequently can increase the **fatigue of the animals**. On the other side, **extended space allowance** can induce more **falls**. Limited **access to resource** (water, feed) due to overstocking or **poor design of the equipment** can increase the frustration of the animals and **the thirst and hunger**. The **height** above the head of the animals, if not appropriate, can prevent the correct ventilation inside the truck (**thermal and climatic stress**) and can increase the risk of **stress, injuries and bruises** (for instance, due to mounting behaviour).

Poor suspension can also affect animal welfare. Excessive vibrations can lead to symptoms ranging from **nausea to muscular fatigue**. Non-slippery **floor surfaces** are essential for preventing **falls**. **Bedding material** can be of aid, although legally required

only for calves younger than six months and on long journeys. Adequate bedding material should be dry with high ability to soak up fluids. Sufficient amounts of bedding allow for more **comfort and facilitate the resting** of animals.

Scientists recommend that besides the legally required parameters, **monitoring of parameters** such as relative humidity, vibration and total loaded weight could provide additional information for assessing welfare during transport. However, much of the equipment (e.g. that for measuring relative humidity) is still not sufficiently robust or accurate enough for routine application in commercial transport. The automatic control of mechanical ventilation by the monitored temperature of a control system is technically feasible and new evidence suggests that it would be beneficial in animal transport.

Other risk factors related to vehicle design that can induce injuries are:

- insufficient width or height of the gate or container,
- inadequate structure of sides (sharp protrusions, sharp angles, open sides, short sides) in the gate,
- inadequate lighting,
- inadequate floor condition like gaps and steps.

All things being equal, the effect of the design and facilities of the transport vehicles will become more apparent as transport distances increase and weather conditions become more extreme, whether this is very cold or very hot weather.

2.3.1 Vehicle design and maintenance

Cattle comfort during transport is highly dependent on vehicle design and driving method as well as the quality of road being traversed.

Good practices for vehicle design and maintenance

58. Mechanical ventilation systems should be capable of **keeping livestock in conditions as defined in the Regulation**, taking into consideration the species, length of journey, and weather conditions; i.e. the vehicle ventilation must be capable of achieving appropriate temperatures in the load when all the animals are present. Vehicle operators should ensure that this is possible by measurement of temperatures in transit and reference to records obtained on previous journeys.
59. Ventilation should be capable of being adjusted, or space allowances increased as required.
60. Special consideration should be given to multi-tiered lorries. Such vehicles should be suitably designed, maintained and managed so that animals are protected from the elements and animals on the upper tiers do not cause contamination of animals on the lower tiers.
61. Ventilating surface should be $\geq 40\%$ of the total area of the container sides for naturally ventilated vehicles.
62. Aerodynamic air foils installed on truck tractors to enhance fuel efficiency must not restrict airflow into the trailer which is necessary for ventilation and cooling

63. Ventilation system of fully conditioned trucks should **function while the truck is standing still** when temp is over 30°C, for up to 4 hours.
64. All vehicles should be **maintained, cleaned and disinfected immediately after every transport** of animals or of any product that could affect animal health, and if necessary before any new loading of animals, using disinfectants officially authorised by the competent authority and cleaned to a suitable standard. It is unacceptable that a dirty lorry should cause contamination of a clean-coated animal.
65. Regarding the cleansing and disinfection of vehicles a logbook should be kept detailing of when the vehicle was cleaned and what disinfectants were used.
66. Guardrails across the vehicle and on ventilation apertures should ensure that animals cannot escape, fall out or protrude from the vehicle.
67. **Lighting must be provided on the livestock container** that is sufficient to load and unload safely and allows for inspection and care of the animals during transportation.
68. There must be **separate access to animals on each deck** of the vehicle in order to be compliant with regulatory requirements. For better practice, **access to each pen is proposed but** there may be practical limitations.
69. Keep the suspensions well maintained since it will reduce vibration, reducing stress to the animals
70. Check that tyres are correctly inflated and have sufficient depth of tread. Avoid excessive pressure in tyres to reduce vibration.
71. The flooring surface should be a flat surface, without any concavities (for example from the wheels).
72. Internal ramps should have non slip flooring, lateral protection and be situated as such to guarantee enough space for the animals to walk up or down without obstructions hindering free movement (for e.g. right angle).
73. Engine exhaust fumes should not enter the area occupied by the animals
74. A system should be fitted that allows the driver to **monitor continuously the temperature** in the animal compartment as required in the provisions of the Regulation and which is mandatory for journeys >8 hours. The monitoring system should be clear and simple to operate and interpret and provide warning of major excursions outside the accepted thermal range for those animals.
75. For journey over 8 hours the ventilation capacity of mechanical systems should be **at least 60 m³/h/100 kg of live-weight** for short and long journeys. Vehicle operators should ensure that this specification results in appropriate control of the on-board vehicle thermal micro-environment.

Better practices on vehicle design and maintenance:

76. All tail boards must be fitted with foot battens.
77. **Side doors for inspection** of the animals should be fitted.
78. The animals can be **observed from outside the vehicle at all times**, either directly or using a camera system.
79. Mechanical ventilation to control the thermal micro-environment should be fitted on all cattle transport vehicles (not only higher standard vehicles) and therefore be employed as required on all journeys regardless of planned journey time.
80. **Daily check of functionality** of ventilation, alarms and drinkers should be done

81. All cattle transport vehicles should be constructed with light coloured and insulated roofs to reduce the effects of solar gain (mandatory for vehicles transporting animals on long journeys over 8 hours).
82. **Anti-mounting rack** should be used for the single deck transport of bulls.
83. For the transport of calves the deck should have a **side protection** in order to avoid the animals' legs getting trapped between the deck and the side wall.
84. Drivers/transporters must have access to **suitable wash out facilities** identified and agreed before any journey is undertaken to cleanse and disinfect their livestock containers at the end of the journey.

2.3.2 Space allowance

The amount of space allowed for cattle during transport is one of the most important factors affecting animal welfare. Absolute minimum space allowances are determined by the physical dimensions of animals, but this in itself is not sufficient. Space requirements are also determined by the ability of the animals to thermo-regulate effectively and, ambient conditions such as temperature and humidity. The basis for the Regulation's requirements regarding road transportation are space allowances (A) for cattle which approximate the allometric equation $A \text{ (m}^2\text{)} = 0.021 * W^{0.67}$ (see **Figure 2.2**). This allows cattle reasonable space to balance and brace themselves against the motion of the vehicle and move within the vehicle.

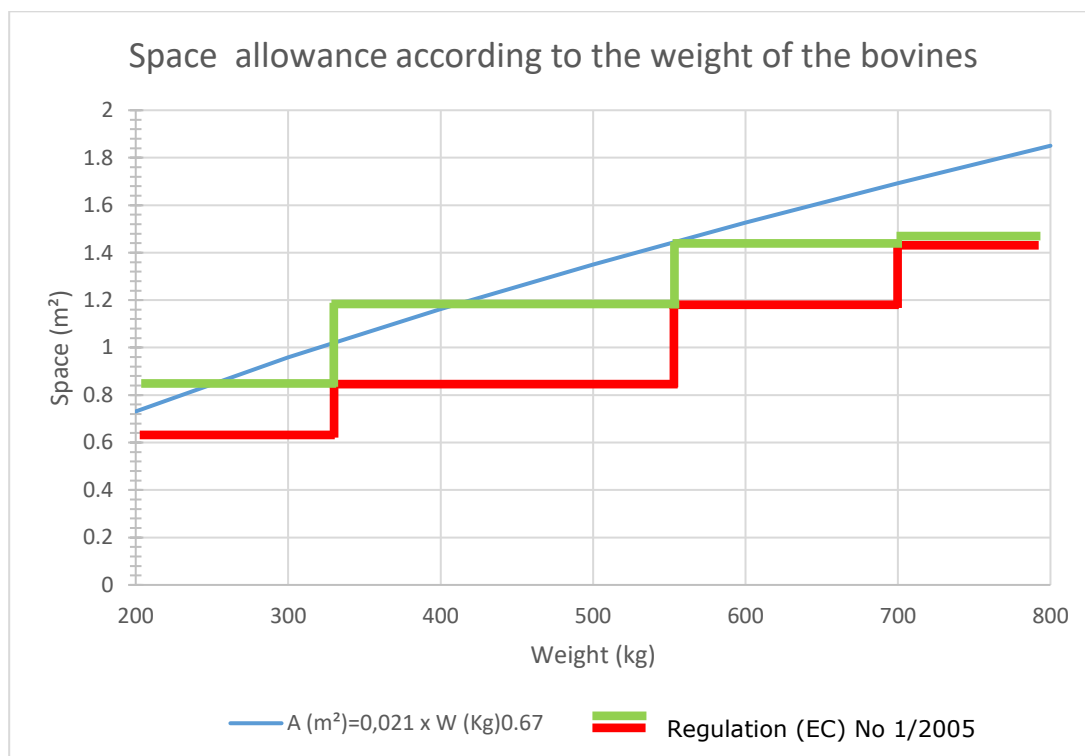


Figure 2.2 Cattle space allowances during transport according to the allometric equation and the higher (green) and lower (red) allowances specified in the Regulation

In figures, the Regulation specifies the space allowances that should be complied with as follows (**Table 2.1**):

Categories	Mean weight (kg)	Min. surface / animal (m ²)
Small calves	50	0.30 to 0.40
Medium sized calves	110	0.40 to 0.70
Heavy calves	200	0.70 to 0.95
Medium sized cattle	325	0.95 to 1.30
Heavy cattle	550	1.30 to 1.60
Very heavy cattle	>700	>1.60

Table 2.1 Space allowance for cattle according to the Regulation.

Good practices regarding space allowance

85. **Horned animals** shall be loaded less densely (with an increase of at least +10% space), because horns and tips can cause bruises.
86. Animals must not be stocked in such a way that causes injury or compromises animal welfare.
87. Determinations of space allowance should not be based on body weight alone because animals vary in size and body shape. The animals should have sufficient space, so that they can turn around easily.
88. Partitions should be positioned to ensure **optimum and practical recommended pen sizes**. Pen size should be based on area rather than pen length, and calculation should include knowledge of trailer width and total internal space/area on each trailer type
89. Partitions must be solid and adequately in height for the species transported. There should **not be gaps between partition and the floor**, or the side walls of the truck. Animals often get stuck with their legs or head underneath or in between these gaps.
90. Operators must ensure that there is adequate space above the animals in order that animals may adopt **a natural standing position** and that there is no hindrance of natural movement allowing optimum ventilation.

Better Practices regarding space:

91. Manual lifting internal ramps must not be included as available space when calculating available space.
92. **Pregnant animals** should be loaded less densely. They will require more room to get up if they go down, and have an increase of space of at least +10%. Note that it is not allowed to transport pregnant animals during their last 10 % of gestation.
93. **Partitions should be sufficiently adjustable** to accommodate changes in space allowance in accordance with the effects of other external factors such as temperature and conformational differences in animals.
94. Transporters should ensure that pen size can easily be adjusted
95. At least **20 cm clearance above the highest point** of the back of the tallest animal should be provided.
96. If hot weather conditions during the journey are expected:

- **Increase the headroom** above the animals to maximise air movement and increase the potential for heat exchange, raising tiers and decks where possible but not sufficiently to encourage mounting.
- **Avoid penning animals in the hotter parts** of the vehicle, these are located at the front end and higher levels of the vehicle.

2.3.3 Vehicle floor and bedding

Good Practices regarding floor and bedding:

97. **Anti-slip materials** should be used.
98. Transporters must provide **adequate bedding** in the transport vehicle for calves, and for all cattle when transport is more than 8 hours. Adequate materials are straw for young cattle, straw for adult cattle in winter and straw or sawdust for adult cattle in summer.

Better practices regarding floor and bedding:

99. Sufficient bedding should be provided during short journeys for all cattle, as bedding material can avoid injuries when animals fall down during transport. The quantity of straw bedding that should be added is **at least 10kg per m²**. Bedding should cover the entire surface of each floor level, tier or deck. Other material which may be used include sawdust and crushed straw pellets.
100. During hot weather, apply e.g. crushed straw pellets at a rate of 8-10kg per m².

2.3.4 Monitoring of transport environments during long journeys

Lack of ventilation is likely to cause increases in both temperature and humidity in the truck, with negative consequences such as weight loss, disease or even death. It may also increase ammonia concentrations, potentially affecting animal respiration. Ventilation systems are especially relevant during hot weather, when cattle lower their body temperature by increasing respiratory rate. A proper ventilation system must have sufficiently large ventilation openings, traversing the whole length of the vehicle at the animal height. Inadequate ventilation during transport significantly increases mortality

Good practices regarding monitoring of transport environment during long journeys

102. If there is any risk of thermal stress in transit then drivers should allow in their journey plan an increased frequency of checking the animals for signs of panting, fatigue, shivering, huddling etc. This should be done at least during all mandatory stops and whenever it is safe and convenient to make additional breaks in the journey.

103. The Regulation states that temperature sensors should be located in those parts of the vehicle that are expected to experience the worst (or most extreme) environmental conditions. Sensors should be placed close to air inlets and outlets where possible and in the upper and front areas of decks on passively ventilated vehicles. They must therefore be of a robust construction, capable of tolerating a

harsh environment and produce readings that accurately reflect the true air temperature where they are located.

104. There should be **at least two temperature sensors** per level or per deck of the vehicle

Better practices regarding monitoring of transport environment during long journeys

105. Transporters should install monitoring systems which are not just compliant with the legislation, but which have the flexibility to deliver **additional functionalities** such as relative humidity, vibration and total loaded weight.
106. Transporters should adopt a system that records and stores to the on-board unit information on all temperature readings taken from inside the animal compartment at regular intervals (e.g. every five minutes), which they can also transmit to the base station.
107. In most vehicles, the highest temperatures are likely to be experienced at the front of the animal compartment on the top tier; the lowest temperatures are likely to be encountered on the lowest tier at the rear. Thus a minimum of **four temperature probes per deck** is recommended. However, it may be advisable, for purposes of assessing animal welfare, to install more temperature sensors, especially where on-board temperatures are likely to be less predictable or more variable.
108. Systems should be capable of **isolating a particular area of the vehicle** to avoid the receipt of negative readings where a given area of the vehicle, or deck, is not being used. They should also be portable if fitted to a vehicle with adjustable decks. Separate sensors are required for all separate components of a livestock vehicle e.g. lorry plus trailer.
109. The system installed must provide **printouts or digital displays** or accessible electronic files of the temperature monitoring systems at any time during road side checks, so that the prints can be handed over to the inspection authorities on the spot.

2.4 Animal related preparation

Preparing animals adequately and appropriately will minimise stress in transport and the impact of any stressors encountered during handling and transport. Several aspects of the preparation stage are related to the animals that are intended to be transported. Adult animals and young stock will require different approaches. These situations are addressed in the following sub-paragraphs.

As described elsewhere cattle and calves should be familiarised with human contact and handling to diminish the impacts of driving and loading for transport. It is recognised that loading physically fit, healthy animals on the vehicle is an extremely important factor to maintain an adequate level of welfare during transport. Therefore, **selection of animals for transport is a major factor in assuring animal welfare**. Along with the Regulation, the [OIE animal welfare guideline](#) specifies criteria for unfit animals such as sick, injured, weak, disabled or fatigued animals or cows in an advanced state of pregnancy and new-born calves with unhealed umbilical cord. Mixing unfamiliar cattle from different social groups before or during transport can induce a significant risk of threatening and fighting

behaviour. **Before transport cattle should be well rested and fed** with sufficient good quality feed. For adult cattle feed should be withdrawn 12 hours before transportation and

Special attention should be given to young calves receiving milk or milk substitutes which may be provided beyond this point. Clearly the provision of food and water (liquid) before transport is essential to ensure that the animals do not experience energy depletion and consequent fatigue and/or dehydration during transportation. This must be considered even on long journeys (> 8 hours) on higher standard vehicles where feed and water will be available in transit. If animals do not eat or drink sufficiently during journey breaks or during transportation well planned pre-journey feed and water will minimise the risk of energy and water depletion. This has to be balanced against the detrimental effects of overfeeding and watering prior to transport which can result in travel sickness, vomiting and diarrhoea. These conditions will impact animal welfare directly and will exacerbate the effects of others.

for calves 6 hours before transport. Water should be supplied until 4 hours prior to starting the journey.

Excessive urination and diarrhoea will also result in wetting of the bedding and floor surfaces which, in turn, will cause slipping and falling in transit. Wet bedding will cause soiling and contamination of animal coats and hooves which should be avoided. The food (liquid) provided before transport should be that to which the animals have been accustomed and of the highest quality. For cattle that have been on pasture the switch to pre-journey concentrates should be treated with caution. When considering the supply of water prior to transport the animals' standard daily requirements should be considered e.g. from **55 litres per day for a weaner calf to over 100 litres per day for an adult animal**. Additionally, lactating animals drink more than non-lactating animals and water intake increases as environmental temperature increases.

2.4.1 Preparation of animals and equipment

When cattle are removed from the box where they have spent most of their life to be loaded on a truck, they are likely to experience fear and distress. The corridor, the loading dock, the ramp and the truck compartment are unfamiliar environments.

Good Practices on preparation of animals and equipment

110. Design appropriate loading ramps and bays and provide **clear and easy access for the truck to the loading quay** depending on its type and size (see **Figure 2.2** below).
111. **Check before (un)loading the maintenance of loading quay and lairage pens** (doors, light, ventilation, cleanliness and quality of the floor) to avoid the risk of slip, stumble and injuries for the animals.
112. Transporters should check that such facilities are available before commencing loading or a journey.
113. Remember that for lactating cows in the first week after calving transport is prohibited.

114. If lactating cows are not accompanied by their calves they must be **milked every 12 hours**.

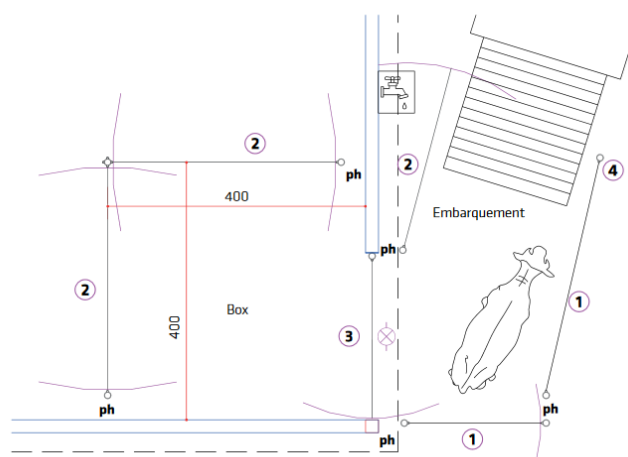


Figure 2.2 Example of adequate loading area dimensions.

115. If lactating cows are to be transported on long journeys make sure there are rest spots or control posts with milking facilities.
116. Provide water when milking and make sure that the **cows can eat and drink before you load them** to resume the journey.
117. Always calmly unload the milking cows into the milking parlour of the rest or control post.

Better Practices on preparation of animals and equipment

118. Sort and choose the cattle to be transported and **communicate the relevant data** to the transporter at least 1 week before the expected transport date (i.e. the exact number of animals; type, size and live weight of the animals at the starting point; number of animals with minor injuries or anomalies to keep an eye on; numbers of animals that need specific treatment or facilities such as individual pens).
119. To avoid delay, select and identify animals by means of ear tags before the transport vehicle arrives.
120. To reduce loading time and stress during loading and transport, move sorted animals into **temporarily lairage pens next to the loading quay** shortly before the arrival of the truck.
121. The provision of **stationary as well as portable (and adjustable) loading ramps** at farms, control posts and points of destination such as slaughterhouses will allow safe loading and unloading of livestock.
122. Provide access to cool drinking water in the lairage pens, using cleaned and easily cleanable facilities.

2.4.2 Fitness for travel

Welfare risks during transport are greater for animals which are injured or sick. Weak animals have less chance to move away from aggression, and are more likely to lose

balance due to sudden stop or acceleration or change of direction of the vehicle. It is essential that all animals are checked before loading to determine fitness for transportation. The check should include a thorough evaluation of animal based measures related to health and welfare status of the animals. This will reduce the risk that animals sent for transport may not survive the trip, or suffer serious welfare problems.

Good practices regarding Fitness for travel

123. Key recommendations relating to the fitness for travel in bovines is provided in **“Practical guidelines to assess fitness for transport of adult bovines”** ([Eurogroup for Animals et al., 2015](#)), and these should be followed (**Figure 2.3**).



Figure 2.3 Cover page of Fitness of bovines for transport

124. Responsible persons shall examine the animals in good time prior to loading. **The following criteria support fitness for transport:**

- attentive, responsive animal,
- shiny and dry hide, well groomed,
- breathing normally,
- good body condition,
- distributes weight evenly on all four legs during standing and walking, straight back line,

- no obvious signs of pain.
125. **Cattle in poor condition** that should only be transported under **close supervision** are:
- indifferent to their surroundings (apathetic), *and/ or*
 - have watery/ dull eyes, *and/ or*
 - exhibit a sustained refusal to eat or drink, *and/ or*
 - exhibit fever: body temperature > 39,5°C or hypothermia (< 37,5°C), *and/ or*
 - have a significant increase in breathing frequency, significant panting or open-mouth breathing, significant coughing, *and/or*
 - have obvious signs of severe pain such as an arched back in combination with other signs, for example, shallow frequent breathing, abnormal posture or gait, heavy sweating without physical exercise or heat, extreme thinness.
- Such animals should be supervised by a trained attendant, a veterinary surgeon or appropriate groom and should be carried in individual stalls or pens with additional bedding as required and monitored at regular intervals. Whenever possible veterinary advice should be sought

126. Cattle in poor condition which **should not be transported** are:
- lying down and, unable to stand up or to remain standing up.
 - unable to move without pain. Signs of pain during movement include:
 - animal obviously lame or not distributing weight on all 4 legs evenly *and/or*
 - arched back, *and/or*
 - abnormal posture *and/or*
 - abnormal gait *and/or*
 - shallow frequent breathing
 - unable to walk unassisted which means:
 - They will not respond to strong pulling of a halter rope.
 - They do not benefit from external support in order to keep posture, e.g. when an animal continues to lose balance.
127. Animals **may not be transported** if they are beyond 90% of expected gestation period or have given birth in the previous week

128. Cows exhibiting physiological weakness should receive special consideration e.g. any weakness not caused by injury or disease. These weaknesses, (e.g. fatigue, late pregnancy and recent calving), may lead to specific conditions that are not compatible with transport.
129. It is **unacceptable** for the consignor or any other agent **to exert pressure or influence upon a driver** to carry animal which he or she suspects may be unfit. In the case of dispute veterinary advice must be sought.
130. **Inspection of animals at and before departure is essential.** Therefore conditions should be provided to allow drivers to adequately inspect livestock at loading.
131. Working conditions and practices should be established that do not pressurise an operator into carrying unfit stock.

132. Hauliers must obtain a copy of the **guidance on the transport of casualty animals** provided by their national Competent Authority and make this available to all drivers in addition to incorporating knowledge of this guidance in to the driver training.
133. This document on casualty animals must be kept with the vehicle and the haulier must be able to demonstrate access to the document during the inspection.
134. The driver shall not be responsible for the cleaning or clipping of animal prior to transport but this shall be undertaken by the owner or organisers' personnel.
135. The area in which animal inspections are to be made at the point of departure should be well lit (particularly for night-time loading), should allow safe assembly of small groups to facilitate detailed inspection and should allow easy access to the animals.
136. Ensure as far as possible that animals are **protected from adverse weather conditions during loading**. A wet coat serves to exacerbate contamination due to defaecation during transport. Wherever possible animals should be protected from rain or snow by a roof or temporary structure to maintain a dry coat during waiting or loading at the point of departure or during unloading or holding at the destination.

Better Practices regarding Fitness for travel:

137. When transporting pregnant heifers **confirmation of the date of insemination** or mating should be obtained to ensure that the stage of gestation can be ascertained.

3. Handling and loading

3.1 Introduction

When performing loading, it is of particular importance to take into account the physiological and health status of the animal. Drivers and operators should be aware that some animals may suffer from transport conditions and should be handled accordingly in order to avoid any additional stress.

Handlers need to understand cattle behaviour and be able to detect signs of unfit animals similar to those described for fitness to transport. Adapted operating procedure should be planned for such cases.

Along with the physiological and health status of the animal and inadequate handling, risks of poor welfare at loading are mainly related to:

- the **inadequate design of driveway and gates** (in particular inadequate dimensions and shape, presence of visual obstacles) that could cause bruising, injuries, reluctance to move,
- **slippery floor surfaces**, including ramps, that will lead to similar adverse effects
- the presence of **sharp edges** that will cause injuries,
- the **lighting environment** (light contrasts) that may cause disorientation and fear
- unfamiliar or **loud noises**.

As a result, loading is one of the most stressful phases of transport.

Handling quality during loading and unloading of cattle has a major impact on their welfare. Using good and better practices and proper equipment for handling at this stage are of utmost importance to reduce these negative effects.

It is important to understand the potential effects that human interactions have on cattle and cattle behaviour. Quick handling may not be understood by cattle and may create fear and/or a negative reaction to a keeper. Additionally, cattle that have had regular, positive interactions with people will typically be less fearful and easier to handle. It is more difficult to move stressed animals, because they may refuse to move on or try to escape from the corridors. It is then risky for the keeper if they turn back and run away.

3.2 Loading facilities

Poor design of loading and unloading facilities, combined with poor handling, may cause slipping, falling, bruises and eventually injuries and more stress to the animals, thus producing low meat quality and economic losses. A **correct design of platforms and loading ramps** will facilitate loading and unloading with minimum animal distress and bruising.

Good practices regarding loading facilities

138. A loading area must be prepared in advance of the transport to guide cattle to the loading ramp of the truck.
139. The loading area must be **free of any obstacle**, material or visual, to prevent injuries and stress to the cattle.
140. The pavement of the loading area should be plain and in good condition, and level with the loading ramp.
141. Bridges, ramps and gangways (that are not part of the vehicle) should have **solid side walls** to protect animals from falling and jumping. The height should be 1.7 m for adult cattle.
142. If a ramp is used, the slope should be reduced as much as possible, and **have a maximum angle of 26° for adult cattle** (See **Figure 3.1** with h=height: 50cm height/1m length), 20° for calves (36.4cm height/1m length).

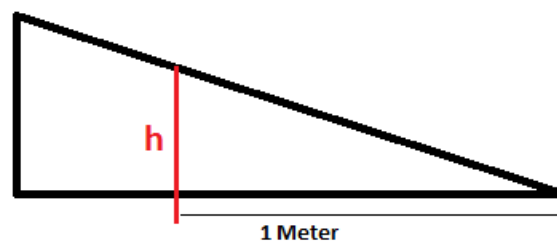


Figure 3.1 Aid for calculation of angle of the ramp (see text)

143. The floor should be **skid-proof** and its composition should ensure that faeces and urine have a limited effect on slipperiness.
144. **Foot battens should be 25 mm high and 20-35 cm spaced** when the ramp slope is **more than 10 degrees**.
145. A **suitable source of light** must be present for loading and unloading procedures and orientated as to prevent dazzling or blinding of both the keeper and the cattle.
146. During loading, animals should move from a darker to a lighter area, avoiding contrast of light such as shadows.
147. Lighting in the compartment and in the loading area must be able to operate throughout the duration of the whole loading stage with the truck engine off.

Better practices regarding loading facilities

148. Where appropriate, the loading area must be in connection with the usual raceway/corridors facilities, for more secure and easier handling.
149. The optimum loading angle for all animals is zero degrees, so various methods to maintain the angle as low as possible have to be adopted (reducing tyre pressure, higher loading platform, riser block, etc.).
150. **Loading docks are recommended** to minimize the ramp slope; they should be roofed and as wide as the truck ramp or lift, with solid walls/tail boards.
151. The **loading area should be covered with bedding or sand** to fix uneven or damaged surfaces and prevent slipping or falling.

152. A **passageway for humans** should be present for more secure and easier handling of cattle.
153. The ramp should be covered with litter/straw to prevent slipping and to avoid glaring of metallic surfaces or materials.
154. The **loading ramp should not sway** while animals are moving on the ramp, the animals may refuse climbing up or down if the ramp sways, so the pavement should be stable and ramp has to be reinforced.
155. **Traffic areas and truck paths** between entrance (of farms, assembly centres, control posts, slaughterhouses), loading and unloading areas and parking must be planned according to the maximum size for trucks, trailer and semitrailers and to their radius of curvature (See examples of layout of the loading area on the **Figure 3.2**).
156. The adequacy of loading area design and operation must be rigorously assessed in advance and due consideration of any issues that might influence ease of handling and loading should be included in estimation of loading time.

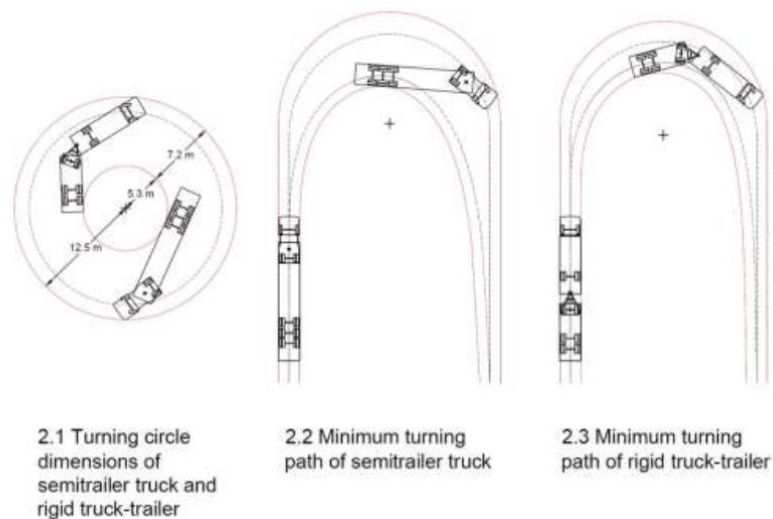


Figure 3.2 Radius of curvature of various types of livestock trucks

3.3 Handling during loading

Loading and unloading operations should be performed by experienced transporters, **understanding animal behaviour and working in a calm way**. The heart rate of cattle increases with increasing loading angles, therefore the steeper the ramp, the higher the animals' heart rate, which is a sign of stress. More visible indicators of stress are changes of behaviour such as vocalisation, defecation, urination, refusing to move to gate, slipping and running away. To understand how stress can be reduced, it is important to know how cattle perceive the world around them.

The **sense of hearing** is well developed in cattle, which are also very sensitive to high pitch sounds, like shouting, metallic sounds and whistling. **Cattle have wide-angle vision** and they can see most of the area around themselves, but they have a blind spot located right behind them and another one below the head. If a keeper positions himself in that

spot, the animals can get nervous as they cannot see what is happening. Keepers should always try to avoid that 'blind spot' when approaching them (**Figure 3.3** and **Figure 3.4**).

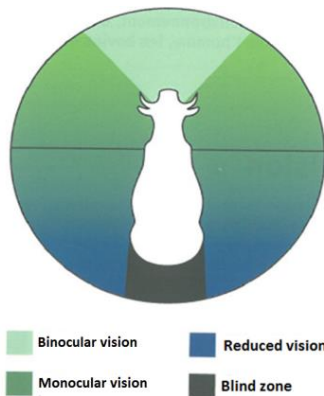


Figure 3.3 Illustration of cattle field of vision. Objects in the green area are well perceived.

Binocular vision is limited. The eye structure makes them highly perceptive of movements around them, but it offers low accuracy of distance and details. They need several minutes to accommodate to light changes and are more sensitive to bright light colours.

People who are handling these and other grazing animals should also have knowledge of flight zone principles, and cattle sensory behaviour. A flight zone or safety zone is the space around an animal where the animal feels safe. If the animal turns away, it means that the keeper has entered the flight zone. The size of the flight zone depends on the tameness of the animal. The point of balance is usually at the animal's shoulder. All species of livestock will move forward if the keeper stands behind the point of balance. They will back up if the keeper stands in front of the point of balance. An approximation of the flight zone can be made by approaching the animal and noting at what distance the animal moves away.

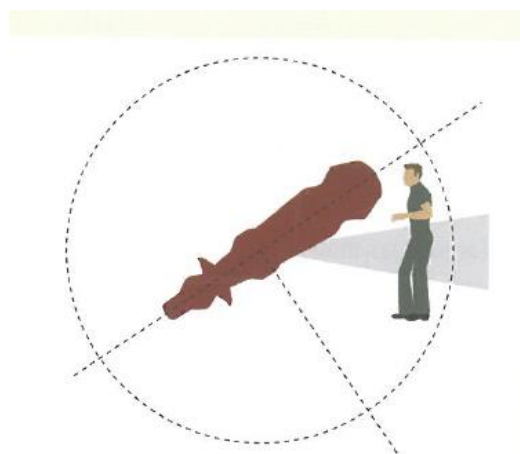


Figure 3.4 Illustration of point of balance (see text for details)

Good practices regarding handling of animals during loading

157. Cattle are social animals. They are **less stressed when in the company** of other cattle. So they need to be handled in groups to minimize stress and to facilitate and secure the handling. Adult cattle can be loaded and unloaded in groups following the leader.
158. It is important to **respect group partition** in the truck but, if necessary, groups can be divided for handling purposes. The recommended number of animals to be handled together differs according to the species: it takes into account animal behaviour, but also handling security.
159. **Heaviest cattle should be transported on the lower deck** to keep the truck balance during driving. If the truck isn't full, keep cattle on the lower deck and in the front compartment.
160. When there is no upper deck, equipment can be installed to **prevent mounting behaviour** which can provoke stress, falling and injuries.
161. To take into account cattle vision, the handler should position him/herself to the side and behind the animals, so as to enter slowly into the flight zone and make them move away calmly.
162. **Solid wall corridors, especially if curved**, are recommended to improve movement because animals cannot see any obstacles and will keep moving forward
163. When animals are tied to the vehicle, their halter should be made in such a way that the animal will not be injured and can **drink and eat properly**. Tied and untied animals or horned and dehorned cattle must not be mixed during transport.
164. Steps, interruptions ('jumps'), shrinkage and bends at right angle should be avoided or limited.
165. Animals may be slowed by the **presence of objects** on the walls along the path (clothing, aprons and plastic bags), by grids of canals or water collection wells or floor textures of uneven colour. These should be avoided during loading.
166. **Avoid light contrasts** on loading ramp or let the animals some time to adapt to it. Bedding on the unloading ramp can improve the unloading when sunlight is reflecting.
167. Loading and unloading should not face the sunrise or sunset, because sunshine may obstruct vision of the animals and keepers. Orientation where sunshine will not obstruct movement of animals and activities of keepers has to be chosen. Remove movement obstructing objects between loading ramp and loading/unloading area.
168. High pitch sounds, **like shouting, metallic sounds and whistling should be avoided** to minimize stress, except when it is necessary to make move an animal that is reluctant to move.
169. Cattle are sensitive to pain. Any hits (stick) should be avoided except if it is necessary to make one animal move forward when stopped.
170. **Electric goads should not be used**, except on adult bovines who refuse to move and when other tools/practices have not been successful, and only when the animal has a clear open way in front of it.
171. Handlers should wear protective clothing in dark colours and avoid bright colours as farmers usually wear dark clothes.

Better practices regarding handling of animals during loading

172. **Groups of animals should be kept stable** and limited to 5-6 adult cattle or 10-15 calves during loading (**Figure 3.5**)



Figure 3.5 Calves should be in groups of max 10-15 individuals.

173. **Do not recompose groups of cattle** if possible to avoid stress and competition
174. Let the animals move to the loading ramp with their regular walking speed, higher speed will cause loss of balance, slipping and falling.
175. Jiggling chains, flapping plastic, or swinging ropes or other moving objects have to be removed.
176. The **flight zone of animals must be considered during loading**, taking into account that it differs by farming method and individual reactivity.
177. **Reduce noise to a minimum level.** Yelling or shouting during loading and unloading has to be avoided, because animals react to loud noises and become more agitated and difficult to handle.

178. If an animal stops and refuses to move on:

- First, calm down and let it calm down then check that it isn't sick, wounded or unfit to be transported. If so, take the relevant procedure.
- Second, check for any obstacle in the way (visual or actual situation) and take it out if possible or change lighting if there is a contrast in light. If none of this is possible, then give the animal time to get used to the obstacle it must pass.



Figure 3.6 Calves can be loaded with individual help. © IDELE

179. Calves can be loaded with individual help (one hand before the head, the other hand on the back) to guide them on the ramp (**Figure 3.6**).
180. All keepers of animals should consider the expected behaviour of the cattle (breed/age/condition) and the structure of the facilities, space and layout.
181. **Estimate the quality of loading** (through self-monitoring) and keep track of it to better estimate loading time in each regular location (farms, assembly centres, ...) taking into account loading facilities and cattle reactivity

4. Travelling

4.1 Introduction

The longer the journey, the greater the risk that welfare is negatively affected. There are four main aspects of animal transport, which have increasing impact on welfare as duration increases. These relate to the physiological state of the animal, feeding and watering, rest and thermal environment. **If animals are fit**, properly prepared to travel and the journey has been planned well, **they are likely to arrive at destination in a good welfare state** and able to recover quickly after unloading and a relatively short time of rest.

4.2 Driving

Drivers play one of the most important roles in livestock transport. Usually they must take sole responsibility for the welfare of animals on the road. How drivers operate vehicles, how much time they spend checking on animal welfare, and how well they are prepared to deal with emergency situations greatly influences the outcome of any livestock highway shipment.

While standing in a moving vehicle, all livestock struggle to maintain their balance and to avoid contact with other animals. If smooth driving is not provided, they might fail in this effort. Moreover, rough driving impacts negatively upon animal welfare and will increase also imposed stress and the risk of injuring animals. The main welfare impairments related to driving quality include loss of balance. In cattle, this is a relevant stress factor related to transport because **erratic driving obliges them to make continuous postural adjustment** to maintain balance and to avoid falling.

There is a good relationship between driving skills, the amount of stress on livestock, and also the profitability of the transport business. Smooth, consistent driving habits allow the animals to relax more during a journey than hard, erratic driving. Scientific studies have shown that not only does a hard driving style increase measurable stress on the animals transported, but it also significantly decreases meat quality. It has been estimated that there is a difference of 20% in fuel efficiency between driving on a flat road at uneven speeds of up to 100km/h compared with a uniform, cruise controlled safe speed of 80km/h. If you encounter a slower driver on a road with no passing opportunities, sit back and take a steady pace rather than hustling a situation you do not control.

The principles of road-holding of an HGV (Heavy Goods Vehicle) and the ability of an animal to be sure-footed are the same. However, the driver has complete control over the vehicle, but only partial control over the animal. Drivers compensate for this partial lack of control by applying knowledge of how an animal will behave under certain conditions. Transported

animals have more pressure on their feet than the load on the vehicle tyres, and they will be working hard to stay on their feet. The more effort they are required to make, the greater the stress they will be under. For a loaded livestock vehicle with 18 wheels, the load on the tyres is 4.7kg per square centimetre on the tyres. A 600 kg cow has four feet in contact with the ground, and the load on the cow's feet is 12kg per square centimetre.

Smooth braking helps to keep animals on their feet with a minimum of effort. Hard braking results in more stress, which can lead to bad welfare, and in turn results in poor meat quality.

Good Practices before and when driving

182. Drivers should recognise the difficult conditions under which they work. There are very few drivers on the road that require more skills than those who transport livestock. Live animal transporters have a vehicle with a high centre of gravity, and a load which is alive and not tied down.
183. **Avoid harsh braking.**
184. Try to use a **constant throttle**
185. Check that the brakes and **braking systems** are properly adjusted.
186. Use the **engine break** or retarder if fitted.
187. Fit automatic **anti-lock braking**.
188. Although there are tight time schedules to keep, drivers should phone ahead if they encounter problems on the road instead of putting pressure on the livestock, the vehicle, and themselves.
189. Drivers who observe the following procedures will help assure arrival of stock in good condition:
 - a) **Start out slowly** and avoid fast stops. Fast starts and stops, taking curves too fast, etc., will knock animals down.
 - b) **Keep loaded livestock vehicles moving**, especially during hot weather. This will maintain a constant air flow that will help keep animals cool and prevent build-up of gases from animal wastes.
 - c) Plan to make **periodic stops during transport** to check welfare of stock (Are there any downers? Do any appear ill? Are they too cold or overheated?).
 - d) Make **vehicle security inspections** when checking animals during a stop. Make sure load partitions are in place and secure, trailer doors are securely closed, and bedding is sufficient.
 - e) Be prepared to make decisions or get instructions promptly about how to care for the animals depending on **changing weather conditions**.

Better practices when driving

190. Drivers should try to minimise the time for which any trailer containing animals is **left unattended**, particularly where there is any perceived or significant risk to animal welfare.
191. Drivers should **avoid rush-hour traffic** when possible.
192. Drivers should ensure that **during roadside checks they obtain priority** over other vehicles. Priority must be obtained in the interest of animal welfare.
193. Drivers should request **priority in the case of delays** caused by accidents.

194. There should be routine auditing of means of transport and practices of transporters, addressing whether
- the driver knows the **emergency actions** and has them available in his cab,
 - the **trailer is in good state** (sides, flooring, ramps and gates),
 - the **driver leaves within 15 minutes** after loading the animals,
 - the driver knows the **plant requirement** for boarding and bedding,
 - sufficient water** is available for watering the animals,
 - the driver has the ability to **adjust trailer ventilation** during the journey if necessary,
 - the **behaviour of cattle is checked** during the resting periods (e.g. respiratory behaviour, sweating, etc.).

4.3 Climate control

The internal thermal microenvironment on vehicles is a major determinant of animal welfare and may pose a significant hazard in terms risk of heat or cold stress.

Temperature and humidity are both important in relation to the risk of thermal stress. According to the Regulation, **the acceptable temperature range for adult cattle is 5 to 30°C, with a tolerance of 5°C**. This effectively provides a range of 0 to 35°C. For lactating cows the acceptable range is 5°C to 15°C. Below 5°C these cows need extra energy to stay warm. Over 21°C lactating cows can start showing the first signs of heat stress, depending on the humidity of the air. **Increased humidity will have a negative impact, see Figure 4.1.**

Dry Bulb Temp (°C)	Relative humidity (%)					
	50	60	70	80	90	100
25,6	22,2	23,3	23,9	23,9	25	25,6
26,7	23,3	23,9	25	25,6	26,1	26,7
27,8	23,9	24,4	25,6	26,1	27,2	27,8
28,9	25	25,6	26,7	27,2	28,3	28,9
30	25,6	26,7	27,2	28,3	28,9	30
31,1	26,7	27,2	27,8	29,4	30,6	31,1
32,2	27,2	28,3	28,3	30,6	31,1	32,2
33,3	28,3	28,9	30	31,1	32,2	
34,4	28,9	30	31,1	32,2		
35,6	30	31,1	32,2			
36,7	30,6	31,7				
37,8	31,1	32,8				

■ Good! ■ Danger
■ Alert ■ Emergency

Figure 4.1 The interactive effects of humidity and actual temperature on perceived temperature

The external environment (the weather) will determine the properties of the ventilation air entering the vehicle. In addition, the thermal conditions on board are affected by the

metabolic heat and moisture productions of the animals in the vehicle. Added heat and moisture will constitute an increased risk of heat stress in warm weather but in colder conditions management of the available heat and moisture may be beneficial. The amount of heat and moisture inside the vehicle will therefore depend upon the external conditions and numbers, types and ages of the animals being transported and the rate of ventilation.

Key to assessing the risk of thermal stress is **monitoring the internal thermal environment** on vehicles and the risk of thermal stress can be managed by appropriate ventilation systems, regimes and volume flow rates. Thus the primary risk or hazards associated with vehicle environments are heat stress in response to hot weather conditions and inadequate ventilation and cold stress resulting from cold weather, over-ventilation. Local convective cooling or excessive wetting of animals due to water ingress, rain or snow may induce cold stress. Thus it is clear that ventilation is the main method for removing heat and moisture generated inside the vehicle by animals during transport.

It may be proposed that **excessive heat is likely to be a greater problem for the animals than extreme cold**. A proper ventilation system must have sufficiently large ventilation openings, traversing the whole length of the vehicle at the animal height. Inadequate ventilation during transport significantly increases mortality. Drivers must give consideration at all times to ventilation including when the vehicle is stationary and during statutory driver breaks. A steady supply of fresh air to all livestock on a vehicle is essential to support normal health, and to remove the excess moisture and heat that comes from the animals' bodies. **There is always a requirement for a minimum ventilation rate whatever the weather or animal conditions**. The challenge for the transport sector is to provide adequate ventilation when a vehicle is stationary, and also when driving at 80 km/h on a cold morning.

Good practices for climate control

195. When in motion, air tends to move from the back to the front of the vehicle. Active (mechanical) ventilation allows a greater opportunity to modify conditions around the animals than passive ventilation - especially on stationary vehicles. In hot weather, **avoid parking in direct sunlight for prolonged periods**. If practical, park passively ventilated vehicles at right angles to the wind direction, with sufficient apertures open, to optimise air movement through the container.
196. **Sufficient ventilation must be available at all times** while the animals are on a vehicle.
197. Never leave a trailer /semitrailer with animals on board back standing somewhere **without working ventilation** and an attendant nearby.
198. In high temperature conditions, **it is recommended to minimize the number of stops**. Otherwise, when possible, the trailer should be parked in an area that provides shade and allows for a breeze to pass through the sides of the trailer and the loading ramp should be opened. Do not park near other vehicles due to the potential for reduced air flow and increased risk of disease transfer
199. Weather and in particular temperature conditions should be considered when making unscheduled stops or when parking the vehicle

Better practices for climate control

200. **Animal behaviour and distribution within the container should be monitored** and any abnormal behaviour associated with inadequate ventilation is acted on and recorded.
201. Action is taken and documented if animals show signs of **overexposure to noxious** gases, such as watering eyes, nasal discharge and coughing, retching, ocular/vision disorders to remove animals from the situation or improve ventilation or otherwise lower levels of noxious gas.
202. The acceptable temperature range for adult cattle is 0 to 35°C, however as a Better Practice, **temperature should be kept between 5 to 30°C.**
203. For **lactating cows the acceptable range is 5°C to 15°C.** Above 21°C lactating cows may show heat stress if humidity is high. This should be avoided.
204. In cold weather, remedial actions that should be applied when animals show signs of being too cold include:
 - **Reduce space allowance** if animals have more than the minimum allowed (e.g. breeding animals),
 - Provide **additional bedding** or insulation,
 - **Increase weather protection** for animals on vehicles. Protect livestock from wind chill during cold weather by adjustment of flaps or windows and the use of protective sheeting with due consideration for overall ventilation requirements
 - **Wait** for warmer temperatures,
 - **Restrict air movement** through trucks by using side covers to partially block air movement through trailers. Be careful to maintain adequate ventilation.
 - **Keep animals as dry as possible.** Shipment of wet animals may cause death from wind chill. Even the heavy coats of cattle will not protect them from wind chill when saturated.
 - **Protect** animals from prolonged exposure to **freezing rain and sleet.** Precipitation in this form can be deadly to animals. Even the thick coats of cattle will not protect them against chilling caused by saturation of freezing precipitation.
 - **Pre-warm vehicles** by using heaters prior to loading, particularly for calves
 - **Prevent the freezing of drinkers** and/or water lines by the use of heaters or the addition of mixtures (commercially available) such as glycerine and glucose to the water supply.
205. In hot weather, animals **should be inspected at every opportunity** for signs of heat stress. Remedial actions that should be applied when animals show signs of being too warm include:
 - **Increasing space allowance** by at least 30% – a decision which must be made prior to actual loading commencing and with consideration of the higher risk of loss of balance,
 - **Provision of water** or electrolyte solutions,
 - **Increase of ventilation,**
 - **Use climate controlled vehicles,**
 - **Delay the journey** until there are cooler temperatures, e.g. at night,
 - **Provision of drinking water** to animals as often as possible.

4.4 Water and feed intervals

Transportation of young calves (particularly on long journeys) imposes specific challenges regarding feeding and watering. Feeding and watering in compliance with the Regulation is often impossible as calves will not use the equipment provided. Calves can only be successfully fed and watered (or provided with milk/substitute/electrolytes) after unloading and this should take place at a control post, market or assembly centre.



Figure 4.2 Adequate feed must be available

Good Practices regarding feeding drinking and resting

206. Organisers shall ensure that **adequate feed is available** for the journey (requirements for journey over 8 hours), which may necessitate carrying up to 300-400 kg of hay (**Figure 4.2**).
207. Wherever possible the keeper, farmer or consignor should **provide feed that the animals to be transported have previously consumed** i.e. the keeper shall provide a suitable diet for those animals to avoid any abrupt changes in composition.
208. The transporter should provide **mature cattle a diet consisting of 2kg per 100 kg live-weight of good-quality hay** where necessary during rest stops and at control posts on long journeys over 8 hours duration, (or when possible and depending on the maturity of the animals).
209. Transporters should **avoid feeding green, succulent, concentrated, and high-energy feeds**. However, feeder cattle that are acclimated to high energy feed may stay on that diet. Green or succulent feeds will cause animals' manure to be wet. This may result in their soiling each other when they are in close proximity during transport. Soiling can result in excessive wind chill during cold weather. Concentrated feeds and high-energy feeds may cause mature cattle to have digestive problems.
210. The transporter should provide **feeder calves a grain-based concentrate feed** at rest stops. However, abrupt changes in their diet may cause them to become sick. So if calves are accustomed to eating hay, it should be included in their diet.

205. Drinkers must be designed, allocated and positioned to allow access by the animals as required on journeys over 8 hours. Drinkers should be of a design that animals are familiar with, and positioned in such a way that they allow for a normal drinking posture. Additional drinking provided by buckets or troughs carried on the vehicle are recommended

206. Each compartment or pen on the vehicle should be **provided with 2 drinkers**

207. Drinkers and supply lines should be designed and maintained to avoid leakage, spillage and contamination.

208. Drinkers and water supply lines should be **regularly inspected and checked**

209. The watering system must be **effective and well maintained** at all times. Adult cattle or calves should be familiar with the drinker systems employed e.g. systems for feeding calves may be fitted with rubber teats to supply cool or warm milk, milk replacer or electrolyte solutions (see **Figure 4.3**).



Figure 4.3 Make sure that the drinking system is clean, well-maintained and functioning.

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210. Vehicle water storage capacity / provision of water (on higher standard vehicles for journeys > 8 hours) should be **based on the known requirements** according to age and type (production stage).

211. **Drinker systems should be checked at every stop** and filled (topped up) with fresh drinking water whenever this is available.

212. Cattle should have **access to water up to the time of departure**, but should not be allowed to drink excessively. Cattle that consume large amounts of water tend to become ill during transport.

213. Water supply should be checked at least daily, and at least twice daily in hot or very cold weather, to ensure that the requirements of the animals are being met

214. **Flow rates for all watering devices** (e.g. nipples, bowls, troughs) should be monitored to ensure that all animals have access to adequate quantities of water

215. **Drinkers or water lines must not leak or spill** to avoid deterioration of bedding, wetting of animals and elevations of humidity, all of which may compromise the health and welfare of the animals.

216. Transporters should provide livestock with **good-quality, clean water** at rest stops. High salinity will cause animals to drink more, possibly resulting in excess consumption. Water with a too low or too high pH can cause digestive upsets. Water containing algae should never be given to cattle. Some species of algae are toxic. Some animals may shy away from chlorinated water.

217. The drivers should carefully follow instructions for use of any chemicals that are added to water for purification.

Better Practices regarding feeding drinking and resting

218. The provision of liquid feed to calves in transit is considered to be impractical with current truck design. After 9 h of transport, un-weaned calves must be given a **rest period of at least 1 h so that they can be given liquid and/or fed (milk)**. This normally requires unloading of the animals (e.g. at a control post). Milk or other suitable liquid feed should be given by means of a system with rubber teats. Calves should be fed individually and then be rested for an appropriate duration before travelling again.
219. An even better practice is to **only transport calves older than 8 weeks**, when they can be / are weaned.
220. Transporters should water the animals manually during hot weather and especially during delays. This is the only guarantee that all the animals receive enough water.

4.5 Care of sick or injured animals

Sick or injured animals in the context of transportation fall in to 3 categories.

- a) Animals identified as sick or injured **at the point of departure,**
- b) Animal that are identified as sick or injured **during a journey,**
- c) Animals that are identified as sick or injured **at the point of destination or control posts.**

Individual animals may fall into more than one of these groups. However, if animals are identified as sick or injured during a pre-journey inspection at their origin they should be deemed as not fit for transport and should not be loaded. (see also [2.4.2 Fitness for travel](#)). Animals identified as sick or injured at the end of the journey will be dealt with by the appropriate authority at the destination e.g. the veterinarian at a slaughterhouse or control post.

Only animals that are identified as sick or injured during a journey will be addressed here. These animals may be identified during routine journey breaks or specific inspection stops (e.g. additional stops during hot weather), and will probably fall into one or more of these categories:

- Animals that have **fallen or been trampled** or injured e.g. as a result of aggression and have a clear lesion or fracture,
- Animals that **exhibit an injury** such as a hernia or prolapse or dislocation,
- Animals that are exhibiting the **symptoms of heat or cold stress and/or dehydration,**
- Animals that appear to have developed **symptoms of a disease or infection,**
- Cows that have an **abortion or give birth during journey.**

These animals should be assessed and decisions made immediately regarding remedial actions or treatments.

Good practice regarding care of sick or injured animals during the journey

- 221. Check for any sick, distressed or injured animals **regularly during the journey**
- 222. Provide food if animals are exhibiting signs of hunger and fatigue (on prolonged journeys or where cold stress may have imposed metabolic stress).
- 223. If any illness or injury is identified during the journey the driver should **contact the transporter**, the destination or control post or emergency abattoirs / slaughter plants, (where available) and (local) competent authority and discuss obtaining the necessary veterinary advice and support either during the journey or upon arrival.
- 224. **Separate and treat sick animals** if necessary and possible, and/or seek veterinary aid or arrange to stop at an emergency plant (if available) to ensure appropriate assessment of the animal's condition may be completed.
- 225. Animals unable to move **should be killed on the vehicle**.

Best practice regarding care of sick or injured animals during the journey

- 226. The driver has a **contingency list** on board which includes contact details of all control posts, staging points, assembly centres, other care and supply stations, livestock dealers, abattoirs, competent authorities, along the whole itinerary.

4.6 Emergencies

Better practices during emergencies

Emergency situations are by definition unexpected, and require immediate action. It is important that drivers or other persons in charge **have a plan on what to do**, should an emergency situation take place. The plan should include a series of emergency telephone numbers, e.g. to obtain veterinary assistance.

- 227. **In case of a mechanical breakdown** of the tractor, the nature of the breakdown should be determined and it should be estimated how long the repairs will take. **If the repairs cannot take place** at the site of the breakdown or they will take an extended period of time, **arrangements for another tractor** will have to be made. Numerous factors need to be taken into consideration when determining how long animals can safely be left on a stationary trailer:
 - Weather – (e.g. cattle will do fine on a trailer for four hours in cool, low humidity weather. In extreme summer heat and humidity, they will experience heat stress quite quickly),
 - Fitness of the animals,
 - Age of animals,
 - Time since last feeding and drinking,
 - Location of the delay (e.g. rural area vs. freeway),
 - Time of day,
 - Safety of animals at current location.
- 228. In the event of an **accident**, the driver should:
 - a. **Call the national road emergency number** if the accident occurs on a public roadway or if the emergency assistance is required for an on-farm accident. Advise operator of:

- The location of the accident,
 - The fact that you have animals on-board,
 - The status of any loose animals,
 - Any known hazards.
- b. Set out **emergency warning devices** within 10 minutes of accident.
 - c. Call the **designated company contact**. If the company has a dispatch checklist for accidents, proceed through list. If not, inform the dispatcher of the location of the accident, if there are any injuries, condition of animals, position of trailer, number of vehicles involved and if first responders are on scene yet.
 - d. Call other designated contacts according to company protocol. These could include but are not limited to the insurance companies for the cargo and the vehicle and the destination, and provide them with the same information.
 - e. If the tractor and/or trailer are damaged and unable to move, proceed to point g.
 - f. If damage is minor, the trailer is upright and there are no injuries, take photos and record names and addresses of other people involved and witnesses.
 - g. **Herd any loose animals from the road** and gather them in an area as far away from traffic as possible.
 - h. **Locate accident reporting kit and camera**. Take photos of accident as soon as possible. Photographs should include photos of road conditions, vehicle damage, trailer position, the overall accident scene, skid marks, curves, intersections and where the vehicle left the road (if it did).
 - i. Provide as much **protection and comfort for the animals** as possible.
 - j. When first responders arrive, the transporter should advise them of accident details including any human injuries, the status of any loose animals, any known hazards and the company's emergency response plan. If available, the transporter should let the authorities know if a company rescue trailer and animal handling personnel are on the way and their estimated time of arrival. Transporters must respect the chain of command at all times.
 - k. Animals that have become injured during transport should be **humanely killed to prevent further pain or distress**. This is particularly true where there is likely to be an unacceptable delay in treating the source of pain, where the pain is untreatable, or where transportation of the animal would aggravate the condition to a significant extent. A veterinarian should be called to make the decision and to kill the animal humanely.

5. Unloading

5.1 Introduction

Upon arrival at the final destination or control post the **animals should unloaded as soon as possible**. Unloading is part of the journey and the journey is only complete when the last animal has been unloaded at the final destination. It is important to optimise the ease and efficiency of unloading to ensure that undue delay is avoided and that animals do not remain on the vehicle for longer than is necessary. Background information on bovine responses to handling can be found in [3.3 Handling during loading](#).

Poor design of loading and unloading facilities, combined with poor handling, may cause slipping, falling, bruises and eventually injuries and more stress to the animals, thus compromising animal welfare and also reducing meat quality, with the associated economic losses. **An accurate design of platforms and loading ramps will facilitate loading and unloading with minimum animal distress and bruising.**

Drivers and operators should be aware that some animals may have suffered from transport conditions and should be handled accordingly during unloading in order to avoid any additional stress.

The handling skills required are similar to those reported for loading. Attendants and receiving personnel should be able to detect signs of unfit, ill or injured animals similar to those described for fitness to transport and adapted or amended operating procedures should be planned for such cases.

Along with the physiological and health status of the animal and inadequate handling, risks of poor welfare at unloading are mainly related to:

- the **inadequate design of driveway and gates** (in particular width) that could cause bruising, injuries, reluctance to move,
- the **slippery of the floor surface** including ramp that will lead to similar adverse effect,
- the presence of **sharp protrusion** that will cause injuries,
- the **lighting environment** that may cause disorientation and fear.

5.2 Layout of the unloading area

Unloading areas should be secure and provide a wide, clear, straight path from the vehicle to the holding pens. Good and Better Practices related to the design of facilities for unloading cattle are described in paragraph [3.2 Loading facilities](#).

Good practices regarding the layout of the unloading area

229. **Closed fences** should be provided around the unloading area to avoid intrusion and escape of the animals in case of incidents during unloading
230. **Traffic areas and truck paths** between entrance (of farms, assembly centres, control posts, slaughterhouses), loading and unloading areas and parking must be

planned according to the maximum size for trucks, trailer and semitrailers and to their radius of curvature.

231. There should be a **clear signalling and identification of the dock** (for example, according to the type of truck).
232. The floors of the ramp and dock must **not be slippery** and the composition of the floors should ensure that the discharge of faeces and urine is kept to a minimum.
233. **Regular cleaning and maintenance** of the floor shall be carried out.
234. A suitable **source of light** must be present for unloading procedures.
235. During unloading, animals should move from dark to lighter areas (i.e. they should move towards a source of light), avoiding contrast of light such as shadows.
236. Lighting in the compartment and in the loading area must be able to operate throughout the duration the whole loading stage with the truck engine off.
237. The optimum unloading angle for all animals is "zero", so **various methods to maintain the angle as low as possible have to be adopted** (minimum height of the dock depending on the type of trucks, lift, etc.) (see **Figure 5.1**).
238. As animals prefer to walk slightly uphill rather than downhill, it is advisable to maintain lower angles during unloading.
239. **Limit the slope of the ramp.** Slope should not exceed 10° or 17% and in any case 20° or 36 % for calves and 26° or 50% for cattle. As a guideline, a quay height of 90 cm is recommended for current truck design. Where small vehicles are expected (for example, at slaughterhouses or markets where local transports from farms are expected), a low-level dock with ascending ramp is recommended.
240. The dock for trucks should be 2.75 m wide and equipped with lateral protections (height >1.7 m).

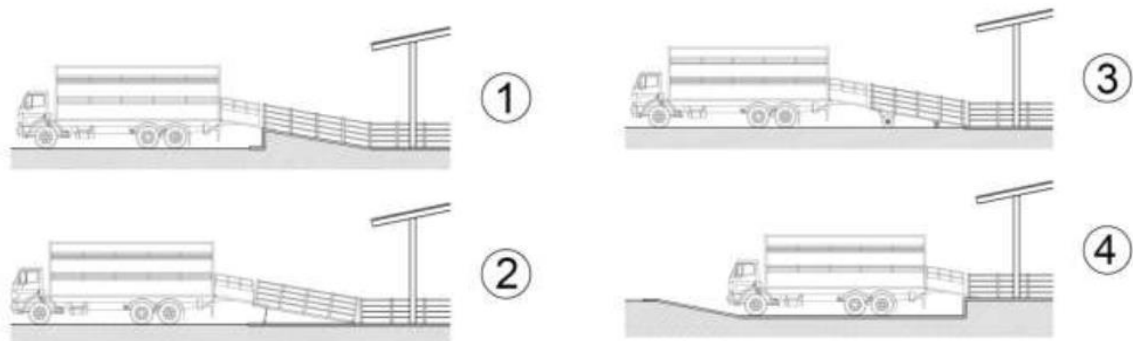


Figure 5.1 Possible recommended features for (un)loading animals.

Better practices

241. As a guideline, the area in front of the unloading dock should be **twice the length of the trucks.**
242. The **unloading area should be covered** and protected from adverse weather conditions.
243. Avoid opening the truck doors in the direction of the east, as this will help to limit unwanted balking behaviour (animals refusing to proceed, and instead going backwards) due to the direct sunlight.
244. The **dock should include human passageways** in order to ensure the safety of handlers.

5.3 Operating procedure

The main points to be checked during the procedure, are:

- Transmission of information at arrival and adequate orientation of the truck,
- Positioning of the truck,
- Required status of the indicated dock (available for unloading, equipped for the type of animals to unload),
- Establishment of safety equipment,
- Correct handling,
- That all animals have left the vehicle.

Good practices regarding the procedure of unloading

245. Operators should **avoid wearing bright coloured clothes** as farmers usually wear dark clothes.
246. **Good communication** is important. Along with legal requirements regarding identification and health status, the driver shall inform the receptionist of any relevant information regarding the health and welfare status of the animals (e.g. animal category, presence of injured animals, sick or weak animals, etc.) and the conditions during the transport (e.g. climatic or road events, duration of transport, etc.). The receptionist shall give clear indication to the driver where to unload the animals.
247. The unloading procedure should not start until correct positioning of the truck and the safety equipment (e.g. a lateral barrier) have been checked.
248. The unloading procedure should not start until **potential sources of disturbance have been removed** (e.g. other operators in front of the opening doors, inadequate lighting, etc.).
249. Cattle should not be rushed during unloading as this can be a major cause of injuries and poor welfare.
250. **Electric prods should not be used** except on adult bovines who refuse to move and when other tools/practices have not been successful, and only when the animal has a clear open way in front of it. The use of electric prods is forbidden for calves and non-adult bovines.
251. Animals should be **unloaded in small groups** corresponding to the groups in the truck, avoiding as far as possible the isolation of individual animals.

Better practices regarding the procedure of unloading

252. The arrival of the truck at its final destination requires specific attention, as significant delays prior to unloading and subsequent handling and/or slaughter may negatively impact animal welfare and exacerbate any existing problems. **Plan the arrival at destination so as to avoid any unnecessary waiting time of the animals in the truck.** In the case of arrival at slaughterhouses just-in-time delivery is acceptable in accordance with a pre-arranged time.
253. The health and welfare of the animals should be **immediately checked on the dock.**

5.4 Care of animals at unloading

Unloading of cattle can cause serious stress and discomfort. It is important that appropriate care is given to the animals, in particular when they have sustained injury during transport.

Good practices when dealing with emergencies

254. **If animals need to remain in a control post** after the truck has departed, for instance because they are injured or otherwise unfit to be transported, **they must be kept in a separated building**, away from washed and disinfected areas. The local competent authorities should be informed of these animals. No disinfection of the pens should take place whilst the animals are still inside them.
255. Trucks with poor ventilation or other complications **should be unloaded first**.
256. Trucks should be parked **in an area protected from adverse weather conditions** (this should be taken into account in the layout of the unloading areas). Delays should be limited to less than one hour before the animals can be housed or slaughtered.

257. If an animal is refusing to leave the truck:
 - If the animal is not sick / injured or trapped, check for any cause of disturbance, gently stimulate / guide the animal with a stick, preferably from outside the truck. Electric prods should only be used as a last resort
 - If the animals is sick / injured or is still unable to move (generally similar criteria to that of animals unfit for transport), inform the official veterinarian or the animal welfare officer (at the slaughterhouse) and follow the instructions (usually the procedure is the stunning of the animal followed by a quick bleeding in a dedicated equipment / area in the slaughterhouse).
 - If the animal is trapped, consider the ability to safely (for both animal and operator) remove the obstacles before following the procedure described above.

5.5 Cleaning and disinfection of vehicles after unloading

Bio-security measures are necessary to prevent the spreading of diseases. A clean vehicle is also required because stress during transport may affect the immune system of the animals, and make them more sensitive to disease.

Good practices for truck cleaning and disinfection

258. Trucks should be **cleaned directly after unloading**, and before they enter the overnight parking space.
259. Before cleaning and disinfecting, **dirty bedding should be removed** and conveyed to the manure treatment facility or the manure storage area. The truck

- compartment should be cleaned preferably using high pressure warm water (>70 bars).
260. During cleaning the operator should wear **protective waterproof clothing**
 261. Walls and compartment barriers which are clean but still wet should be disinfected **using authorised disinfectant products.**
 262. The cleaning and disinfection area must have **sufficient hot and cold water** available to clean the maximum number of trucks that can stay each day.
 263. Cleaning and disinfection areas should be free of obstacles around the truck within a 2-meter perimeter. Lighting must be available at night time.
 264. **400 lux should be provided at the level of objects to be cleaned**
 265. All washing equipment and products must be securely stored and protected from weather.
 266. **Upper decks must be cleaned first.**
 267. The driver must keep a record of each cleaning/disinfection indicating the trade name of the disinfectant product used and the doses.

Better practices for truck cleaning and disinfection

268. The driver should have access to **a list of washing and disinfection areas** in Europe, including their conditions of use, opening hours, availability of fresh water and fresh litter.
269. Lorry wash areas should be 25 m long to accommodate trucks, with a 5 to 7% slope to drain waste water to the relevant collecting system.
270. There should be a checklist on the truck with the main points required for adequate cleaning, including the bedding material used, water quality, approved program of cleaning and disinfection, the method of inspection, correctives measures, detergent and the disinfectant agents approved and used.
271. A standard operation procedure for cleaning and disinfection should be present at the unloading facilities, and should be applied.
272. Special attention should be given to **disinfecting the tyres and the underneath of the truck**, especially before travelling back to areas/countries with a low disease status.
273. There should be an external lift or stage or platform so that the upper parts of the lorry + roof can be cleaned from outside.
274. There should be **side protections in open disinfecting premises**, so that no pollution from the lorry will contaminate far away surroundings.

6. Stay at control posts, markets and assembly centres

6.1 Introduction

The maximum permitted travelling time is of 29 hours for cattle and 19 hours for unweaned calves, with a tolerance in all cases of 2 additional hours to reach the final destination (thus 21 hours or 31 hours if this allows arrival at the final destination). This additional 2 hours are exceptional only (e.g. in cases of traffic jams) and are not to be included in the planning. At the end of the legal maximum permitted travelling time, the animals must reach the final destination and shall be unloaded for slaughter (in the case of slaughter animals) or for a resting period of 24 hours, which in ongoing journeys has to happen at an approved control post before travelling further. The Regulation also establishes a maximum duration for long journeys, which varies according to the species and the age of the animals, and requires a specific resting period (see also [2.2 Planning the Journey](#))

Control posts are facilities which may be attended and inspected by an official veterinarian, and which have been approved by competent authorities based on the requirement of specific EU requirements (Council Regulation EC No 1255/97). At the control post the animals may rest, be fed and watered and cared for during long journeys.

Assembly centres are places such as holdings, collection centres and markets, at which animals from different holdings may be sold and grouped together to form consignments. Regarding animal welfare and health, the main risks are similar for control posts, markets and assembly centres (see below).

Control posts must be designed, organised and managed to accommodate animals for rest, feeding, watering, and care during long journeys. Housing conditions and staff working at the control posts should guarantee that the animals transported receive adequate care according to their status and continue their journey under optimum welfare conditions including compliance with animal-health requirements and bio-security measures.

Therefore, resting periods in control posts must ensure the possibility for all animals to get rest, food and water at the level of their needs. Then the use of control posts is an efficient mean to improve animal welfare and benefit return for the economic operators during very long transport. Control posts can be approved for pigs, cattle, sheep and/or horses. The booking of the Control post has to be done **before the beginning of the transport** and must be indicated in the journey log. A current list of control posts can be found on the internet at the following address:

https://ec.europa.eu/food/sites/food/files/animals/docs/aw_list_of_approved_control_posts.pdf

Main risks of poor welfare at control posts, as well as at assembly centres and markets are related to:

- **Cross-border spread of infectious diseases.** Risks are due to the mixing in the same place of animals of different origin, not only because of the simultaneous

presence of the animals in the control post, but also due to poor cleaning and disinfection procedures between successive consignments. The European regulation establishes rules and procedures, applying to a list of diseases. However, the Control Post owner and staff, transporters and the official veterinarian in charge should also be aware of the possibility that non-listed diseases may spread and should be therefore well informed and trained so as to be able to detect non listed diseases, as well as symptoms or changes in the behaviour of the animals that could indicate health problems.

- **Inappropriate/rough/hasty unloading or loading procedures** which can cause stress and injuries
- **Inadequate space allowances** and/or pen sizes in the control post that can compromise resting conditions and cause competition and aggressive behaviour between animals.
- **Inappropriate feeding and watering**, and facilities that could cause animals frustration or health problems due to hunger and/or dehydration

Relevant recommendations can be found in High Quality Control Post Handbook (www.controlpost.eu)

Good practice

275. All control posts are required to have a **closing day for cleaning and disinfection** after 6 days of usage. It is good practice to undertake this during any available break in occupation even after less than 6 days of continuous use.
276. A **Proof of an Appointment and a Proof of an Acceptance** of the animals by the control post must be shown to the 'loading vet' (the veterinary officer approving the journey).
277. **Only one assembly centre is used** during long journeys, and any resting legally required during a very long transport must be for a full 24 hours at an approved control post.

6.2 Housing

The objective of good housing is to provide animals with protection from extreme climate conditions and adequate resting conditions to recover from stress induced by long journeys.

Good practices for housing

278. Temperature and ventilation in control posts and assembly centres should be maintained **within a temperature range called the thermo-neutral zone**. This range is dependent upon the type of floor, its insulation properties, the air speed, air temperature and humidity, radiation and the insulation of the building. See **Table 6.2** for the recommended temperatures.
279. **Building insulation** is required to keep the animal accommodations frost-free (particularly in fully slatted floored houses).
280. The control post must have adequate **mechanical or natural ventilation** to provide fresh air and keep the effective environmental temperature within the comfort zone of the animals. Air circulation should take place above the head of the animals.

281. To keep the inside temperature above the indicated minimum, **additional heating must be applied** if necessary, especially for younger animals. If the temperature is higher than the indicated maximum, **additional measures have to be taken**: more floor space, additional fans for ventilation (and when necessary water spraying). If the air is humid in cold weather, the animals can more easily feel cold stress.

Table 6.2 Recommended temperatures in buildings to minimize health problems for animals.

Animal categories	Minimum temperature	Maximum temperature
Calves before weaning	+5°C	+25°C
Cattle ≤ 400 kg	+ 5°C	+25°C

The number of pens of a control post should allow for the same number and size of groups as on the truck. If there are not enough pens in the control post with respect to the number of pens in the truck, **no more than 2 pens of the truck should be mixed**. Operators should then **check the behaviour of the animals**, and isolate injured or stressed animals if necessary.

282. To create separated groups of animals according to provenance and animal species, the control post should be **equipped with mobile barriers**. These barriers must be constructed in such way that they can't harm or injure the animal and all materials used must be non-toxic, cleanable and can be disinfected.

283. In each pen, **space allowance must be adapted to the size of the animal**. The space allowances provided in **Table 6.3** should be used.

Table 6.3 Minimum space allowances at control posts

Animal categories	(m ² /head)
Small calves (50 kg LW)	0.4
Medium sized calves (110 kg LW)	0.7
Heavy calves (200 kg LW)	1.1
Medium sized cattle (325 kg LW)	1.5
Heavy cattle (550 kg LW)	2.2
Very heavy cattle (> 700 kg LW)	3.0

284. The **flooring must be non-slippery, cleanable, and sufficiently drained** (urine, water). It must be adapted to animal categories.

285. Diffuse **natural or proper artificial lighting** should be provided from the (un-)loading area to the resting area. The lighting can be of 40 lux in the regular pens (reading a newspaper is possible), but it must be stronger in the nursery pen (250 lux), and in the milking parlour and on the unloading area (100 to 150 lux). Care should be paid in order to avoid any light contrast, light reflection on metal equipment, or high luminosity because this causes animals to stop, and sometimes to turn back.

286. **One fire extinguisher** must be available in each building according to the quantity and type (solid, liquid, gas) of combustible materials.

Better practices for housing

287. Facilities and equipment should be tested before new delivery of animals

6.3 Feeding and watering

During transport, animals have no easy access to food, so it is important that they can drink and eat during the resting period at the control post. When animals are resting in the control post, their biological needs should be covered.

Main risks of poor welfare related to watering and feeding are linked with:

- Inadequate **amount** of food and water
- Inadequate **quality** or presentation of food and water

Potential adverse effects are stress (hunger, thirst, social) and health (illness or mortality). Economic losses (mortality and weight losses) can increase with poorly designed and managed feeding and watering procedure of animals at control posts.

Good practices for feeding and watering

288. Feed shall be **stored in a (closed) clean, dry and labelled (visually identifiable) facility**. Feed storage facilities are used for feed only, unless feed is stored in closed containers/packaging material. No chemicals (for instance pesticides, biocides, veterinary pharmaceuticals) are present in feed storage facilities. The feed storage facility must be included in the pest control program.
289. The feeding equipment shall be constructed and installed so that **food contamination and competition among animals are minimised**, and that the equipment is no obstacle or reason for injuries.
290. If animals are fed ad libitum, at least 1 feeding place per 10 heads in group housing must be available. **If they are fed restricted, all animals in the pen must be able to eat at the same time**. The minimal feeder space per head is given in **Table 6.4**.

Table 6.4 Minimal feeder space per head

Animal categories	(m)
Calves before weaning	Individual feeders (one 2l feeder /animal)
Calves after weaning	0,34
Cattle ≤ 400 kg	0,50
Cattle > 400 kg	0,65
Cows	0,70

291. Feeding installations must be cleaned and if necessary disinfected between successive batches of animals.
292. The minimum quantity of feed should be **the level required for body maintenance as shown in the Table 6.5**. Feed must be of homogeneous quality and in sufficient quantity to avoid any competition. It must be palatable and adapted to the species and to the age.

Table 6.5 Minimal feed quantity per head

Animal categories	Feed(kg/head/24h)
Calves before weaning	Milk replacer: 2 l/12 h
Cattle ≤ 400 kg	Hay: 7 kg
Cattle > 400 kg	Hay: 15 kg

293. Drinking devices must be **designed and positioned in a way that is appropriate** for the species, the age and the size of animals.
294. **Two accessible drinkers** per pen assure free access to water when animals want to drink at the same time: keep 60cm of open space over the drinker to facilitate easy access
295. The drinker height must allow each category of animals to **drink in a natural standing position**.
296. Pollution of the drinking water can lead to deficient water absorption and illnesses, therefore it is necessary to be able to empty and clean the drinking bowl completely.
297. **The drinkers should not create obstacles** for animals, workers, machines and mechanical systems. They shouldn't be placed next to the feeder and resting areas, to prevent from possible losses of water that could wet food and bedding.
298. Water flow at the drinker must be adjusted to the species.
299. Animals should have **free access to fresh potable water**, delivered ad libitum.
300. **Young calves** should not be watered with cold water, especially in winter, as it may cause diarrhoea. They should be **provided with warm water** (about 30°C) or electrolytes to meet the water needs.

6.4 Biosecurity, cleaning and disinfection

Transport conditions impose a close contact between animals and can increase the risk of pathogens spreading. Biosecurity is based on good hygiene practices aimed to limit pathogen development and spread, logistic management to prevent contacts between different consignments, and global management of the location to minimise sanitary risks and hazards. The owner of the location (but also the transporter) has to ensure the **bio-security criteria are followed in order to protect the animals** that are hosted. [Regulation \(EC\) 1255/97](#) sets down the requirements regarding the location, construction and operation of control posts that aim to achieve an appropriate level of biosecurity. Local competent authorities check that these requirements are fulfilled before approving control posts.

Good practices regarding biosecurity at control posts

301. Hygienic routing of transport is organised to prevent external transport (feed deliveries, removal transport of waste) to cross internal transport (animals). Different routes are clearly indicated to **separate 'clean' and 'dirty' routes** to: animal buildings, lorry wash station, feed and bedding storage, and manure storage. If physical separation is not possible, transports are separated in time. A plan to show the movement of all such vehicles or time separation to prevent cross overs should be made available.
302. The control post is **divided into zones** to allow the control post owner to plan for traffic patterns, work organization and biosecurity measures. Zones are large enough to permit later expansion without encroaching on other areas. Control posts can be

divided into three concentric rings or activity zones: Zone 1 office and main entrance; Zone 2 accommodation for drivers, store house and truck wash; Zone 3 animal houses, truck parking and waste storages (See **Figures 6.1** and **6.2**).

303. Traffic areas and truck paths between entrance, (un)loading areas, truck wash and parking are planned according to the maximum size for trucks, trailer and semitrailers and to their radius of curvature.

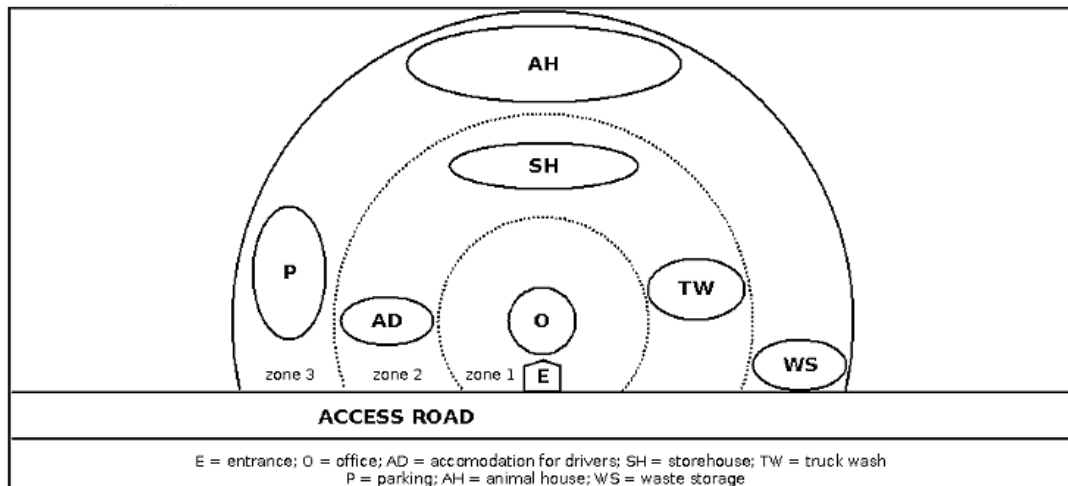


Figure 6.1 Example of the organization of a control post to optimize biosecurity

304. **Dead animals are stored in a separate building or sealed container (chilled)** and these facilities must be paved or floored with appropriate material. They should be cleaned and disinfected after every use. Carcasses are transferred to vehicles for transportation to the site of disposal or incineration in a manner that ensures these vehicles do not have to enter the premises of the control post (Regulation (EC) N. 1774/2002). Bedding and waste from these buildings should be removed and disposed of in an appropriate manner.
305. Animal buildings are **clearly marked**. Control post staff should be the only persons allowed to enter into these buildings of the control post. All people entering the building have to wear clean clothes and shoes (or one-use disposable clothing) or walk through footbath facilities to disinfect the shoes before entering into the control post. The driver has to fulfil this procedure to handle animals into the control post. Bathroom should be available to visitors and drivers to wash their hands and themselves.

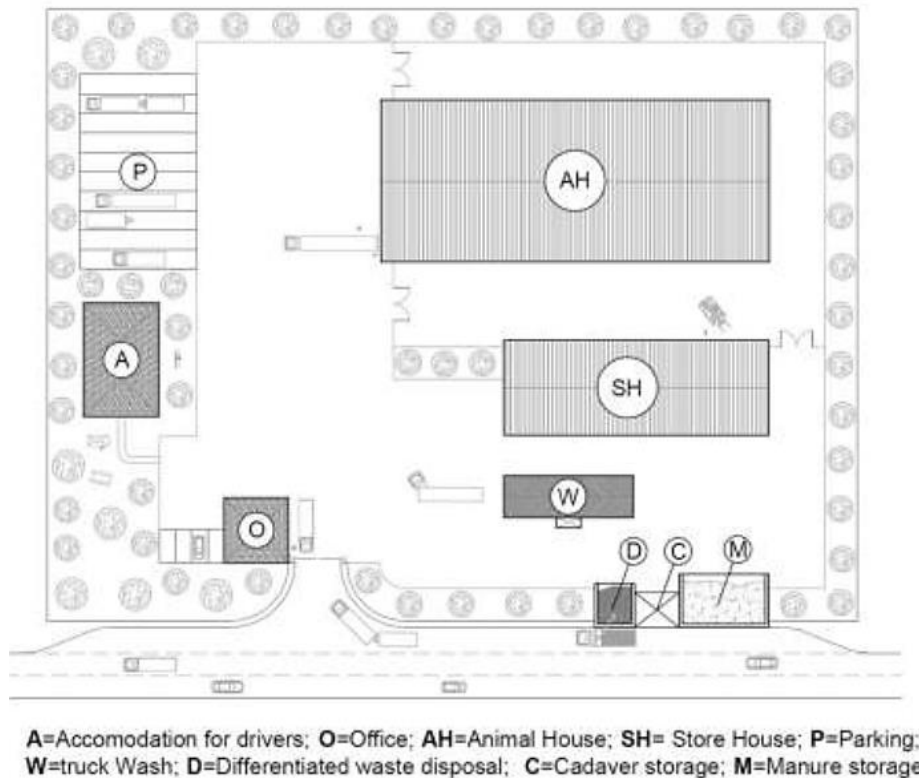


Figure 6.2 Possible organizational layout of a control post.

306. The cleaning, **removal of solid waste, washing and the disinfection of the building and equipment must be completed within 24h** from the time of removal of the animals from the pens. Buildings and equipment should be dry before a new batch of animals can be housed again. Cleaning of barriers and flooring (pens and ways) should be done using high pressure water (40-200 bars, 25 to 70 l/min).
307. **Warm water with detergent is specially recommended for metallic barriers.** Cleaning of drinkers and feeders can be done as partitions, floors and walls by using warm high pressure water, or if possible by soaking equipment 20 to 30 minutes in warm water and detergent before pressure cleaning. Foaming can improve the washing. When pens wall and barriers are clean and still humid, disinfection should be done.
308. **Authorized disinfectant products** should be sprayed according to manufacturers' recommendations. Only authorised products (under national agreements) can be used: for national lists of products, refer to official veterinarian and check for AFNOR reference (NFT 72-150/151, 72-170/171, 72-200/201, 72-180/181).

Better practices regarding biosecurity at control posts

309. Changing rooms separated from building in which animals are kept should be available both for co-workers, drivers and visitors (veterinarians, inspectors, etc.). A basin with running hot and cold water, soap, disinfectants, clean towels are available in the changing rooms. **The control post shall have showers, toilets and leisure room for drivers and a well-kept first aid kit.**

310. **The control post should have communication facilities** available for drivers (telephone, fax, internet) and a website including: the name of the contact person of the control post, phone number, e-mail address, address, route planner, opening times, availability of facilities, language spoken, service available for driver (sanitation, leisure facilities, etc.) and health service. A phone list of local medical practitioners, hospitals, police, fire department, veterinarians must be available.
311. Water supply to animals should be potable and not become contaminated. Any water storage tanks must be covered and capable of being disinfected if necessary. **Water supply systems should be capable of being flushed with a sanitizer if required.**
312. Storage of feed and bedding must be kept secure and not capable of becoming contaminated. **Tractors and other mechanical equipment used for feeding and bedding should be cleansed and disinfected after each use.**

6.5 Emergency

In case of emergencies occurring while animals are at the control post, the contingency plan of the control post and that of the transporter are activated.

Good practices during emergencies at control posts

313. If there are not enough pens according to the number of pens in the truck, **no more than two pens of the truck are mixed**. Behaviour is observed and injured or stressed animals are isolated
314. If an animal shows **signs of colic** (e.g. profuse sweating, continuous rolling, turning head towards the belly, persistent movement and getting up and down violently, lying down frequently), which is one of the most common problems, **veterinary assistance** is sought immediately. It is avoided as much as possible to stress the animal.
315. If **several trucks arrive together** at a control post with animals of different sanitary status:
- The **competent authorities** are contacted for official recommendations, also when one or more trucks create a biosecurity hazard.
 - Animals of **different sanitary status are isolated** in different areas of the site.
316. If a local **sanitary crisis** occurs when animals are expected at the control post:
- The **competent authorities** are contacted for official recommendations, also when one or more trucks create a biosecurity hazard.
 - The **driver and the owner of** the transported animals are informed before the arrival. Mobile disinfection systems (wheel splash-boards) are used when the truck enters the control post.

Better practices during emergencies at control posts

317. **If animals need to remain** in the control post after the truck has departed, for instance because they are injured or otherwise unfit to be transported, they are kept in a **separate area**. The local competent authorities are informed of these animals. No pens are disinfected whilst animals are still inside them. Care is taken not to cause avoidable stress.

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