

Recommended code of practice for
the care and handling of farm
animals

Transportation

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Transportation

Coordinated by

Canadian Agri-Food Research Council (CARC)
Canadian Federation of Humane Societies

Review Committee

Participants are listed in Appendix 7

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Acknowledgments

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Preface

The Codes of Practice are nationally developed guidelines for the care and handling of the different species of farm animals. The Codes contain recommendations for housing and management practices for farm animals as well as transportation and processing.

The Codes are voluntary and are intended as an educational tool in the promotion of sound management and welfare practices. The Codes contain recommendations to assist farmers and others in the agriculture and food sector to compare and improve their own management practices.

In 1980, the Canadian Federation of Humane Societies began coordinating the process of development of draft Codes of Practice for all livestock species with the introduction of a ***Recommended Code of Practice for Handling of Poultry from Hatchery to Slaughterhouse***. The federal Minister of Agriculture and Agri-Food Canada (AAFC) provided financial support for the undertaking at that time.

All Codes of Practice are presently developed by a review committee with representatives from farm groups, animal welfare groups, veterinarians, animal scientists, federal and provincial governments, related agricultural sectors and interested individuals.

In 1993, Agriculture and Agri-Food Canada asked the Canadian Agri-Food Research Council (CARC) and its Canada Committee on Animals and Expert Committee on Farm Animal Welfare and Behaviour to take the lead in cooperation with the Canadian Federation of Humane Societies in updating existing Codes and developing new Codes. CARC officially agreed to take on this responsibility in February 1995 upon confirmation of funding from Agriculture and Agri-Food Canada.

In 1996, CARC with the support of the provincial governments began producing four page factsheets in both English and French for such uses as teaching agriculture in the classroom, agricultural fairs and exhibitions.

Codes developed to date:

Species	Original	Revision
Poultry	1983	1989
Pigs	1984	1993
Veal calves	1988	1998
Ranched mink	1988	—
Ranched fox	1989	—
Dairy cattle	1990	—
Beef cattle	1991	—
Sheep	1995	—
Farmed deer	1996	—
Horses	1998	—
Transportation	2001	—

Further information on the process of Code development and revision can be obtained from the Canadian Agri-Food Research Council (CARC), Heritage House, Building 60, Central Experimental Farm, Ottawa, Ontario K1A 0C6. Requests for copies of the Codes can be addressed to the Canadian Food Inspection Agency and/or specific provincial organizations.

The CARC Home Page is www.carc-crac.ca for further information.

Disclaimer

Information contained in this publication is subject to periodic review in light of changing transportation practices, government requirements and regulations. No subscriber or reader should act on the basis of any such information without referring to applicable laws and regulations and/or without seeking appropriate professional advice. Although every effort has been made to ensure accuracy, the Review Committee shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the contents hereof. Furthermore, the Review Committee expressly disclaims all and any liability to any person, whether the purchaser of this publication or not, in respect of anything done or omitted, by any such person in reliance on the contents of this publication.

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READERS' COMMENTS AND SUGGESTIONS

The Canadian Agri-Food Research Council would like to receive your comments and suggestions on the Recommended Code of Practice for the Care and Handling of Farm Animals - Transportation. Please send the completed questionnaire to the Canadian Agri-Food Research Council at Building 60, Central Experimental Farm, Ottawa, Ontario K1A 0C6 or fax to (613) 234-2330. Feedback will be considered in future editions.

1. My work involves:

- a) commercial transportation of farm animals ☐
- b) raising farm animals ☐
- c) animal care/handling at an auction market ☐
- d) other (please specify) ☐

2. The transportation code is relevant or useful in my work:

- a) highly ☐
- b) to some degree ☐
- c) not ☐

Additional comments:

3. The organization of the code contents:

- a) is appropriate ☐
- b) needs improvement (please specify) ☐

4. The topics contained in the code cover all appropriate aspects of farm animal transportation:

- a) yes ☐
- b) no (please specify) ☐

5. The recommendations are presented:

- a) in an unclear manner or with inadequate detail ☐
- b) clearly and in adequate detail ☐
- c) in excessive detail ☐

Additional comments:

6. I suggest the following changes to improve the transportation code (use additional sheets if necessary to comment on any aspect of the code such as content, format or cover design).

Section 1 ♦ Introduction

Codes of Practice strive to promote acceptable standards of animal husbandry and handling. This code is intended to achieve a workable balance between the best interests of the animals and the transportation industry. Transportation can be one of the most stressful situations an animal experiences and can cause a number of physiological and behavioural changes (see reference material for further reading). This code recognizes the basic principle that humaneness towards animals is the prime consideration in animal transportation and that animals which are treated well and protected from stress arrive at their destination in far better physical and mental condition. This translates into significant benefits and economic advantages no matter what the reason for transport.

As discussed in the preface, this code is voluntary. All provincial and federal acts and regulations take precedence. The word *must* is used where there is an enforceable statutory requirement and *should* is used to emphasize the importance of a point. This code, in general, is intended for use as a guide and educational tool in promoting sound animal transportation and welfare practices. It should be noted, however, that voluntary Codes have been accepted as the standard of practice and have been recognized as such by the courts. This code will be updated from time to time.

The recommendations contained herein do not claim to be comprehensive for all circumstances but attempt to define high standards for livestock transportation on a species by species basis. This code can serve as a guide to commercial transporters, producers and hobbyists in assessing their facilities, equipment and practices with regard to livestock transportation and may provide guidance for improvement in deficient areas.

Transportation and handling regimes are subject to change as market practices evolve, research is completed and technology develops. The livestock transportation industry must continuously keep abreast of new research and technological advances in facilities and equipment to enhance transportation practices and ensure that animals are transported in the most humane, safe and effective manner possible for the benefit of both humans and animals.

This code is for transport of animals by road. For air transport refer to the International Air Transport Association (IATA) live animals regulations (Appendix 6).

Animal Behaviour

Animal behaviour is a prime consideration in the transportation of animals. A transporter with a thorough knowledge of the behaviour patterns of the species he or she is hauling can significantly reduce the amount of handling and goading needed to move, load or unload animals.

A knowledge of behaviour patterns encompasses such things as flight zones, parameters of vision (such as field of view, depth perception, colour perception and general visual acuity), probable responses to stimuli and social behaviour. This knowledge also allows a transporter to assess such things as loading facilities, problems likely to be encountered in loading or unloading, segregation needs, general fitness of the animals to be transported and signs of distress in animals during transport.

It should be emphasized that a thorough knowledge of the transportation of one species does not ensure success in the transportation of another. Behaviour patterns are species specific and facilities or practices that work well with one species are often ineffective or even dangerous with another. Such things as flight zones, herding instinct and instinctive responses vary significantly among species and even between lots of animals of the same species which have been raised under differing husbandry conditions. It is therefore imperative that commercial transporters and those engaged in the transport of multiple species have a thorough knowledge and understanding of expected behavioural differences, handling techniques and equipment needed for each species of animal that they must transport. This knowledge is best acquired through careful observation of the animals and their responses. Drivers and handlers should undergo a period of apprenticeship with an experienced driver prior to being assigned to haul a new species of animal.

Duration of Transport

The duration of time that animals are in transit is a significant element in the risk that transportation poses to the animals. It must be recognized that even with a short haul (generally less than 4 hours) the initial loading and transport of the animals is stressful. However, the longer the time that animals are transported, the greater the risk of injury or death.

Long haul transportation (generally longer than 6 hours) may expose animals to significant environmental

changes and/or increase the length of time they are exposed to risk factors such as heat, cold, jostling, piling, and so forth. Transporters engaged in the long haul transport of livestock must therefore be more careful in planning. Factors that must be researched, considered and addressed include: expected weather conditions en route, emergency procedures should problems be encountered, possible off loading sites along the route in the event of problems, expected delays such as road construction or repairs, ferries, borders, scales and unloading hours at destination.

Section 2 ♦ General Considerations

2.1 Responsibilities

2.1.1 Humane transportation of animals is a joint responsibility of buyers, sellers, assembly point managers and truckers. Records must be maintained for account for time in transit, and care given to the animals during all phases of transportation.

2.1.2 Animals are subject to inspection under the *Health of Animals Act* transportation regulations while in transit. This includes while being held at auction markets and assembly yards if this is not their final destination. Therefore, transportation starts at the time of loading at the point of origin, continues through sale and reloading at auction markets and assembly yards and ends after unloading at final destination.

2.1.3 The transfer of animals from one sale facility to another should be avoided; animals must be fed, watered and rested before transfer.

2.1.4 Animals should be transported from point of origin to final destination by the safest route available. Transportation should be completed as soon as possible.

2.1.5 Any person engaged in transporting animals is obliged to plan their long-distance trips taking into consideration the availability and location of facilities that offer protection from extreme weather conditions and where animals may be unloaded, fed, watered, and cared for in a humane manner.

2.1.6 Producers, shippers and consignors are all responsible for:

- a) contracting only qualified transporters who are knowledgeable of the proper care and handling of animals during transportation and who have species-appropriate equipment;
- b) ensuring proper interior and exterior design of buildings to facilitate humane loading and unloading;
- c) ensuring that all animals intended for transport are fit to be transported;
- d) ensuring proper loading and unloading techniques are used at all times;
- e) ensuring the assembled load is compatible with the intended vehicle;

- f) ensuring proper rest times and appropriate feeding and watering of animals before and during transit; and,
 - g) providing a method for the driver to contact them in the event of an emergency if not accompanying the load.
- 2.1.7 The driver is responsible for the continued care and welfare of the animals during vehicle operation.
- 2.1.8 Transport crews should be properly instructed on and knowledgeable about the laws with respect to humane transport of animals and the basic facts of animal welfare and should be skillful in handling animals under varying climatic conditions.
- 2.1.9 Employers have an obligation to properly train employees on humane handling, equipment use, transportation regulations and livestock care. Employers should hold training sessions with their employees to instruct them on their responsibilities and obligations with respect to animal transportation. Training material such as videos, pamphlets and bulletins on animal transportation should be obtained and made available to employees. A knowledge of basic animal behaviour and risk factors will assist employees in understanding their job functions and the needs of the animals placed in their care.
- 2.1.10 Knowingly inflicting physical injury or unnecessary pain on animals is a criminal offence.
- 2.1.11 Areas where animals are housed and handled must have sufficient illumination during normal operations to allow the animals to be easily inspected by the handler and to allow the animals' ease of movement at all times. All alleyways and ramps should be properly illuminated.
- 2.1.12 At night, lighting the interior of the transport truck helps during loading, but on bright sunny days it may help to shade the loading dock.
- 2.1.13 Provide uniform lighting directly over the approaches to sorting pens, single-file chutes, and loading ramps. Animals may balk at contrasting shadows, bright spots, and changes in floor surface.
- 2.1.14 Animals should be moved through assembly yards as quickly as possible to minimize the overall length of time in transport.
- 2.1.15 Where it is necessary to identify animals for assembly or transport purposes the use of non-permanent markers such as backtags, paint or coloured markers is recommended. The removal or replacement of puncture tags should be avoided unless absolutely necessary. The Canadian Cattle Identification Program will identify cattle by herd of origin with specially coded tags. Cattle tagged under this program will have tags bearing a unique traceable number.
- 2.2 Risk Factors**
 - 2.2.1 The following factors are associated with increased risk for animals in transit:
 - a) long-distance transportation, from loading at the place of origin, including poultry catching, to unloading at final destination;
 - b) low economic value of the animals being transported;
 - c) adverse weather conditions; and,
 - d) other factors that compromise the ability of animals to be transported without suffering - e.g., pregnant, very young or old animals.
- 2.3 Pre-Transport Feed and Water Restriction**
 - 2.3.1 Current knowledge of animal nutrition requirements prior to and during transportation and during the antemortem period, in general is substantially incomplete. The current recommendations for feed and water withdrawal allowance are not substantiated by

research data.

- 2.3.2 Animals which have been held for periods in excess of 24 hours without feed prior to loading may be nutritionally stressed and not have sufficient energy reserves to withstand the stress of long-distance transport. The *Health of Animals Regulations* require that animals be fed and watered within 5 hours before being loaded, if the expected duration of the animal's confinement is longer than 24 hours from the time of loading. However, it is recommended that: 1) animals intended for a trip length in excess of 12 hours have access to appropriate feed and water within 5 hours before being loaded, and 2) animals being loaded for trips in excess of 4 hours receive feed within 24 hours prior to loading.

Recommendations for feed, water and rest on route are shown in Section 5.5.

- 2.3.3 Pigs should have feed withdrawn 3-4 hours prior to loading. Heavy feed intake by pigs immediately prior to loading has been associated with vomiting and death loss. After eating, all species have an increased production of body heat. Short term fasting may benefit other species depending on the circumstances of the intended trip and ambient weather conditions.
- 2.3.4 Preparing poultry for transport to slaughter may involve short term feed withdrawal.
- 2.3.5 Animals should be given time to adjust to mechanical watering and feeding systems prior to transport to assembly points or to auction.

Section 3 ♦ Vehicles, Containers and Equipment

3.1 General

- 3.1.1 All vehicles used to transport animals should be in excellent condition and must be in full compliance with provincial highway traffic legislation.
- 3.1.2 All vehicles and containers used for transporting livestock should have sides, and when appropriate, partitions that are secure, strong, and high enough to prevent livestock from jumping, falling or being pushed out.
- 3.1.3 Vehicles and containers should have a quick-release mechanism for partitions used to separate large animals in the event of straddling.
- 3.1.4 Vehicles and containers used for feeding, watering and resting animals on long hauls shall be suitably equipped for the purpose.
- 3.1.5 Vehicles and containers should have secure,

smooth fittings, and should be free of protruding bolt heads and any other sharp protrusions. Bolts or latches must fasten securely so the animals will not move them.

- 3.1.6 Vehicle doors and internal gates should be large enough to permit animals to pass through easily without bruising or injury.
- 3.1.7 To avoid injury, vehicles and containers should be constructed so that no part of an animal can protrude from the vehicle or container.
- 3.1.8 Vehicle and container design should readily permit inspection of the animals in the shipment.
- 3.1.9 Provision must be made for the drainage or absorption of urine (see 3.1.23).
- 3.1.10 Vehicles and containers used to transport livestock should be cleaned, sanitized, and equipped with enough suitable fresh bedding

- material before each new load. When loads are assembled from a number of sources, these steps should be taken before the first animals are picked up.
- 3.1.11 Vehicles used to pull trailers or to carry animals must be appropriate for the safe and effective movement of the animals. Vehicles used to pull trailers must have sufficient power to smoothly accelerate the unit and sufficient braking ability to stop safely. Vehicles must be in full compliance with all highway traffic standards.
- 3.1.12 Sand or other appropriate material should be used in trucks where there is inadequate footing. Sand that contains materials known to be irritating or harmful to the animals (e.g., fertilizer, ash) should never be used. If salt is used the trailer must be thoroughly cleaned before hauling animals such as pigs, sheep or calves.
- 3.1.13 Particularly for poultry and pigs, vehicles and containers should be thoroughly cleaned and sanitized after each shipment to prevent the spread of disease. All commercial unloading facilities should provide an appropriate area, suitably equipped, where cleaning of all vehicles can be done during all seasons.
- 3.1.14 Portable ramps should be stable and should provide good traction for the animals. The sides should be high enough to prevent injury to animals.
- 3.1.15 Sufficient ventilation must be available at all times while the animals are on a vehicle. Aerodynamic airfoils installed on truck tractors to enhance fuel efficiency must not restrict airflow into the trailer which is necessary for ventilation and cooling. Appropriate measures must be taken to prevent engine exhaust from entering the area occupied by the animals.
- 3.1.16 Ventilation should be adjustable from the outside of the vehicle in response to temperature changes during a trip. The use of adjustable weather panels is an effective way to achieve this.
- 3.1.17 When animals are transported in crates or bins, the design, construction, available space and state of repair should allow the animals to be loaded, conveyed, and removed without injury.
- 3.1.18 Chutes should take advantage of natural behaviour of animals. Most species prefer to follow a leader and to have no harsh changes in lighting. Animal handling is more easily accomplished if the alleyways and ramps have no sharp turns that could impede movement or could cause injury.
- 3.1.19 Unless livestock can be seen easily from outside the containers, every container used to transport animals must have a sign or symbol to indicate that it contains live animals and to show its upright position.
- 3.1.20 Containers used for transporting animals must be securely placed on vehicles to prevent them from moving during the journey.
- 3.1.21 When transporting livestock in containers, attention must be given to temperature, ventilation, facilities, and available space during the entire journey.
- 3.1.22 Containers that hold livestock should be tilted as little as possible during all stages of loading and unloading. They should always be moved smoothly and never thrown or dropped.
- 3.1.23 Suitable bedding such as straw or wood shavings or appropriate mats should be added to vehicles to assist in absorbing urine and feces, provide better footing for the animals and protect them from the hard flooring.

Section 4 ♦ Loading and Unloading

4.1 General

- 4.1.1 In a new situation or location, all normal, healthy animals are alert and inquisitive. Consequently, every change or disturbance in surroundings, such as noises, breezes, movement of objects, and flashes of light, should be avoided.
- 4.1.2 Animals must not be loaded or unloaded in a way that causes avoidable injury or suffering. Ramps should be used; tilting the box of a vehicle is totally unacceptable.
- 4.1.3 If a handler leads an animal into a vehicle, there must be an avenue of escape for the handler should the animal initiate any unexpected movement.
- 4.1.4 All places where animals are temporarily assembled for sale, show, transport, feed, water and rest, slaughter or any other reason must have sufficient facilities to accommodate safe loading, unloading and holding.
- 4.1.5 Prior to loading a vehicle an interior inspection should be performed and bedding added or other corrective measures taken to assure safe transportation.
- 4.1.6 A system of early identification of injured animals prior to unloading and an action plan must be in place and known to all employees.
- 4.1.7 Animals should not be rushed during loading and unloading.
- 4.1.8 Abrupt movements by drivers and loaders should be avoided.
- 4.1.9 The use of electric prods is discouraged for all species and shall not be applied to the head or genital regions of any animal. Electric prods are not acceptable in handling horses. The use of canvas slappers and other goads should be kept to a minimum. A good understanding of animal behaviour, and a careful, cautious approach by the handler will facilitate the loading procedure.
- 4.1.10 No gap should exist between the ramp, its sides, and the stationary vehicle to be loaded. In possum belly trailers, internal ramps should have solid sides continuous to the floor to prevent foot slippage off the side of the ramp. The loading/unloading surface should be level with the vehicle floor.
- 4.1.11 Loading and unloading facilities should have the following characteristics:
 - a) ramps should accommodate the different sizes of vehicles in common use, for example by providing docks of different heights, or adjustable ramps. No gap should exist between the ramp, its sides and the vehicle;
 - b) ramps and chutes should be of solid construction and free from sharp projections; and,
 - c) the dock surface should be level with the vehicle floor. If the loading surface and the vehicle surface are not level, animals should not be required to negotiate a step in excess of the recommended height shown in Table 1.

Table 1
Maximum Single Step Height Recommendations

Species	Height (centimetres/inches)
Market Hogs	25 cm (10")
Sheep and Goats	38 cm (15")
Light Feeder Calves	50 cm (20")
Slaughter Cattle and Cows	63 cm (25")
Horses	25 cm (10")

Table 2
Maximum Ramp Slope Recommendations

Species	Maximum Recommended Slope (degrees)
Market Hogs	20°
Sheep and Goats	35°
Cattle	25°
Deer (Cervidae)	35°
Horses	30°

4.1.12 Elevated docks should be at least 1.5 m (5 ft) wide.

4.1.13 The slope of ramps should not exceed those shown in Table 2.

4.1.14 The provision of gates to prevent direction reversal is highly recommended.

4.1.15 Loose animals should not be unloaded directly into long alleyways. The animals unloaded first will move to the end of the alley and animals following may have a tendency to bolt to rejoin the previously unloaded group. Every effort should be made to control the speed of animal movement when unloading.

4.1.16 Assembly point and slaughterhouse management should ensure that all deliveries are properly scheduled and an adequate number and type of unloading ramps are available to fit all vehicles delivering animals.

4.1.17 Pens should be available in various sizes to minimize the need to mix different lots of animals.

4.1.18 Facilities and practices must be in place to segregate animals of different weights, health status or incompatible by nature. Proper sorting pens should be available for mixed loads. Individual pens should be available for sick or injured animals.

4.2 Farm Access Recommendations

4.2.1 Loading areas should be designed and located to permit transport vehicles to turn around, to reach them without having to back off of a public road, and to leave them without having to back on to a public road.

4.2.2 Laneway entrances should be of sufficient road-top width to accommodate a tractor trailer -- a minimum of 6 m (20 ft) is proposed.

4.2.3 Laneways should be constructed to support the weight and dimensions of the vehicles used to load animals under all weather conditions -- 3.65 m (12 ft) wide is proposed.

4.2.4 For loading poultry, loading areas should be level and should be long enough to allow loading along the entire length of the vehicle being loaded.

4.2.5 Snow should be removed from loading areas and, where necessary, sand or salt should be applied before trucks arrive to load.

4.3 Segregation

4.3.1 Every effort should be made to eliminate unnecessary mixing of animals from different sources.

4.3.2 The following livestock must be segregated while in transit in the same vehicle:

- a) animals of different species;
- b) animals that would be likely to fight with each other;
- c) animals of substantially different weight or age, except for a female animal and its suckling offspring; and,
- d) animals of different health status.

4.3.3 Mature males should be partitioned separately from other livestock.

4.3.4 Proper facilities and sorting pens should be available for segregating mixed loads.

4.4 Space Requirements

4.4.1 In transport, animals require sufficient floor space to allow for adequate ventilation and a reasonable level of comfort. Overcrowding can directly cause discomfort due to lateral pressure on the animal. Individual animals transported in overcrowded conditions may be unable to get up should they lose their footing. Trampling and

animal injury can result from overcrowding. In adverse weather, severe heat buildup may result from overcrowding.

4.4.2 Each animal should be able to assume its natural position for transport without coming into contact with the roof or upper deck of the vehicle. The amount of headroom also depends on species of animals.

4.5 Loading Density

4.5.1 In planning a load of animals, consideration must be given to the size and type of animal, number in the group loaded, construction of the trailer or container and useable floor space.

4.5.2 Large animals can be loaded safely at higher loading densities than small animals of the same species based on weight per unit area of floor space and area per animal. In this code all recommendations will be made in the units of weight per unit area with the exception of poultry. See Appendix 2.

4.5.3 Some animals, such as cattle and horses, are transported standing, while others, such as deer, swine and poultry are transported lying down. This postural preference is partly reflected in lower loading densities for animals transported lying down.

4.5.4 In hot humid weather animals require more ventilation during transport to prevent dangerous levels of heat buildup. This situation is most easily adjusted for by decreasing loading density.

4.5.5 Physical features of animals such as horns or wool can affect safe loading densities. Animal handlers should evaluate recommended loading densities in light of these characteristics.

4.5.6 Visual examination of a group of animals in a truck compartment, in conjunction with a calculated measurement (determination) of recommended floor space per animal should be used to determine load density. Knowing animal size and vehicle floor space limitations

allows better preparation and management of loads for transport.

4.5.7 Recommended loading densities are given in Appendix 2.

4.5.8 In large consignments of animals, vehicle stability can be maximized and animal piling can be minimized by controlling the group size on the truck. Most large vehicles are equipped with cross gates to hold animals in groups.

Section 5 ◇ Care and Protection During Transport

5.1 General

5.1.1 Drivers should start, drive, and stop their trucks smoothly to prevent animals from being thrown off their feet. They should practice defensive driving by ensuring that adequate space is available should an emergency require an unexpected stop. In addition, they should negotiate turns in the smoothest possible manner.

5.1.2 Drivers should check each load immediately before departure to ensure that the animals have been properly loaded. Each load should be checked again early in the trip and adjustments made as appropriate. Drivers should check for signs of general discomfort of the animals, such as overheating. Periodic checks should be made.

5.1.3 All places where animals are temporarily assembled for sale, show, feed, water and rest, or for any other reason, must have adequate facilities for safe loading, unloading and holding.

Table 3
Signs of Animal Discomfort During Transport

Problem	Warning Signs
Overcrowding	load will not "settle"; animals continue to scramble for footing and the load continues to be noisy for prolonged periods of time animals involuntarily lie down and are unable to get up
Overheating	all species will pant when overheated, animals standing with neck extended with open mouthed breathing is a dangerous situation horses and cattle should remain dry during transport; wet horses which were loaded dry are probably overheating
Cold Exposure	animals should remain dry during transport swine will pile up when chilled all species will eat available bedding when cold stressed discolouration of the skin of pigs, and reluctance to move or get up when stimulated fluid frozen to the face or nostrils of cattle under extreme stress large animals such as cattle and horses will shiver

5.2 Precautions in Extreme Weather

5.2.1 Animals must be protected during transit to prevent suffering caused by exposure to severe weather conditions. No matter what type of transportation is used, adequate airflow throughout the vehicle or container must be provided to keep the animals comfortable. Warming and cooling can predispose to severe respiratory problems.

5.2.2 Weather conditions should be monitored and ventilation adjusted accordingly. Monitoring of the livestock environment inside the trailer can be accomplished by careful animal observation. As technology improves to allow monitoring of the animal environment in trailers (such as CO₂ and temperature sensors), it should be implemented within the transport industry as soon as its effectiveness is validated.

5.2.3 Ventilation should be adjustable from the outside of the vehicle in response to temperature changes during a trip.

5.2.4 In extreme or rapidly changing weather, animals should be inspected frequently for signs of environmental exposure.

5.3 Precautions in Cold Weather

5.3.1 During winter travel:

- a) increased bedding or insulation is necessary in cold weather;
- b) increased loading density beyond recommendations can predispose to frostbite in individual animals because it prevents them from repositioning in the trailer;
- c) openings should be covered to protect animals from cold winds. Wind chill lowers the effective environmental temperature, and can cause frostbite;
- d) openings should be adjusted to balance the need for protection from wind chill with the need for adequate ventilation; and

e) precautions should be taken to protect young animals. They must be kept dry and provided with an adequate supply of bedding.

5.3.2 Take special precautions in cold weather as follows:

- a) replace bottom slats in vehicles to protect animals from the cold, but allow adequate ventilation;
- b) close nose vents; and,
- c) protect animals from cold crosswinds.

5.3.3 Distribute ample bedding, such as straw, when the temperature is below 10°C (50° F) because it provides good insulation and helps to keep animals warm and dry.

5.3.4 Remove wet bedding after each trip to prevent it from freezing on the trucks.

5.3.5 Animals need to be protected from freezing rain and wind blowing into the sides of the truck, because it increases their loss of heat and can cause death from hypothermia, even at temperatures above freezing.

5.4 Precautions in Hot/Humid Weather

5.4.1 During hot and humid weather, precautions should be taken to avoid stress, suffering and possibly death caused by the combination of high temperature and high humidity:

- a) animals should be handled carefully because exertion in hot, humid weather is particularly stressful, and increases the chances of heat stroke;
- b) sufficient ventilation must be available at all times while the animals are on a vehicle. Aerodynamic airfoils installed on truck tractors to enhance fuel efficiency must not restrict airflow into the trailer which is necessary for ventilation and cooling;

- c) observe weather conditions carefully and adjust ventilation accordingly;
- d) whenever possible, journeys during hot, humid periods should be avoided;
- e) during hot and humid periods, animal transportation should be scheduled at night and in the early morning;
- f) periods of intense traffic congestion should be avoided;
- g) vehicles containing animals should not be parked in direct sunlight. When it is necessary to stop, the duration of the stop should be minimized to prevent the buildup of heat inside the vehicle; and,
- h) loading density should be reduced in hot and humid weather (see Appendix 2).

5.4.2 Animals can be cooled by watering the floor of pens or by using a fine mist spray. Cold water should not be poured on animals as this could cause death by shock.

5.5 Feed, Water and Rest

- 5.5.1 Recommended maximum transport times and minimum feed, water and rest periods for several species and classes of animals are shown in Table 4. Feed, water and rest should be provided more often for animals with reduced ability to cope with the stress of transport, such as very young or old animals, and for all animals that are transported under adverse conditions, such as travel through different climatic zones and weather extremes.
- 5.5.2 Total time in transport and lairage during which the animals have not received feed and water, from the premises of origin to final destination, should not exceed 52 hours for cattle, sheep and goats, or 40 hours for pigs, horses and poultry.
- 5.5.3 Animals that are in any way compromised, such as very young, old or pregnant, should be offered feed and water, and rested more often.

5.5.4 Nursing animals accompanying their dams should be allowed an opportunity to nurse undisturbed at suitable intervals. Nursing young should be provided with appropriate additional feed and water at least every 8 hours.

5.5.5 The *Health of Animals Regulations* also contain mandatory requirements for providing animals with feed, water and rest during long trips.

5.5.6 Animals may be fed, watered and rested on a vehicle that is suitably equipped. A suitably equipped vehicle for this purpose is one that meets criteria that are equivalent to those listed in section 5.5.8 for feed, water and rest stations for space, freedom from projections such as protruding latches or hinges, bedding, feed and water supply and facilities, lighting and inspection, ventilation and temperature maintenance and access to veterinary care.

5.5.7 Most vehicles are not suitably equipped to provide for adequate feed, water and rest. It is therefore necessary to plan long-distance trips taking into consideration the availability and location of facilities that offer protection from extreme weather conditions, and where animals may be unloaded, fed, watered, and cared for in a humane manner.

5.5.8 The following factors should be considered regarding feed, water and rest stations:

- a) yards must be large enough for ample parking, loading and unloading of multi-purpose stock liners;
- b) access should be available 24 hours/day for loading, feeding, watering and care of livestock as needed, including the availability of veterinary attention;
- c) gates should be in place to prevent direction reversal;
- d) catch pens and double deck chutes should be in place for proper loading and

unloading of livestock;

- e) alleyways and internal gates should be wide enough to permit livestock to pass through easily without bruising or injury;
- f) pens must provide adequate space for all animals to lie down at the same time. Resting animals should be able to move freely in a well-bedded and protected environment and penned with at least twice the floor space as in transit recommendations. During feed, water and rest or overnight holding, no animal should be stocked at any more than 122 kg/square meter (25 lbs/square foot). Pen sizes should be available for all types of livestock that may be unloaded at the facility (e.g., 50' x 60', 15' x 25', 30' x 60'). Strong pens must be available for the holding of buffalo, elk, draft horses and bulls;
- g) pens should be constructed to prevent escape of all types of small and/or large animals;
- h) floors of pens, alleyways and chutes should provide secure footing for the animals and be free from projections;
- i) while the *Health of Animals Regulations* prohibit the transportation of an animal if it is probable that the animal will give birth during the journey, it is recommended that maternity facilities be provided, in order to be prepared for this possibility;
- j) animals segregated due to injury or illness should be examined by a veterinarian on staff or on contract with the feed, water and rest facility;
- k) the environment should be free from excessive disturbance by noise, movement of people or other animals;
- l) an adequate quantity of good quality, appropriate feed for the species should be available to all animals, so that each animal has an opportunity to eat. The *Health of*

Animals Regulations specify that the rest period must be at least 5 hours. A 5-hour rest period will be insufficient if not all of the animals have the opportunity to satisfy their feed and water requirements (see Table 4);

- m) pens must be equipped with feeders that are suitable to animals to be placed therein;
- n) all animals must have free access to clean drinking water, with due consideration to the animals' size and manner of drinking, e.g., lower watering troughs for hogs, sheep, goats and other small animals, and higher watering troughs for larger livestock. Water must be protected from freezing and should be provided in adequate quantity to meet the animals' needs;
- o) suitable clean, dry bedding, such as straw, sand or wood shavings should be placed in all pens and in all types of multi-purpose stock liners before reloading;
- p) animals should be protected from wind, rain and temperature extremes while in the pens, and during loading and unloading. For beef cattle see Section 8.2;
- q) proper lighting needs to be ensured in alleyways, pens and loading chutes. Glare or shadows that intimidate the animals from moving forward should be avoided. Adequate lighting should also be available for observation of each animal in the pens;
- r) all pens and alleyways should have proper drainage. It is recommended that floor drains be located outside the path of animal movement, as floor drains cause a light contrast which may inhibit the animals;
- s) ventilation and maintenance of appropriate temperatures in all types of weather are top priorities in all barns;

- t) a separate facility equipped for milking, and knowledgeable staff experienced in hygienic milking procedures, are essential at facilities that accommodate dairy cattle;
- u) a well-lit cleaning area, functional in all seasons, should be in place for cleaning out and re-bedding of trailers. Sufficient water outlets and hoses should be available for thorough cleaning of all pens, ramps, chutes and alleyways; and
- v) some animals will lose their domestic health status or their export eligibility if unloaded at certain sites. Check with the local Canadian Food Inspection Agency office.

Table 4
Recommended Maximum Transport Times
and Minimum Feed, Water and Rest Times
which are within the standards of the *Health of Animals Regulations*

Species/Class	Maximum Transport Time	Minimum Feed, Water and Rest Time
Market Hogs	36 hours	5 hours
Sheep	48 hours	5 hours
Nursing and Pail Fed Calves	18 hours	5 hours
Calves on Special Diet	12 hours	5 hours
Cattle	48 hours	5 hours
Lactating Dairy Cows	12 hours	5 hours
Horses	24 hours	5 hours
Poultry	36 hours	Generally Slaughtered

Source: Recommended Code of Practice for the Care and Handling of Farm Animals series.

Note: More recent research findings regarding transport and handling and its impact on animal stress, carcass yield and meat quality would support a review of the above recommended times allowed in transit.

- 5.5.9 Slaughter animals imported from the United States cannot be unloaded in Canada for feed, water and rest. They must reach their final destination prior to unloading. Transporters must assure that the total duration of the trip does not exceed the regulatory requirement.

Section 6 ♦ Animals at Risk

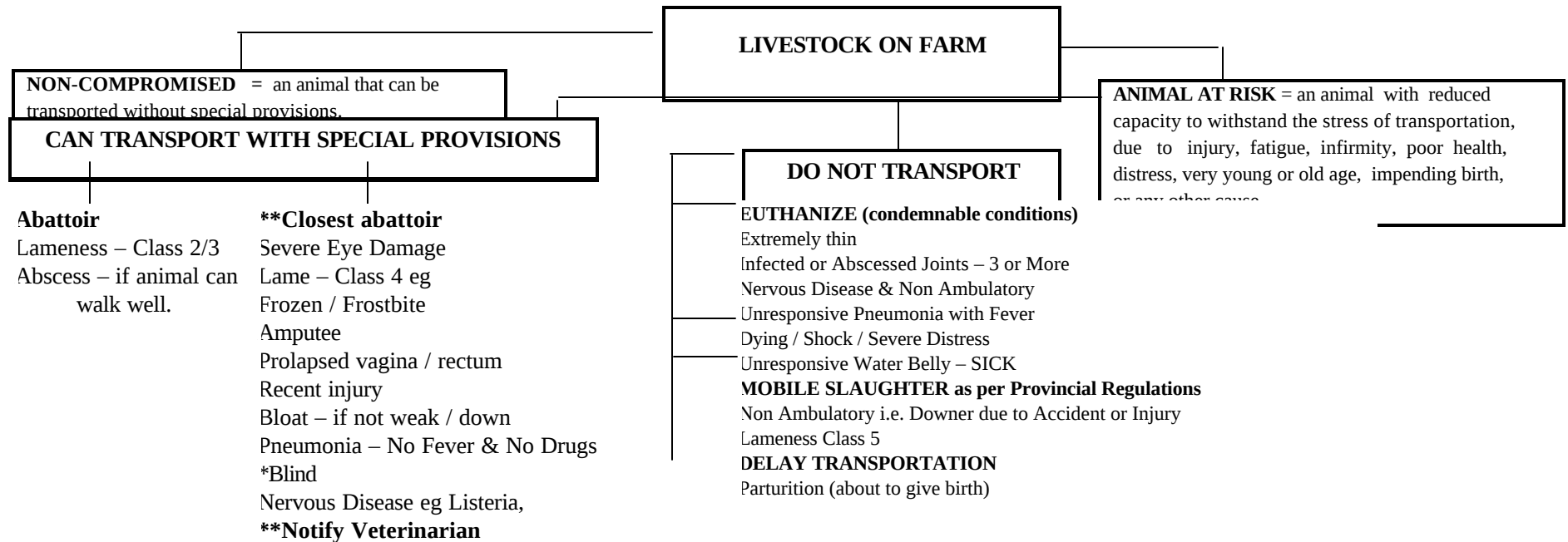
6.1 General

- 6.1.1 Animal welfare considerations should take precedence over economic considerations.
- 6.1.2 Prior to transport animals should be in good physical condition and health. Animals that are sick, injured, disabled, fatigued, or that cannot be moved without causing them additional suffering, are unfit for transportation.
- 6.1.3 Subject animals may be loaded and transported directly to an abattoir, provided that such loading and transport does not cause additional suffering. Such animals must be segregated on the vehicle. Subject animals must be loaded last and unloaded first.
- 6.1.4 Non-ambulatory animals (downers) should not be loaded for transport unless allowed by provincial regulations and when following strict guidelines for proper loading and transport. The animal should be examined on the premises by a veterinarian. If the

carcass is not salvageable, the animal should be euthanized. If the carcass could be of value, the animal should be rendered unconscious, slaughtered, and the carcass immediately moved to an abattoir for processing. In jurisdictions where on-farm slaughter is not permissible, the animal should be euthanized if loading and transportation without further suffering are not possible. In some situations, injured animals should be humanely killed. Appendix 4 outlines proper means of killing animals using firearms.

- 6.1.5 An animal that becomes sick, injured or disabled during transit must be taken to the nearest appropriate place for treatment. Veterinary advice should be sought.
- 6.1.6 An animal that becomes injured, sick, or disabled in transit should be kept segregated from other animals.
- 6.1.7 In the case of a vehicle accident or roadside emergency, immediate action should be taken to minimize suffering of animals in transit. Veterinary advice should be sought (see Appendix 3 Emergency Procedures).
- 6.1.8 Injured, sick or disabled animals should be unloaded in a way that causes the least amount of suffering.
- 6.1.9 Non-ambulatory animals (downers) must not be removed from the vehicle while conscious. The animal should be evaluated by a veterinarian. If not fit for transport (see *A Guide to Handling Animals at Risk*, page 15), the animal should be killed. If fit for transport, the animal should be moved in the vehicle to the nearest abattoir, examined, and humanely stunned or killed on the vehicle prior to unloading. Once unloaded, the stunned animal must be immediately slaughtered before regaining consciousness.
- 6.1.10 Care and common sense are essential when forced movement of a stressed animal is necessary. Each animal should be treated with extreme patience and should be allowed to rest when necessary to avoid exertion.
- 6.1.11 Special care should be taken in transporting lactating dairy cows, and pregnant dairy cows that are close to calving. These cows are especially susceptible to infectious disease (mastitis) and metabolic disease (milk fever, ketosis). Lactating cows in transport should be milked as required, generally twice daily at 12 hour intervals. Transportation within two weeks prior to, and after, calving should be avoided.
- 6.1.12 Transporting cull dairy cows in adverse weather conditions is a special concern. These cows may be unfit for transportation due to poor body condition, age or infirmity. Producers should be aware that these cows are at risk of developing complications during transport. Such cows should be culled and shipped before becoming high risk animals. Alternately, such cows may be taken directly to an abattoir for processing, or, in extreme cases, such cows should be euthanized on farm.
- 6.1.13 Pregnant animals must not be transported if they are likely to give birth during the journey.
- 6.1.14 Calves too young to be fed exclusively on hay and grain must be provided with suitable feed and water at least every 18 hours. It is recommended that they be provided with suitable feed and water at least every 12 hours.
- 6.1.15 Any animal that dies in transit must be removed from the vehicle at the first opportunity in accordance with provincial and federal legislation.

A Guide to Handling Livestock at Risk



LAMENESS CLASSES

- Class 1** - Visibly lame but can keep up with group; no evidence of pain.
- Class 2** - Unable to keep up; some difficulty climbing ramps. Load in rear compartment.
- Class 3** - Require assistance to rise but can walk freely.
Segregate. Load in rear compartment.
- Class 4** - Require assistance to rise; reluctant to walk, halted movement; no steep ramps.
- Class 5** - Unable to rise or remain standing.
Should not be moved; except with veterinary certification, using suitable specialized equipment, and in accordance with provincial regulations.
Euthanasia or Mobile Slaughter.

NOTES AND REFERENCES

- **Federal Health of Animals Regulations**
- **Recommended Codes of Practice for the Care and Handling of Farm Animals**
- **Animals segregated in trucks require extra protection from cold and wind chill; ample bedding is required.**
- ***Blind animals should be put in a small compartment with one other quiet animal, or individually segregated**
- **Producers must adhere to drug withdrawal times prior to slaughter.**

Section 7 ♦ Post Transport Antemortem (Preslaughter) Care

- 7.1 Animals should be cared for humanely during the post transport and/or antemortem period, generally defined as the 24 hours - 48 hours prior to slaughter. Humane treatment during this period should include:
- a) safe, careful unloading and movement into clean, uncrowded, dry holding areas.
 - b) reasonable protection from adverse weather, noise (such as exhaust fans or vehicles), noxious odours (such as exhaust from rendering or petrochemical sources) or views likely to upset the animals (such as people, vehicles, animals being stunned); and,
 - c) access to clean water.
- When unloading animals at a commercial abattoir (packing plant) attention should be paid to any animals that may have become downers (trampled) or non-ambulatory or injured during transport. In such cases the antemortem inspector should be notified and proper segregation and care or euthanasia should be extended to these animals (see Section 6, *Animals at Risk*).
- 7.2 Proper antemortem and/or post transport care will reduce weight loss, health problems and meat quality degradation.
- 7.3 Proper loading, unloading, care and management is important to the well being of animals during the antemortem period. Animals that will be kept for more than a few hours after transport should be provided with food, water and rest (see Section 5.5).

Section 8 ♦ Species Specific and Class Specific Considerations

The previous sections have provided recommended practices for transporting animals. Section 8 outlines recommended practices specific to a given species or class of animal within a species. This information is intended to augment the recommendations outlined in the previous sections and should be interpreted in conjunction with the former sections.

8.1 Calves

- 8.1.1 Calves too young to be fed exclusively on hay and grain must be provided with suitable feed and water at least every 18 hours. It is recommended that they be provided with suitable feed and water at least every 12 hours.
- 8.1.2 Allow calves that have overexerted themselves to rest. This is a special problem with confined calves and can lead to heart failure. Sufficient opportunity should be provided to allow calves to overcome the results of over exertion.
- 8.1.3 In hot weather handle calves carefully because exercise increases stress problems. Wide temperature fluctuations between day and night also increase stress.
- 8.1.4 Care is essential when forced movement of a stressed calf is necessary. Every animal should be treated with extreme patience when it is overexerted.
- 8.1.5 Every effort should be made to ensure that calves are presented, sold, and delivered from only one sale facility. Every effort should be made to keep the distance to be travelled and the travelling time to a minimum.
- 8.1.6 During transit, calves should be provided with suitable feed and water at intervals not to exceed 18 hours if they are too young to be fed exclusively on hay or grain.
- 8.1.7 If a journey is to last longer than 18 hours, calves must be fed and watered within 5 hours of loading.

8.1.8 Calves that are unloaded for food, water, and rest must be placed in a suitably covered shelter, provided with enough food and potable water, and rested for at least 5 hours.

8.1.9 Transporters must maintain, or have access to, facilities where calves may be fed, watered, and cared for and that provide shelter from extreme temperatures.

8.1.10 Calves of substantially different sizes should be segregated.

8.2 Beef Cattle

8.2.1 Beef cattle are regularly housed in outdoor situations consisting of pens and pasture. In general, they are more able to physiologically accommodate to the physical challenges of transport. They normally have an appropriate hair coat for the season and have physically adapted to the outdoor environment of assembly and transport. Adherence to the general considerations in this code should assure humane transportation of this class of animal.

8.2.2 Outdoor and range raised cattle may be less comfortable with people in close proximity and assembly may be a novel experience. Highly excited animals are a risk for self-injury and human injury in the marketing systems. “Spooky” cattle should be handled with care and consideration.

8.2.3 Beef calves only having previous exposure to a dugout or stream as a water source may not immediately drink from automated water sources when assembled.

- 8.2.4 Dairy cattle are also marketed for beef. Dairy cattle are often less able to adapt to the outdoor environment of assembly and transport. Trucks hauling dairy slaughter cattle require some boarding up in inclement weather.
- 8.2.5 A dairy animal requires more floor space on the truck than a beef type animal of the same weight.
- 8.3 Dairy Cattle**
- 8.3.1 Special care should be taken when transporting lactating dairy cows and pregnant dairy cows that are close to calving. These cows are especially susceptible to infectious disease (mastitis) and metabolic disease (milk fever, ketosis). Lactating cows in transport should be milked as required, generally twice daily at 12 hour intervals. Pregnant cows that may calve during transport must not be transported. Transportation within two weeks prior to and after calving should be avoided.
- 8.3.2 Transporting cull cows in adverse weather conditions is a special concern. These cows may be unfit for transportation due to poor body condition, age or infirmity, and lack of acclimatization to cold weather. Producers should be aware that these cows are at risk of developing complications during transport. Such cows should be culled and shipped before becoming high risk animals. If suitable for transport, such cows may be taken directly to the closest abattoir, or, in extreme cases should be euthanized on farm.
- 8.3.3 Calving is a natural phenomenon and as such the timing cannot be precisely predicted. Consideration should be given to curtailing long-distance travel during expected calving time and immediately thereafter.
- 8.3.4 Calves should be loaded only into vehicles that are clean and disinfected and that contain suitable fresh bedding material. Bob calves should not be bedded in shavings or sawdust because if they ingest this type of bedding material they will experience digestive problems.
- 8.3.5 Dairy cattle of substantially different sizes should be segregated (see Section 4.3, Segregation).
- 8.3.6 Devices used to tether dairy cattle must be removed immediately if they restrict breathing or otherwise cause discomfort to the dairy cattle.
- 8.3.7 Milking cattle should not be deprived of feed and water for longer than 12 hours.
- 8.3.8 Cull dairy cattle in transit require more space on a per animal weight basis than equivalent weight beef cattle. Dairy type cows in good body condition require about 10% more space than an equivalent weight beef cow and thin dairy cows can require up to 25% more space than an equivalent weight beef animal. Refer to the beef maximal loading density chart (Figure 3) and make the appropriate adjustment for hauling groups of cull dairy cows.
- 8.4 Farm Deer (elk, white tail, mule deer, fallow deer and others)**
- 8.4.1 Except in emergencies, the following deer must not be transported:
- a) pregnant deer 1) within 14 days of giving birth, 2) within 30 days of giving birth, if the duration of the trip will exceed 6 hours, 3) within 90 days of giving birth, if the ambient temperature is expected to exceed 20° C, or 4) if the deer cannot be assembled and loaded in a reasonably efficient and quiet manner;
 - b) deer with young at foot under 4 weeks of age (young can be transported separately from dams for short trips);
 - c) pre-rut weaned animals within 2 weeks of separation from their dams; or
 - d) deer in velvet, with bleeding or incompletely healed pedicles, or within the first 48 hours after antler removal.

- 8.4.2 Each animal should be able to stand in its natural position, allowing for comfortable head movements without touching the deck or roof of the vehicle or container. All deer should be able to lie down comfortably at the same time.
- 8.4.3 As a guide to achieving 8.4.2, calculate length x width of the space occupied by each animal when lying down, then divide the loadable surface area of the truck or container by that figure to calculate the number of animals to be loaded. Reduce that number somewhat on longer trips or in hot weather (Appendix 2).
- 8.4.4 Deer should be segregated according to species, size, gender, age, social group and/or compatibility.
- 8.4.5 A male in rut or with hard antlers must be segregated from all other animals. Males with velvet antlers should not normally be transported.
- 8.4.6 When the vehicle is not full, deer should be securely partitioned in smaller areas to provide stability for the deer and the vehicle. The size of any group should not exceed 15 individuals (Section 3).
- 8.4.7 On long journeys (more than 6 h) the animals should be offered water, however, they should be fed and watered if the journey is more than 10 h. As a rule, deer need to be offered drinking water frequently. If the weather is hot, spraying the deer with a fine mist will help to cool them and will also act to calm the deer.
- 8.4.8 Deer should be fed and watered before loading for transport.
- 8.4.9 Where transport time will exceed 24 hours, carriers should transport deer in vehicles that are equipped to provide adequate resting space, water and hay. Water can be provided by hosing down the animals and wetting their hay at 4 hour intervals during transport, weather permitting. This technique will also cool the deer in hot weather.

8.5 Horses

General Considerations

- 8.5.1 A nursing foal with dam must be segregated from other animals during transport and should be allowed an opportunity to nurse undisturbed (with the vehicle stopped) at suitable intervals. Mares with nursing foals should be provided with appropriate feed and water during transit.
- 8.5.2 Blind horses require special handling. A blind horse should be haltered and transported individually or with familiar pen mates or a compatible horse. They should never be sold through auction markets or other unfamiliar surroundings.

Headroom

- 8.5.3 Each animal must be able to assume a natural stance, standing with four feet on the floor and have a full range of head and neck movement without touching the ceiling of the container. As a guide the minimum headroom for horses in transit can be approximated by multiplying the withers height by 1.25 (1 inch of headroom, withers to ceiling height for each hand in withers height).
- 8.5.4 When using possum belly trailers for horse transport, handlers must pay special attention to prevent horses' heads from coming into contact with the deck while moving into or out of the upper or lower decks. The internal angle and positioning of ramps can alter effective headroom when horses pass through doors.

Loading and Unloading

- 8.5.5 Horses generally move toward light. To encourage the safe and efficient movement of horses, adequate and appropriate lighting is required around alleys, loading ramps and the entrance to transport vehicles. Lamps should not be shone directly into horses' eyes. Diffused lighting should be used. Harsh contrasts in lighting should be avoided.

- 8.5.6 Chutes or ramps should be about 76 cm (30 in) wide to allow horses to move in single file. Movement of loose horses is more easily accomplished if the alleys and ramps have no sharp turns that could impede movement or cause injury. Chute design should allow for a gradual curve with no more than a 15° bend. The walls of chutes and ramps should be solid. The inside wall should be made slightly lower so that the animals can see the tops of the heads of horses in front of them.
- 8.5.7 Horses have thin skin compared to other animals of a similar mass. Special care should be exercised to maintain a smooth surface to all handling facilities. A horse caught on a protruding nail or similar sharp object can suffer serious skin laceration.
- 8.5.8 Concrete ramps should be stair step design (approximately 5 cm rise and 20 cm run) with adequate grooving in the concrete.
- 8.5.9 Wooden ramps require square cleats 3.8 - 5.0 cm (1.5 - 2 in) attached to the ramp every 20 cm (8 in). Hardwood or square steel tubing should be used for cleats.
- 8.5.10 If loose horses are backed off a vehicle, the down ramp should maintain a constant narrow width until the horses achieve level footing. Horses backing down a ramp should not be allowed to attempt to turn around on an incline.
- 8.5.11 Loose horses should not be unloaded directly into long alleyways. The animals unloaded first will move to the end of the alley and horses unloaded later will have a tendency to bolt to rejoin the previously unloaded group. Every effort should be made to control the speed of horses being unloaded.
- 8.5.12 Drains should be installed outside the alleyway. Horses may balk and refuse to walk over drain grates in the middle of the floor or alleyways.
- 8.5.13 Horses generally transport well when shod. Handlers should evaluate the condition and attachment of shoes, compatibility with the trailer

floor and the potential risk of injury to other animals when loading shod animals in a group. Under the *Health of Animals Regulations* horses with shoes on their hind feet must be segregated from all other animals.

8.6 Pigs

General Considerations

- 8.6.1 Several important physical and behavioural characteristics are important to consider when handling pigs. The pig has 310° panoramic vision. What it sees greatly influences how it moves. Make sorting gates, pens, and ramp sides of solid panels such as plywood to block out distracting sights and sounds. Gate and fence panels should fit close to the floor.
- 8.6.2 Pigs have a strong tendency to follow each other and to maintain both visual and body contact. Gently encourage the lead pig to enter the handling facility and others will generally follow. Pigs may balk at contrasting shadows, bright spots, and changes in floor surface. Provide uniform lighting directly over the approaches to sorting pens, single-file chutes, and loading ramps. At night, lighting the interior of the transport truck helps during loading, but on bright sunny days it may help to secure a canvas cover to darken the outside part of the loading dock.
- 8.6.3 Pigs have a strong escape reaction. When prodded, a pig will attempt to get away, either by running forward or by turning back to shelter among the group. This reaction is a major cause of jamming and wedging at any tapered passage, such as the funneled entrance to a single-file chute. Two or three panicking pigs will wedge into the funnel, but, unlike cattle and sheep, they will not back up to allow an orderly sorting-out. *Handlers must not kick pigs.*
- 8.6.4 Pigs are semi-tropical animals most comfortable at temperatures preferred by people. Pigs are also transported at a very broad weight range from 5 kg (10 lbs) to 300

kg (650 lbs) cull breeding animals. Early segregated weaning and three-site production programs greatly increase the number of times a pig may be subjected to transport during its production life.

Health Concerns

8.6.5 Many pig farms are high security and specific pathogen free. Introduction of pathogens into a previously unexposed population can precipitate significant animal suffering. The principal method of disease transmission is animal movement. The transport of swine must minimize the introduction of specific pathogens into an unexposed herd.

8.6.6 The stress and excitement associated with handling and transport can lead to serious health problems and death. Three of the most common and important health concerns are:

- heat stress or hyperthermia; death rate in transit to slaughter begins to rise when temperatures exceed 16°C (61°F);
- heart failure;
- porcine stress syndrome (PSS).

8.6.7 During hot weather the pig usually maintains its temperature by panting. Heat stress occurs when the pig's body temperature rises to an uncontrollable level. A pig that is in distress makes loud, deep, gasping sounds. Act quickly to cool an over-heated pig or it will die. Do not cause the pig to run or climb ramps. If possible move the pig to a cooler environment and wet it down with a fine spray of cool water. *Do not pour cold water on pigs* because they could die from shock.

8.6.8 Heart failure can occur in pigs moving up ramps, or following strenuous exercise associated with mixing and handling. The clinical signs of heart failure occur suddenly. The pig collapses; its breathing is rapid; the ears and snout turn blue. The animal requires immediate attention. Separate other pigs from it and allow it to rest. Any prodding or additional stress is likely to put

further strain on the pig's heart and lead to its death. Pigs can take up to an hour to recover and be able to stand.

8.6.9 Porcine stress syndrome (PSS) is an inherited disorder of pigs. Animals with this genetic defect are extremely sensitive to stress and must be handled with exceptional care. When PSS pigs are stressed, their body temperature suddenly rises, their skin develops red blotches, they collapse, and their limbs become rigid. Treat immediately in the same way as for cooling the heat-stressed pig (see earlier).

8.6.10 If a pig lies down while being handled and appears distressed, let it rest and recover without prodding. Repeated prodding may result in heart failure and death.

8.6.11 The moving of pigs whether from pen to pen, barn to truck, or truck to plant, can be stressful both for pigs and attendants. Patience and common sense are needed to make the move easier.

8.6.12 By gently encouraging the lead pig to enter the handling facility, others will generally follow. A small group of pigs is easier to move than a large group.

Loading and Unloading

8.6.13 Design the loading zone to safeguard against spread of infectious organisms as much as possible. Take care to prevent the return or escape of loaded pigs from the truck or loading zone back into the building.

8.6.14 Depending on facilities move small bunches of 5 to 8 pigs through the alleyway and up the loading ramp. Moving large bunches results in pileups and stress. This is especially important with lean, modern hybrids because they may have an excitable disposition.

8.6.15 When new finishing barns are built 1 m (3 ft) alleyways should be built. Pigs jam and are difficult to move through a .6 m (24 in) alley.

- 8.6.16 It is recommended that dividers be used so that no more than 30 market hogs are held in any section of the trailer during transport.
- 8.6.17 Under the *Health of Animals Regulations*, an animal that becomes injured, ill or otherwise unfit for transport during a journey must not continue to be transported beyond the nearest suitable place at which it can receive proper care and attention. In the event of injury or illness occurring in transit where no suitable facility is close by, it is recommended that every truck have the capacity to pen one or two pigs separately.
- 8.6.18 Loading of pigs can be more easily accomplished if pathways and ramps have no sharp turns that impede movement that may cause injury to the pigs. An ideal loading alley and ramp should be curved, have solid walls, be properly illuminated, and be flat. The ramp should not be steeper than 20°.
- 8.6.19 Loading docks should be level with the truck, but if the loading dock is not level with the truck, a ramp should be used or if necessary, the pig should step safely up into the truck rather than down.
- 8.6.20 In a truck, to avoid pigs piling up at the front, attendants should turn pigs around to face the door before trying to unload. Tilting the deck of a truck to force pigs to slide off is unacceptable.
- 8.6.21 Pigs of substantially different weights and ages must be penned separately during transportation and marketing. Cull sows over 170 kg (375 lbs) must not be mixed with market hogs. Unfit pigs should be penned separately except as described in Section 6.
- 8.6.22 Pregnant sows should not be shipped to slaughter within 6 weeks of expected farrowing.
- 8.6.23 A sow with her suckling litter should not normally be transported. If transportation is necessary, the sow must be segregated from all other animals during transport and the litter must be protected appropriately.

Care and Protection During Hot Weather Transit

- 8.6.24 Pigs have a low tolerance for hot temperatures and high humidity.
- 8.6.25 Do not bed with straw or shavings in hot weather as this practice causes an increased heat buildup. If traction is poor, moist peat moss or sand can be used.
- 8.6.26 Ensure appropriate airflow through the vehicle. To protect pigs properly from the sun in the case of open-top trucks, use tarpaulins on the top only. Ensure ventilation from sides by not covering slats or openings with tarpaulins or other materials.
- 8.6.27 Load and unload promptly. Make as few stops as possible. Heat builds up rapidly inside a loaded vehicle that is standing still. If an unavoidable delay occurs, run water on the floor, look for a shaded area, or drive the truck around slowly until you can unload the pigs.
- 8.6.28 Schedule evening transport of pigs during hot weather to avoid traveling during the hottest hours or during rush hour traffic.
- 8.6.29 In case of breakdowns, accidents, or other delays, follow emergency procedures (Appendix 3).

Care and Protection During Cold Weather Transit

- 8.6.30 All categories of pigs are susceptible to cold stress during transport. Western Canada is at higher risk because of the temperature extremes and the distances travelled.
- 8.6.31 All vehicles used in cold weather [-10°C (14°F) and below] must have the ability to change the air movement in the swine compartment when loaded. For commercial trailers external sliding plastic panels are recommended. Most commercial trailer manufacturers provide an option of winterized trailers. Lining trailers with plywood can be useful but this technique does not allow for

opening up of the trailer when the weather warms up.

- 8.6.32 For market hogs decrease the loading density during cold weather and increase the bedding. When market hogs are tightly packed they are unable to reposition themselves in the load in response to cold spots. Also, increasing the floor space per hog allows the pigs to lie down (huddle) to conserve heat and individuals will not be held against the internal wall of the trailer. In cold winter conditions a maximum of 250 kg/m² (52 lbs/sq. ft) is recommended.
- 8.6.33 Monitor the load closely during severe cold weather. If transported pigs start to eat the straw or shavings used for bedding the trailer may be too cold and the pigs may need additional protection.

Boars

- 8.6.34 Cull mature boars destined for slaughter can be aggressive with handlers and other swine. Mature boars should be segregated during transport and kept individually penned if possible. Boars must not be discouraged from fighting by hitting or bruising them on the nose. At times it may be necessary to use some force to keep boars from doing physical harm to each other; in these cases the handler must take appropriate corrective measures to prevent boars from doing physical harm to one another:
- arrange for all mature boars [over 135 kg (300 lbs) or those showing signs of tusks] to be detusked on the premises of origin prior to transport;
 - pen all mature boars individually and mix them with others only immediately prior to shipping. Mix boars only with others of the same size;
 - pull out aggressive boars and keep them separate;
 - ensure that all transporters have sufficient partitions in the truck so that no more than 8-15 boars (depending on size) are grouped together;

- ensure that all transporters have at least one or two individual partitions in the truck available for aggressive or injured boars.

Iso-Weaned Pigs

- 8.6.35 Iso-weaned (also known as segregated early weaned) piglets are removed from the mother at between 14 and 21 days (16 day average) and usually transported to a nursery barn at least 5 kilometres distant. This practice prevents the transmission of several pathogenic bacteria from the sow to the piglet. Transportation of Iso-weaned pigs is a new challenge for the swine industry.
- 8.6.36 Iso-weaned piglets should not be transported more than 12 hours to the nursery facility.
- 8.6.37 Iso-weaned piglets can be humanely transported in small groups (25) in plastic containers in a manner similar to poultry. This method requires individual catching and handling of each piglet. Young pigs have fully developed herding and following instincts and usually herd easily. A maximum group size of 50 is recommended for Iso-weaned piglets in transit, primarily to minimize the time assembling and unloading each group. Well organized systems may facilitate the assembly and loading of up to 100 Iso-weaned piglets in a group.
- 8.6.38 Iso-weaned piglets are inspected at the US/Canadian border for herd identity and appropriate loading density. Veterinarians commonly use a startle test and resultant piglet behaviour to evaluate crowding. Sleeping piglets are abruptly awakened by a short noise. The alerted piglets move away from the noise and if 25% of the floor becomes visible the space allowance is usually adequate. Most of these piglets are travelling less than 6-8 hours.

Identification

8.6.39 Slapmarking (tattoo on the shoulder of a market hog) is the current method used where identification is required immediately prior to transporting. Minimal use of slapmarking is recommended. Herd specific tattoos and ear tags may be required for feeder pig export to the United States.

Devices for moving pigs

8.6.40 Devices for moving pigs include the following:

- Chase boards [about 1 m (3-ft) wide] are a preferred device for moving pigs. These are usually made of plywood or aluminum with handholds. The attendant can walk behind the pigs and keep them moving in the right direction.
- Canvas slappers are about 7.5-10 cm wide (3-4 in) applied to the hind end, they will start and keep pigs moving. Unnecessary force or a frozen slapper should not be used.
- Stock whips, if used against the sides of the alleys, cause noise that stimulates the pigs to move forward. Never use a whip on the pigs.
- Use of battery-operated electric prods should be kept to a minimum to avoid excitement. Never use high-voltage prods on pigs. If a pig lies down when prodded, do not continue prodding, let the animal calm down. Prods must not be used in the genital, anal, or facial areas. Use is to be restricted to the hindquarters of pigs when their way forward is clear.

8.6.41 These devices if used properly can help in moving pigs; however, devices used improperly are not acceptable. Only minimal use of any of these devices is recommended. Attendants must be patient and considerate. Sometimes the best move is to step back and let both the pig and the attendant calm down.

8.6.42 Use of any device, such as a cane, pipe, tattoo machine, or sharp instrument, as a prod or goad is not acceptable.

Space Requirements

8.6.43 Dividers are recommended so that no more than 30 market hogs or 50 feeder hogs are held in any section.

8.6.44 Do not exceed space allowance requirements as described in the charts in Appendix 2.

8.7 Poultry

8.7.1 All poultry do not have the same space requirements. Equipment specific to the species should be used. These guidelines emphasize the responsibilities of the poultry producer, the catching crew, and the transporter. They are intended to encourage humane, efficient, and considerate treatment of birds so that transport stress and injury are minimized at all stages of handling and transport.

8.7.2 Careless catching of birds is a common source of injury. Injured birds are particularly susceptible to transportation stress. This is inhumane and increases the loss of marketable product.

8.7.3 Piling of birds in corners can cause injury or mortality. Steps must be taken to prevent this from occurring.

8.7.4 The two most common procedures that facilitate easier catching of loose-housed birds are:

- 1) lowering the light intensity in the pen or using blue bulbs to provide adequate illumination for humans but not for poultry; and
- 2) corralling birds with a net or screen at the loading door.

- 8.7.5 Range birds can be loaded more easily by moving them in small groups.
- 8.7.6 Proper building design and accessibility to transport vehicles greatly improves the humane handling of loose-housed poultry. Owners and operators should ensure the following:
- a) appropriate access to loading and unloading areas of poultry barns is provided;
 - b) loading and unloading areas and ramps are designed to permit proper bird handling;
 - c) building design discourages needless transfer of birds between handlers;
 - d) building design incorporates a door for every 15 m (49 ft) of building length, and doors on first, second, and third floors are not less than 120 cm wide (48 in) and not less than 200 cm (78 in) high; and,
 - e) when birds have to be handed through floor openings, the openings are not less than 1 m² (10 sq.ft.) for broilers and not less than 1.2m² (13 sq.ft.) for turkeys, and no obstructions, such as floor joists, hinder the transfer of birds.
- 8.7.7 When birds are transported in crates or bins, the design, construction available space and state of repair should allow the birds to be loaded, conveyed, and removed without injury. Birds should be loaded only into clean transporting crates and clean vehicles.
- 8.7.8 Crate doors and panels on liner trucks should be large enough to permit easy passage of birds, thus avoiding injury.
- 8.7.9 Construction of crates and bins should provide adequate, uniform ventilation but prevent protrusion of the head, wings and legs of birds.
- 8.7.10 When loaded into bins or crates, birds must be positioned on their feet to avoid smothering.
- 8.7.11 The number of birds per crate or bin depends on available floor space, body size of birds, and prevailing environmental conditions at time of transport. Maximum density per crate or bin should permit all birds to rest on the floor at the same time if they are evenly distributed. Birds should be able to move their heads freely when sitting on the floor.
- 8.7.12 Covers should be used to protect birds in crates from wind, rain, and adverse weather conditions.
- 8.7.13 When birds are being transported in crates or bins, the driver should check the load and surrounding area for loose birds before departing.
- 8.7.14 Birds should be protected from getting wet. During loading they should be protected from sources of heat and steam to minimize the effect of exposure to a sudden drop in temperature.
- 8.7.15 Eavestroughs should be continuous across loading areas to prevent birds from getting wet during transfer from building to truck during a rainstorm.
- 8.7.16 Ideally, crates with live birds should be moved in a horizontal position. If a conveyor is used for loading crates of live birds, the conveyor angle should prevent tilting of crates that causes birds to pile up. Crates should not be thrown or dropped. They should be moved smoothly during loading, transport, and unloading.
- 8.7.17 One possible way to alleviate catching and loading problems and to avoid the potential for damage to the birds, is to collect the birds mechanically. Producers, catchers, and transporters should keep themselves informed of new technology. Only devices proven to be humane should be considered for use in gathering birds.
- 8.7.18 Loading of poultry is usually done by manual capture and lifting of the bird. This process

happens under subdued lighting while the animals are at rest.

- 8.7.19 Producers are responsible for ensuring proper interior and exterior design of buildings to facilitate loading and unloading of poultry.
- 8.7.20 In caged layer barns, cross conveyors should not be installed in such a way as to impede the flow of birds in carts travelling directly into or out of the barn via the proper loading doors. Where it is necessary to block the cage rows at the loading end, proper access must be given to the opposite end of the cage rows.
- 8.7.21 Weather conditions should be considered when determining load densities. For growing and adult birds, the recommended maximum live weight loading densities for crates and bins in cold weather are as follows:

Chickens: 63 kg/m² (139 lbs/10 sq. ft.)

Broiler Turkeys: 98 kg/m² (216 lbs/10 sq. ft.)

Heavy Hens: 98 kg/m² (216 lbs/10 sq. ft.)

Heavy Toms: 98 kg/m² (216 lbs/10 sq. ft.)

Source: Recommended Code of Practice for the Care and Handling of Poultry from Hatchery to Processing Plant (1989).

- 8.7.22 These maximum values are recommended for winter conditions and should be reduced during summer. On hot summer days, loading of turkeys at midday should be avoided. When temperature exceeds 32°C (90°F), birds should not be loaded unless they are scheduled for same-day delivery.
- 8.7.23 The driver of the vehicle is responsible for the care and welfare of all birds during transport. The driver should take into consideration climatic conditions and should adjust coverings to allow birds to warm up or cool off, as required.

Feed and Water During Transport

- 8.7.24 For young poultry (chicks) consumption of feed and water during transport is not always easy to arrange. It is noted, however, that some options are available, for example, the recently

developed fluid or water matrix product for chicks.

8.8 Sheep

- 8.8.1 Sheep should not be loaded or unloaded in such a manner as to cause injury or avoidable suffering.
- 8.8.2 Because of their small size, sheep and lambs are sometimes lifted by grasping them around the body and placing them in a transport vehicle. This is acceptable providing it is done with care and the sheep or lamb is not handled in a rough manner. The animal should be lifted by supporting its chest and abdomen and not by its fleece, head, horns, ears or legs.
- 8.8.3 Sheep should not be rushed during loading and unloading. Sheep have a strong tendency to follow each other and to maintain both visual and body contact. Gently encourage the lead animal to enter the chute or ramp and others will generally follow.
- 8.8.4 Young and recently shorn sheep are particularly susceptible to frostbite and loss of body heat during transport.
- 8.8.5 Frequency and length of stops where sheep are not offloaded should be kept to a minimum during transit to prevent rapid buildup of heat inside the vehicle.
- 8.8.6 Shorn sheep should be protected from prolonged exposure to direct sunlight to prevent sunburn.
- 8.8.7 In hot weather, sheep should be handled particularly carefully because physical activity increases heat stress. Every animal should be treated with extreme patience and should be allowed to rest when overexerted. Wide temperature fluctuations between day and night also increase stress.

8.9 Diversified Livestock

Information on transportation of livestock species not included in this code can be obtained by contacting Canadian Food Inspection Agency regional offices.

Information on transportation of mink and ranched fox is contained in the *Recommended Code of Practice for the Care and Handling of Mink* (Agriculture Canada Publication 1819) and the *Recommended Code of Practice for the Care and Handling of Ranched Fox* (Agriculture Canada Publication 1831), available from: Communications Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario K1A 0C5.

The long range plan for completion of new codes of practice is:

Aquaculture	2002	Bison	2000
Goats	2000	Ratites	2004

For further information on code development and national industry organizations contact the Canadian Agri-Food Research Council.

Section 9 ♦ Research Needs

The recommended and allowed times off feed and water and times in transit in the current codes represent industry consensus and practice. These current codes and especially allowed times off feed and water are areas in need of additional research. It is to be expected that as research findings evolve and as objective data is produced that these recommendations may well change in future editions of the *Recommended Code of Practice for the Care and Handling of Farm Animals -- Transportation*.

During the national consultations that were conducted between 1993 and 1995 under the Agriculture and Agri-Food Canada humane transportation review stakeholders advised that there is a need to identify research priorities that focus on actual transport needs. Needs identified include:

- the identification of vehicle and equipment;
- the production of transportation flow maps;
- maximum feed, water and rest intervals;
- maximum cumulative transport time;

- critical age for transport;
- design features applicable to both small shippers and large transporters; and
- the means to transfer relevant information to those involved in the transportation of animals.

The research should be conducted, or if already adequately researched elsewhere in the world, reviewed for possible application in Canada if appropriate, for each species of livestock and poultry.

APPENDICES

Appendix 1 ♦ Definitions

Animal at risk: an animal with reduced capacity to withstand the stress of transportation, due to injury, fatigue, infirmity, poor health, distress, very young or old age, impending birth, or any other cause.

Antemortem: refers to the period prior to death. In livestock industries this generally means the last 24-48 hours prior to death.

Assembly Points: refers to the physical location where animals may be gathered for the purpose of display, rest and/or health treatment, sale or slaughter. This includes locations such as auction marts, animal buying yards, treatment facilities, community pasture or feeding and clearing facilities, show barns, abattoirs and so forth.

Bedding: adequate amount of straw or shavings spread on the vehicle floor or animal's pen to provide warmth, absorption, drainage or proper, safe footing.

Beef Cattle: classification of a bovine on physical appearance consistent with breeds of cattle primarily raised for meat production. Typical beef breeds are Angus, Hereford, Charolais, Simmental, and mixes of these and similar breeds.

Bin: a container used for handling and hauling of larger poultry, e.g., turkey.

Calves/Cattle Calves: this term refers to cattle generally under about six (6) months of age. These animals are often unweaned or recently weaned from their dams.

Capture Myopathy: this condition is defined as a non-inflammatory degeneration of skeletal muscle. An affected animal will appear weak and may not be able to stand or walk. Typically, this condition can affect wildlife species several minutes or days after capture but can also affect domestic livestock such as cattle, sheep or horses if they have experienced severe exercise or have been chased. This condition can result in death.

Class: in the present text this term generally refers to a group of animals displaying similar ages, species and condition. For example, lactating dairy cattle, weaned beef heifers, cull sows and so forth.

Container: a box or crate that is well constructed for the shipment of livestock. It should have secure, smooth fittings and be free from any sharp protrusions. It should provide adequate ventilation and yet no part of the animal should protrude from the container. A container is usually moved from one means of transportation to another.

Crate: a container used for handling and hauling of smaller poultry, e.g., chicken.

Crippled: animal is lame or disabled.

Dairy Cattle: classification of a bovine on physical appearance consistent with breeds of cattle primarily raised for milk production. Typical beef breeds are Holstein, Jersey, Ayrshire, Guernsey, and mixes of these and similar breeds.

Destination: the final point of transport, generally a farm, ranch or abattoir.

Disabled: the animal lacks the ability, either through injury or disease, to move in a normal gait/manner.

Distress: a condition of suffering, danger, fear or desperate need.

Downed: when an animal goes down under foot, or fallen and because of crowding, poor footing, injury or disease cannot get back up.

Downer: term used to describe an animal that has been downed. A “downer” animal usually cannot get up and walk by itself (see Non-Ambulatory Animal).

Feed Deficiency: an animal is given insufficient feed in either quality or quantity for its needs. Animals that display poor body condition and/or performance could be suffering from feed deficiency.

Feed, Water and Rest Station: a specialized rest stop with suitable buildings and equipment for unloading and providing animals with feed, water and rest during a long journey.

Flight Zone: 360° surrounding area that the animal or animals perceive as their safety zone. The animals will react by moving away once the boundary of this zone is penetrated.

Footholds: a means or device that enables the animal sufficient traction or grip on the floor of ramps, chutes or alleyways, e.g. matting, rungs, gravel, sand.

Frostbite: freezing of exposed tissues.

Hyperthermia: condition wherein the animal’s body temperature is higher than normal. Usually caused by over exposure to hot and humid temperatures.

Hyperventilation: excessive increase in the rate and depth of breathing in an animal leading to an abnormal loss of carbon dioxide from the blood.

Hypothermia: condition wherein the animal’s body temperature is lower than normal. Usually caused by over exposure to cold, wet or wind-chilled temperatures.

Hypoventilation: when the respiratory rate of an animal is below the normal rate.

Hypoxic: animal’s body tissues are deprived of oxygen due to environmental deficiency or impaired respiratory or circulatory systems.

- Infirm Animal:**
- 1) an animal which lacks strength, co-ordination, or ability such that the individual is unable to keep abreast of normal animals at a walk, or it is unsafe for the animal to walk as a result of an abnormal physical or medical condition;
 - 2) a previously healthy animal which has been exposed to physical challenges in excess of the animal’s ability to physiologically compensate; as in hyperthermia or hypothermia.

Iso-Wean: a practice in which piglets are weaned from their mothers earlier than the normal weaning period of approximately 28 days. The piglets are separated early so contact and exposure to disease are kept to a minimum.

Ketosis: a metabolic disease usually in lactating (milking) cows occurring days to weeks after giving birth. Ketones will appear in the urine and an “acetone” smell may be present on the breath. Animals are usually depressed or lethargic.

Lame: a condition wherein the affected animal is able to put little, if any, weight on one or more of its legs.

Light Feeder Calf: depending on the breed, this is generally a calf between 135-320 kg (300-500 lbs) body weight. This animal is usually weaned.

Livestock: farm or domesticated animals raised for production and saleable by-products.

Loading Density: amount of space (m²) required by an animal proportional to its size and to temperature conditions.

Long Haul: transportation that is longer than 4 hours in duration.

Mastitis: inflammation of the mammary gland due to infection.

Milk Fever: generally described as a condition where serum calcium levels are below normal. Calcium is needed for normal muscle function and hypocalcemia can result in unsteadiness in walking or the complete inability to walk. Also, circulatory collapse and depression are common. Usually this condition is associated with dairy cows near the time of birth or in heavy milk. This condition is also referred to as hypocalcemia or parturient paresis.

Monogastric: an animal with one stomach such as a pig, dog or horse.

Neonate: a newly born animal.

Non-Ambulatory Animal: an animal that is unable to stand without assistance, or that is unable to move without being dragged or carried. Non-ambulatory animals are also called "downers".

Nose Vent: slide openings in the front of a trailer that can either be opened or closed.

Porcine Stress Syndrome (PSS): a genetic condition in pigs that predisposes the pig to being sensitive to stress or so called stress susceptible.

Potable Water: suitable for drinking.

Poultry: includes chickens, turkeys, ducks, and quail in this code.

Preslaughter: incidents or happenings that occur prior to killing of the livestock.

Prod: a device that delivers an electrical shock to wherever it touches the animal.

Ruminant: an animal with four stomachs. Cows, sheep, goats and deer are ruminants.

Sanitation: all human intervention in the establishment of conditions unfavourable to the transmission of infectious diseases of humans and animals. In transportation of animals it includes physical removal of manure and bedding by scraping, and by washing and flushing vehicles and containers with water and detergent. It can also include the use of chemical disinfectants in an effort to eliminate bacteria, viruses and other disease-causing organisms (mites, ticks, protozoa, and parasites).

Segregate: to separate. To keep animals apart, therefore avoiding physical or visual contact and interaction with each other.

Segregated Early Weaning (SEW): see Iso-wean.

Short Haul: transportation that is up to 4 hours in duration.

Slapmarking: method used to identify market hogs by stamping/tattooing a number (approximately 3-5 digits, 3-5 inches in length) on their shoulder just prior to transportation.

Stocker, liner, body-job, stockliner and transport liner: refer to vehicle descriptions.

Stress: is traditionally viewed as a condition in which an animal's hormone known as cortisol is above normal levels. A more modern or broader definition is that stress or, sometimes called distress, is a condition an animal experiences when its hormones, metabolites or physiological parameters are outside a normal range. Novel environmental conditions such as transport and handling can cause adverse stress in an animal. Stress can cause weight loss, increased susceptibility to disease and even death.

Stun: to render an animal insensible by using a quick high voltage electrical impulse, captive bolt or firearm using live ammunition. In properly stunned animals, eye reflexes, vocalization, and rhythmic breathing are absent. However, some motor reflexes may cause the legs to move.

Subject: Subject has several possible definitions, including:

- 1) In most common usage, it is a designation given to individual cattle by the operator of a consignment sale (or the consignor) at the time of auction. It describes a type of legal business transaction in the auction market. When an animal is sold as "subject" the auction management does not pay the consignor the sale price until the animal is slaughtered and the carcass is passed by veterinary inspection. Buyers of this class of animal usually have a longstanding account with the auction market. If the carcass is condemned the consignor is not paid and the purchaser is forgiven his commitment minus a service fee. The consignor sells the animal "subject to inspection."
- 2) In the administration of livestock insurance, the insurance covers the animal from farm gate to delivery at auction and the time at the auction market. Truckers loading animals may request the consigning farmer to declare an animal as a "subject" where there is some concern for the animal. The truckers will write on the livestock manifest "shipped at owners risk." If that animal should die in transit to the auction market or slaughter it is not covered by insurance.

Suffocation: to die because of obstruction of breath or depriving of air. Smother.

Suitably Equipped Vehicle: for the purpose of providing adequate feed, water and rest en route, is one that satisfies the criteria and procedures outlined in section 5.5.5 - 5.5.7.

Tether: a line, rope, halter or harness that is used to tie, restrain or restrict an animal's range.

Transporter: a driver, person or company responsible for the transportation of animals.

Unfit Animal: an animal that is sick, injured, disabled or fatigued and that cannot be moved without avoidable suffering, and must not be transported.

Unnecessary: needless.

Veal: **Bob Veal:** refers to calves that are less than 4 weeks old. The calves are usually destined for slaughter or for other rearing facilities and feeding programs. This class is also referred to as bob calf, drop calf, or baby calf.

Grain Fed Veal: refers to calves reared on a feed program using milk-based feeds for the first 6 weeks and then given a whole grain-corn and protein supplements diet for the remaining portion of the production period.

Vehicle: any means of conveyance used for the safe transportation of livestock, including trucks, trailers, railway cars, ships and aircraft. Vehicles should be secure, strong and high enough to prevent the animals from jumping, falling or being pushed out.

Welfare: animal welfare is a broad term encompassing both physical and mental well being of an animal. Good animal welfare usually means that the animal is producing normally, is healthy and injury free and displays normal behaviour. In addition, good animal welfare means the animal is free from pain and fear (physical and mental health), has adequate feed and water, protection from adverse weather and is suitably protected from disease and predators.

Well Being: the state in which the animal's basic need for water, feed, shelter, safety and comfort are met.

Appendix 2 ♦ Density Charts

High loading density can adversely affect animal welfare during transportation. It may also have a negative effect on carcass quality in animals transported to market. High loading density may predispose to loss of balance and animals may involuntarily go down and be trapped underfoot destabilizing other members of the group. High loading density also limits the animals' ability to reposition themselves in the load during the trip. This may prohibit movement in response to chilling from cold spots in the trailer and increase the risk of frostbite especially in hogs.

The recommendations made in the following figures are based on the best information and opinion at the time of publication and will be updated as new information becomes available.

In general, if the current code of practice made a recommendation on space allowance that recommendation was reproduced.

Source: Dr. T. Whiting, Manitoba Agriculture, Veterinary Services Branch, 545 University Crescent, Winnipeg, Manitoba R3T 5S6

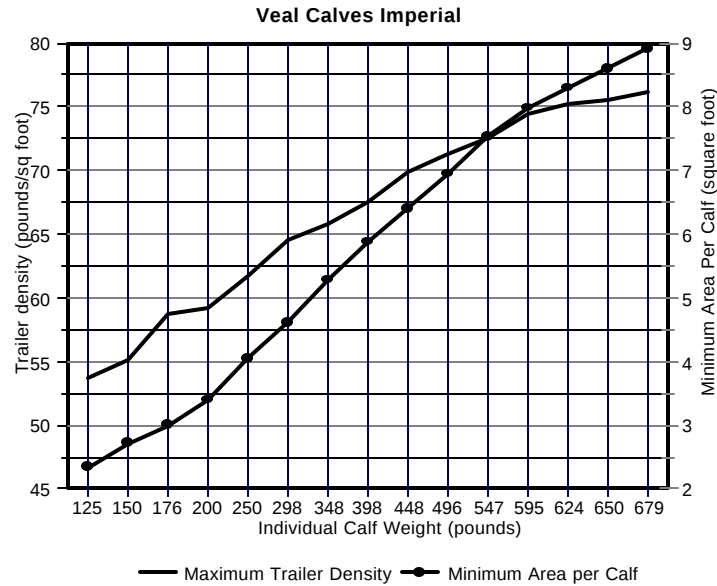


Figure 1 Minimum space allowance for veal calves standing in transit based on average individual body weight (Imperial). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Figure created from data provided in Appendix C Code of Practice for the Care and Handling of Farm Animals -- Veal Calves CARC 1998.

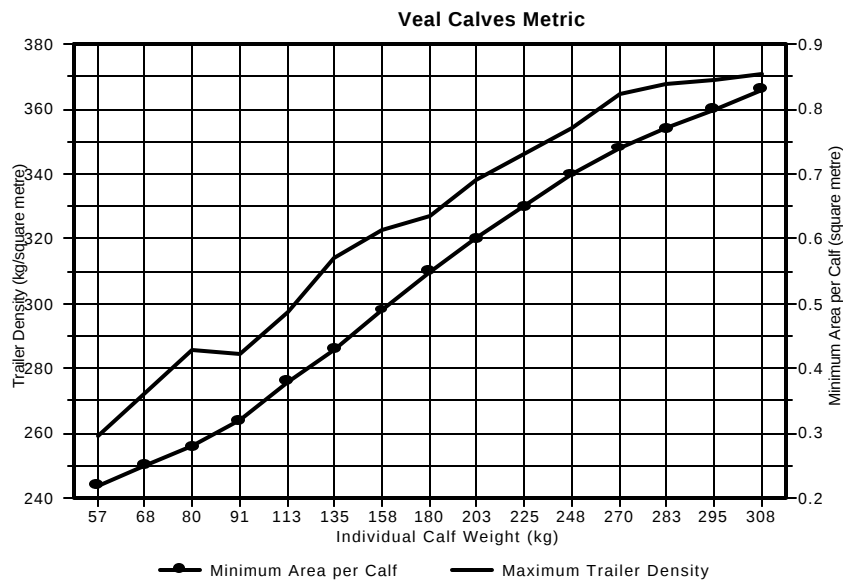


Figure 2 Minimum space allowance for veal calves standing in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Figure created from data provided in Appendix C Code of Practice for the Care and Handling of Farm Animals -- Veal Calves CARC 1998.

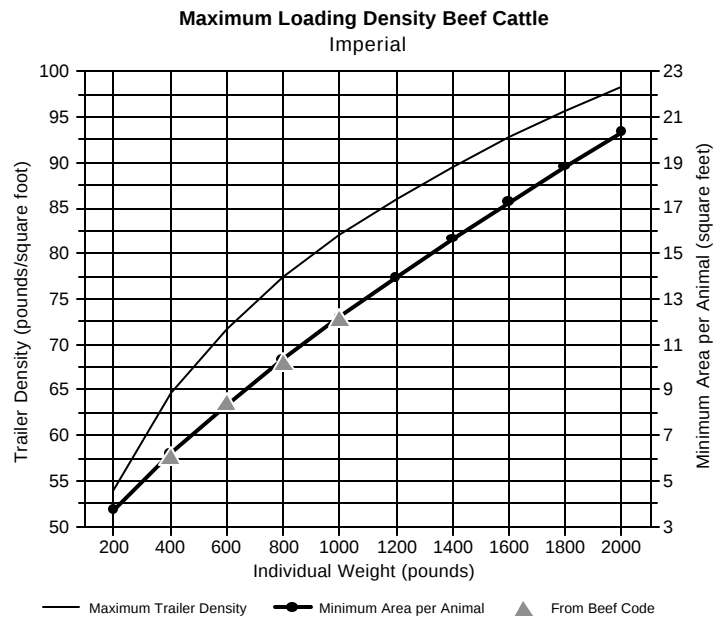


Figure 3 Minimum space allowance for cattle in transit based on average individual body weight (Imperial). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. A standard 102-inch wide trailer (8.3 feet internal width) carrying 1000 pound cattle at 82 lbs/ft² would be carrying 680 pounds per running foot of deck. In cool weather, slaughter ready beef cattle in a high level of finish can be transported safely at 10% over this standard. Dairy cattle should not be loaded at more than 85% of this standard depending on the condition of the cattle. Thin animals require more space than a finished animal of the same weight.

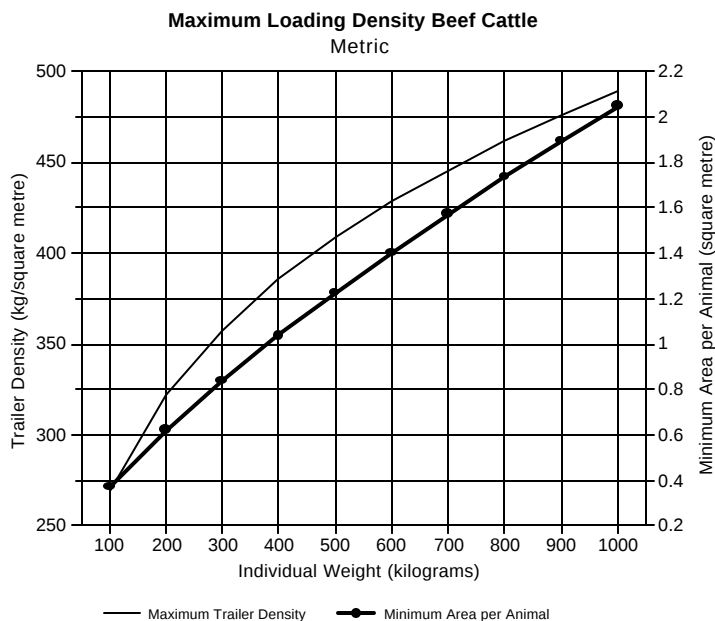


Figure 4 Minimum space allowance for cattle in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. In cool weather, slaughter ready beef cattle in a high level of finish can be transported safely at 10% over this standard. Dairy cattle should not be loaded at more than 85% of this standard depending on the condition of the cattle. Thin animals require more space than a finished animal of the same weight.

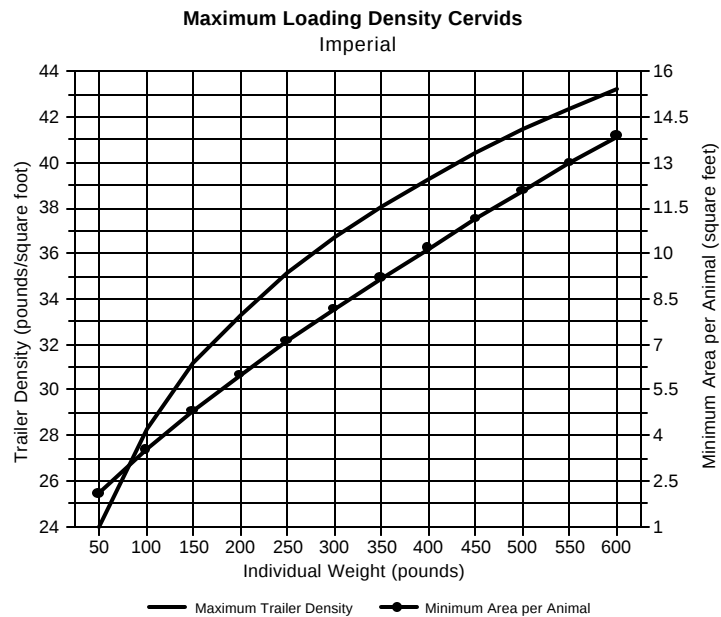


Figure 5 Minimum space allowance for deer species in transit based on individual animal weight (Imperial). Maximum mass per unit area of floor space is on the left axis and the equivalent minimum area per animal is on the right axis. Deer should have sufficient room to all lie down regardless of trip duration.

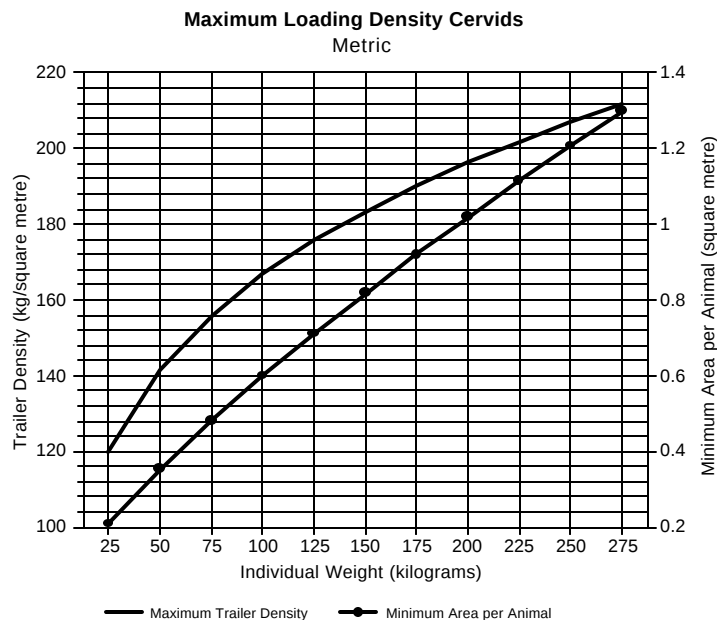


Figure 6 Minimum space allowance for deer species in transit based on individual animal weight (Metric). Maximum mass per unit area of floor space is on the left axis and the equivalent minimum area per animal is on the right axis. Deer should have sufficient room to all lie down regardless of trip duration.

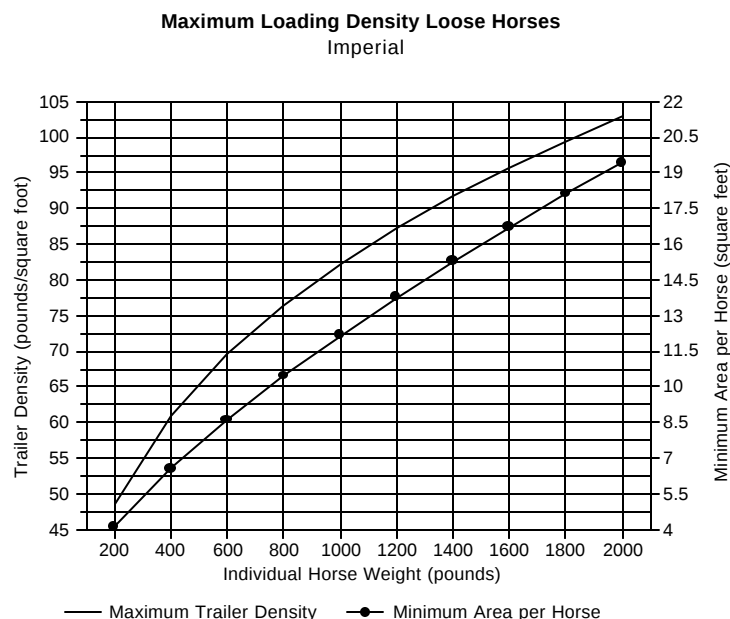


Figure 7 Minimum space allowance for loose loaded horses in transit based on average individual body weight (Imperial). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. A standard 102-inch wide trailer (8.3 feet internal width), carrying 1000-pound horses at 76 lbs/ft² would be carrying 630 pounds per running foot of deck. Thin horses require more space than a well-conditioned horse of the same weight. Reduce load by 10-15% for hot humid conditions and for foals transported more than 8 hours.

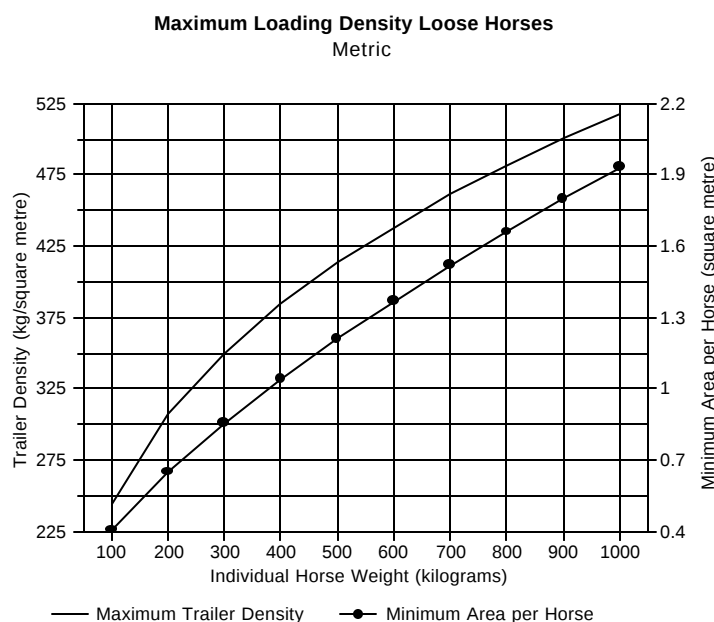


Figure 8 Minimum space allowance for loose loaded horses in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Thin horses require more space than a well-conditioned horse of the same weight. Reduce load by 10-15% for hot humid conditions and for foals transported more than 8 hours. (Modified from Whiting, T. Maximum loading density of loose horses. *Can. J. Anim. Sci.* (1999) 79: 115-118).

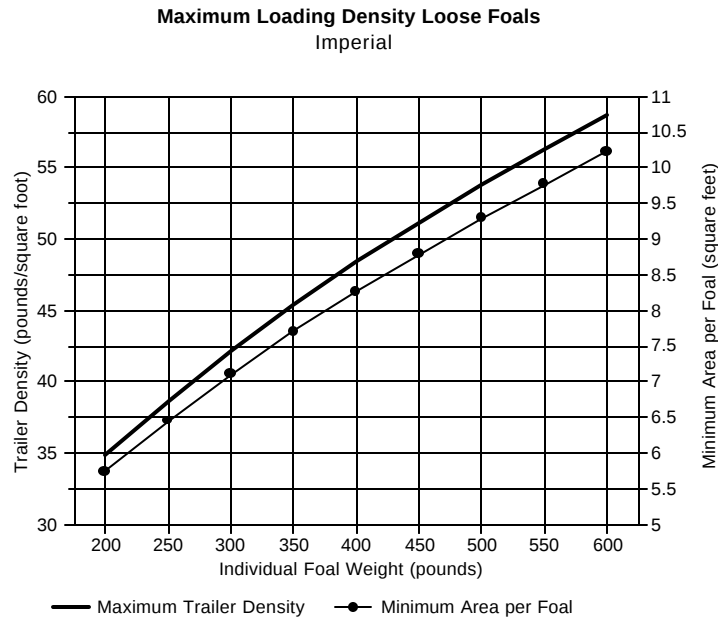


Figure 9 Minimum space allowance for loose loaded foals in transit based on average individual body weight (Imperial). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. A standard 102-inch wide trailer (8.3 feet internal width), carrying 425-pound foals at 50 lbs/ft² would be carrying 415 pounds per running foot of deck. Reduce load by 10-15% for hot humid conditions and for foals transported more than 8 hours.

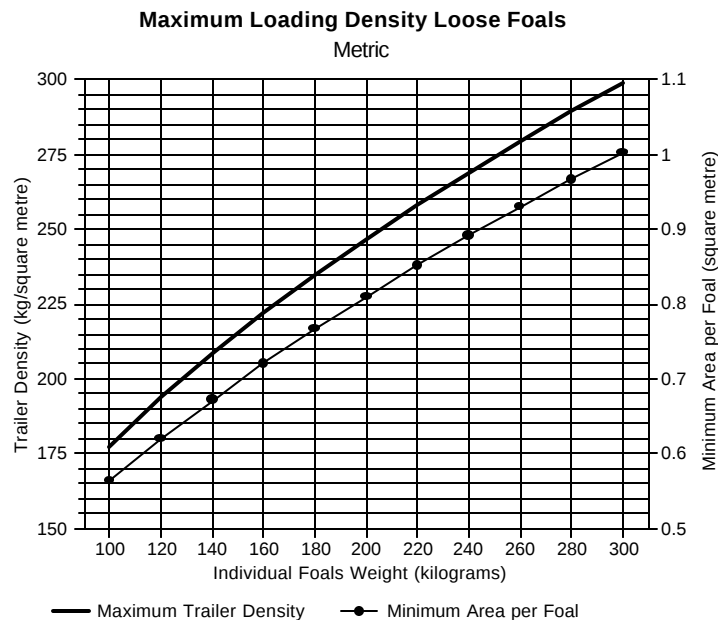


Figure 10 Minimum space allowance for loose loaded foals in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Reduce load by 10-15% for hot humid conditions and for foals transported more than 8 hours.

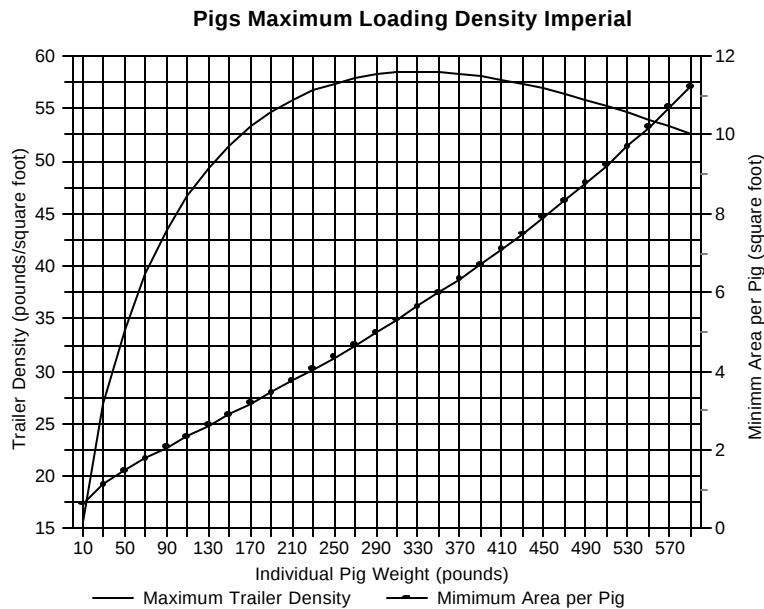


Figure 11 Minimum space allowance for swine in transit based on average individual body weight (imperial). The top line describes maximum trailer carrying capacity (left hand axis), minimum space per animal is the bottom line and right hand axis. A standard 102-inch wide trailer (8.3 feet internal width) carrying 250 pound pigs at 57 lbs/ft² would be carrying 475 pounds per running foot of deck. Reduce load by 25% in hot humid weather. Thin animals require more space than a finished animal of the same weight.

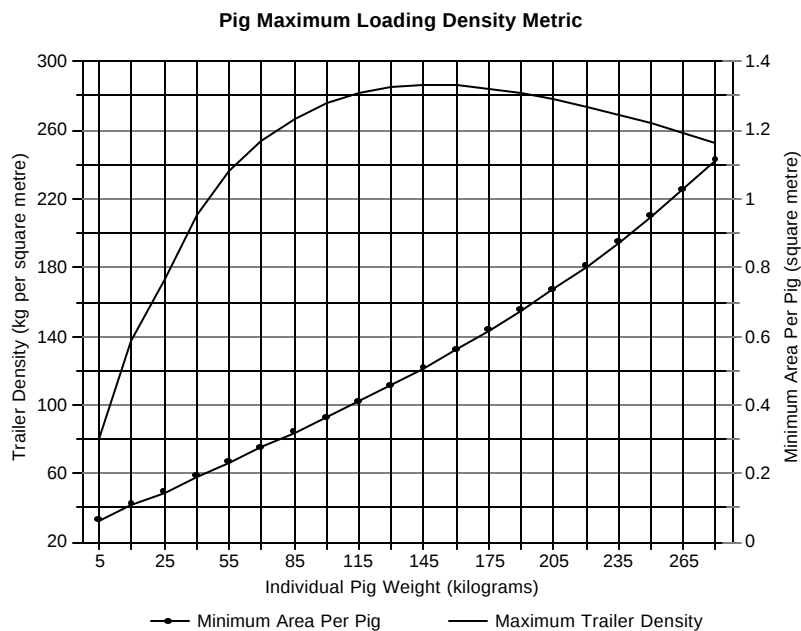


Figure 12 Minimum space allowance for swine in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Reduce load by 25% in hot humid weather. Thin animals require more space than a finished animal of the same weight.

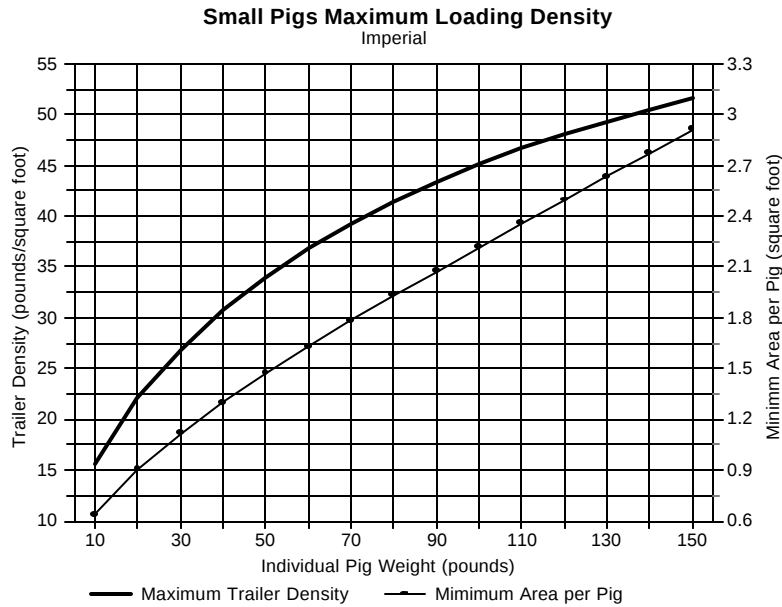


Figure 13 Minimum space allowance for young and cull swine in transit based on average individual body weight (Imperial). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. A standard 102-inch wide trailer (8.3 feet internal width) carrying 50 pound pigs at 33 lbs/ft² would be carrying 275 pounds per running foot of deck. Reduce load by 25% in hot humid weather. Thin animals require more space than a finished animal of the same weight.

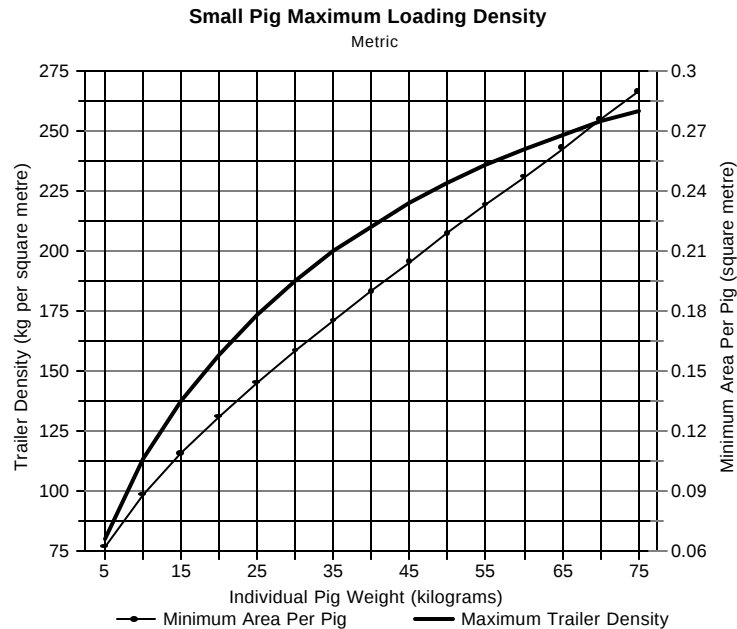


Figure 14 Minimum space allowance for young and cull swine in transit based on average individual body weight (Metric). The top line describes maximum trailer carrying capacity (left hand axis); minimum space per animal is the bottom line and right hand axis. Reduce load by 25% in hot humid weather. Thin animals require more space than a finished animal of the same weight.

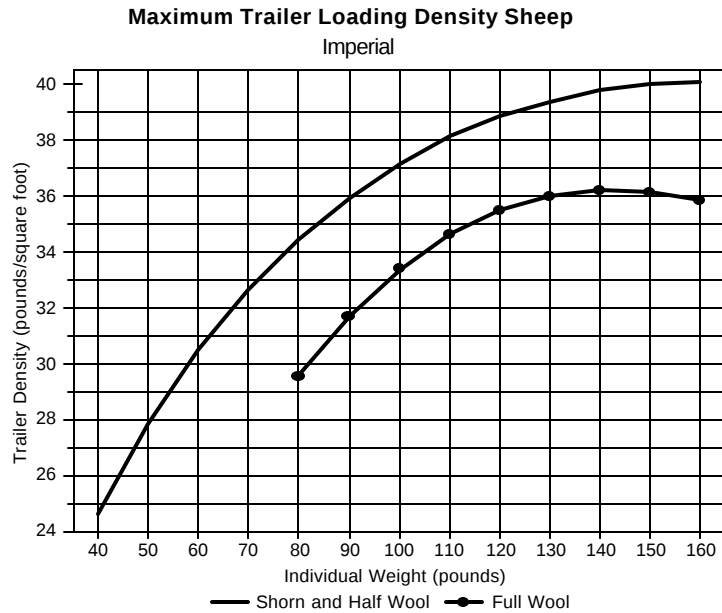


Figure 15 Maximum trailer capacity for sheep transported standing based on average individual animal weight. A 70 pound lamb at 32 lbs/ft² has 2.2 square feet of floor space. Reduce loading density to 85% of maximum in hot humid weather and for trips in excess of 24 hours to allow room for sheep to lie down.

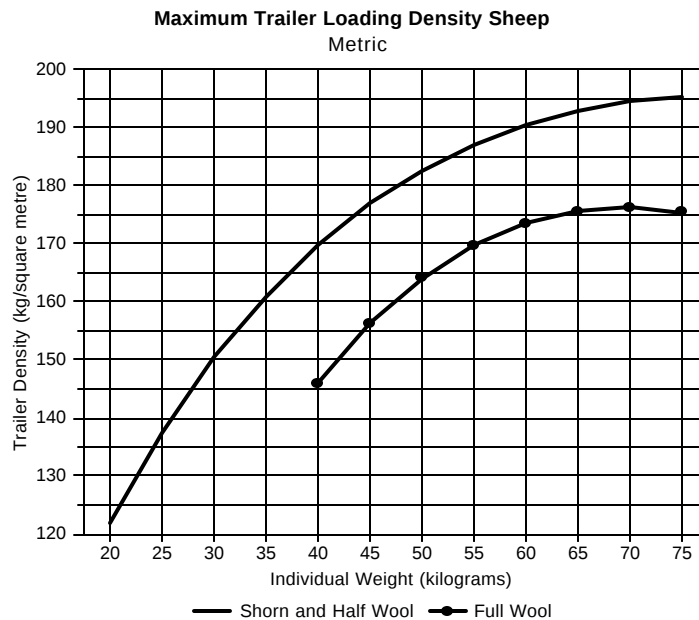


Figure 16 Maximum trailer capacity for sheep transported standing based on average individual animal weight. A 35 kg lamb at 160 kg/m² has .22 m² of floor space. Reduce loading density to 85% of maximum in hot humid weather and for trips in excess of 24 hours to allow room for sheep to lie down.

Loading Density Day Old Poultry

Species	Minimum Floor Space/Bird	Maximum Group Size
Chicks	21 cm ² (3.255 inch ²)	100
Turkey Poults	31 cm ² (4.81 inch ²)	100
Goslings	35 cm ² (5.425 inch ²)	20
Ducklings	25 cm ² (3.88 inch ²)	20
Quail	18 cm ² (2.79 inch ²)	30

Source: Canadian Turkey Marketing Agency, 969 Derry Road East, Unit 102, Mississauga, Ontario L5T 2J7

Appendix 3 ◇ Emergency Procedures

General

Vehicle Accidents Involving Livestock

First responders to motor vehicle accidents involving livestock should employ procedures that facilitate the safe and efficient handling of livestock. Assistance should be sought from people with expertise in handling the type of livestock being carried on the vehicle involved. Such people might be found by contacting federal or provincial departments of agriculture or humane societies where available. Local people with expertise might include private veterinarians, farmers or livestock auction personnel. If animals are injured, veterinary advice should be sought immediately.

First Responders, Procedure and Considerations

Before Assistance Arrives:

1. Check for injured persons.
2. Evaluate the livestock truck, try to identify the types of animal and numbers carried.
3. Perform crowd control, traffic direction, maintain a clear path for and assist emergency vehicles. Keep unnecessary people away from the accident site.
4. If rescue of people is involved, avoid using sirens and lights as much as possible near live animals. If traffic controls such as police vehicles with flashing lights or flares are necessary, they should be set up as far from the animals as possible.
5. Always deal with loose, mobile animals first. Such animals will be frightened, disoriented and excited. Frightened animals are unpredictable and will react instinctively by running or fighting. If possible, allow them to calm down before trying to move them.
6. It is very important to remain calm and quiet. Take your time and be patient. Stay alert, you may need to move quickly. **Always have an escape route for yourself.** Any animal is potentially dangerous.
7. Once the loose animals have quieted down:
 - **DO NOT shout, yell or wave arms wildly;**
 - **DO NOT approach an animal from directly in front** unless you must protect an injured person;

- move animals to a safe area slowly and in a group;
 - move **slowly** toward the animals from the rear half of the animal, and slightly to one side. Once you are in the animal's personal space (flight zone) it will move forward. Move back outside the flight zone to stop forward movement. If you enter the flight zone too deeply, or too quickly, the animal will try to run - you do not want this. This space may be 15 feet or more from the animal; and,
 - animals may be temporarily penned with portable fencing, snow fencing, trucks, yellow police tape (which resembles electric fencing), or at sales yards, factory yards, well-constructed sheds, etc.
8. Deal with conscious, badly injured animals second. Keep people away. Injured animals are less likely to struggle to their feet if left alone.
 9. To quiet a struggling injured animal which is lying down (e.g. broken leg), place a blanket over its eyes, leaving the nostrils exposed, and press down lightly on the neck just behind the head with a knee. Talking to the animal in a calm, quiet voice and gently stroking or scratching it may also help.
 10. Comatose animals are not aware of any pain and may be left for last. Animals lying down with seizures or paddling of the legs may indicate serious head injuries. Unless these animals show signs of regaining consciousness, such as lifting the head, looking about, or trying to rise, they may be left.
 11. If a comatose animal does not blink when the clear part of the eye is touched, it may be dead. Check for breathing by positioning yourself at the animal's back, near the shoulder and place a hand on the chest.
 12. Spilled animal fluids and body fat may result in hazardous road conditions.
 13. Injured animals may bite, particularly horses and pigs. Such animals should be muzzled by some method such as a bridle, rope, belt, etc.
 14. **All animals may kick, bite or attack if frightened or injured.**
 15. Diversified livestock species such as bison, deer, elk, wild boar, emu, ostrich, mink, foxes, and others present additional complexities in an emergency situation. Many of these species retain and exhibit “wild behaviour traits” and are more likely to respond with “fright, flight, or fight” reactions in situations of close contact. The flight zone is typically much larger for these species than for more traditional livestock and their reactions to intrusion in that flight zone may be much more violent.

Bison handle like wild, athletic cattle, with a strong herd instinct and an aggressive attitude. They need plenty of space and options for movement. Deer vary substantially in behaviour of the different ages, genders, breeds, and at different times of the year. Generally, males are in hard antler and are most aggressive during the breeding season, from September through November. The larger the animal, the more likely they are to fight with antlers or kick or strike with their hind and front hooves. Smaller deer are more likely to take flight and their ability to leap can be quite spectacular.

Wild boar will usually choose flight if an avenue of escape is available, but they may attack and bite if cornered. This species is much more athletic than most farmed pigs.

Ostrich and emu appear similar, but their nature is quite different. Emu are more manageable and behave more like a herd animal than do ostrich. Ostrich can be aggressive, and can kick or strike with tremendous force in close quarters. Both species may be slowly and carefully herded.

Furbearers such as mink and foxes are usually transported as breeding stock in separate cages. Because of their more “wild” nature, all of these species are more susceptible to stress. To minimize this concern in emergency situations, use the following techniques:

- crowd control must be a top priority to avoid injuries to both the animals and people;
- avoid the use of bright or flashing lights, sirens or loudspeakers. All excited animals handle more easily and remain more calm in conditions of reduced lighting and soft noises;
- call for expert advice and assistance. The Canadian Food Inspection Agency may be able to identify someone locally with experience in handling the specific type of animals involved.

After Assistance Arrives:

1. Ensure loose animals are under control in as secure a manner as possible. Assign someone to watch them to report problems and keep people from approaching them without authorization.
2. Advise police of assistance available, on call, or already at the scene such as veterinarians, department of agriculture staff or humane society/SPCA officers. Assist as required with evacuation, crowd control, and traffic direction.
3. Assist police to control bystanders, vehicle and pedestrian traffic to ensure that animals are not disturbed unnecessarily.
4. Notify trucking company dispatcher, owner and/or receiver to obtain direction. Make arrangements for trucking or have surviving animals moved to a safe location. Loose animals may be moved into a nearby well-fenced enclosure, a well-constructed barn or shed, or onto another vehicle if their injuries are not severe. Temporary strong enclosures are acceptable. Nearby fenced manufacturing premises may also be suitable temporarily. The idea is to confine the loose animals so that people in the area are protected from injury.
5. Seriously injured animals must be examined by a veterinarian if at all possible. Animals in serious pain or with untreatable injuries may need to be euthanized. Recommended methods for euthanasia of mammals in order of preference are administration of a euthanizing drug by a veterinarian; stunning with a captive bolt pistol followed by slitting of the throat performed by experienced personnel; gunshot euthanasia performed by an experienced police officer, conservation officer or SPCA special constable. Gunshot euthanasia is a dangerous procedure and must only be performed as a last resort under controlled conditions (See Appendix 4).

Types of Injuries You May See

Burns

Where animals have been exposed to fire or electric shock, expect burns of varying degrees similar to those seen in human beings. Burns cause **extreme** pain.

The greatest danger with burns is shock. Isolate the animal and keep it calm. As soon as possible, cold water should be poured over the injured area for ten to fifteen minutes. If possible, after cooling a clean, dry cloth or bandage may be laid over the injured area.

Where burns are extensive (most of or entire body) and/or severe (deep down to bones and muscles), the animal should be humanely killed as soon as possible. Where burns are less severe, the animal should be seen by a veterinarian as soon as possible and may be sent for immediate slaughter or treated.

DO NOT apply lotions, oils or salves. DO NOT prick blisters, breathe, cough on, or touch the injured area as this may lead to severe infection.

Fractures and Dislocations

Types of fractures seen at accident sites include simple (leg hangs limply at an abnormal angle), compound (a broken bone sticks out of the flesh), or multiple (more than one bone is broken in one animal).

With fractures, the animal may not be able to use a limb, it may move awkwardly or limp severely, one leg may be shortened, deformed or pointing in the wrong direction. You may be able to hear bones rubbing together.

Dislocations (a limb out of its normal joint) may result in loss of use of a limb, one joint larger than the same joint on the other side of the animal, the affected part does not move easily or is deformed. You may not be able to tell a fracture from a dislocation.

Large animals, such as horses or cows, are best left on site until a veterinarian can arrive. If the animal is able to walk, guide or direct the animal to a safe area (for example to a temporary enclosure at the side of a road). If the animal is down on the road it may be necessary to destroy it on site to expedite cleaning of the accident site and prevent further accidents. If the vehicle can be moved and an animal is still on the truck, the vehicle may be directed to the nearest veterinary facility or slaughter plant.

A fractured spine is extremely painful and an animal may be very aggressive. With such a fracture animals are usually unable to rise and there may be no movement in the hind legs. With less severe fractures, an animal may be up and moving normally or have a swaying gait in the hind end. A veterinarian should examine the animal as soon as possible.

Amputations should be dealt with immediately. If the animal cannot be slaughtered immediately, it should be recommended for humane euthanasia. Amputations can result in severe hemorrhage, uncontrollable at an accident site.

Hemorrhage

There are three basic types of hemorrhage or bleeding. Arterial bleeding results in bright red blood in a spurting action, venous bleeding results in dark red blood that wells continuously and capillary bleeding results in oozing action.

External bleeding from wounds is obvious and can be dealt with by direct pressure or tourniquets. Open wounds should be kept as clean as possible. They may be flushed with water to clean out any debris, but do not apply any ointments.

Internal bleeding can result in severe shock and death. Signs of internal bleeding are listlessness, unconsciousness, very cold legs or a blue tinge to the pink skin inside the lips or tongue. If the animal is not euthanized it should be kept warm and confined until a veterinarian can attend.

Consciousness

Brain injury may result from a skull fracture, hemorrhage inside the skull, suffocation, drowning, shock or electric shock. Signs you may see are confusion, loss of balance, the animal may go into shock, or it could convulse. Until a veterinarian can attend, lay animal on its side and ensure it can breathe by keeping its head and neck in roughly the same position it normally would if standing.

In all cases comatose animals will not respond to yelling or touching. If a comatose animal does not blink when the clear part of the eye is touched it may be dead and should be checked for breathing and heart beat.

Comatose animals are not aware of any pain due to injury. Unless these animals show signs of regaining consciousness, such as lifting the head, looking about, or trying to rise on their own, they may be left, and conscious and mobile animals dealt with first.

Suffocation

Suffocation may result from piling of animals against the front, rear or sides of a trailer. Rollovers may result in suffocation of animals on the bottom of a pile-up. Suffocation may also result from smoke inhalation due to carbon monoxide from fires.

Remove live, mobile animals from a pile up as soon as possible. Some of the animals underneath may recover. As they do, they can be removed. Do not attempt to revive those that do not recover on their own. It may be necessary to humanely destroy such animals. Remember that animals involved in this sort of accident may also have other injuries, such as fractures.

Electric shock

Electric shock in a transport accident may result from high tension wires falling on the truck. Electric shock may result in the death of animals, shock, burns and fractures.

Drowning

Truck accidents involving bodies of water are rare. Most animals can swim if not injured, but those that are trapped inside a vehicle are likely to drown. Animals in such a situation will panic and should be assisted only where the safety of human handlers can be assured.

Poultry

If an experienced handler is available, rely upon their advice and your own common sense. Poultry shippers will usually provide catching crews to accident sites quickly.

Signs of Pain or Abnormal Behaviour

- crouched down - not up and running about;
- ruffled feathers;
- head drooping down;
- eyelids closed or half-closed; or
- sitting, standing or lying with the head and neck twisted.

General Poultry Information

Poultry are frightened by close contact with people. Ensure that bystanders are kept well back. If possible, minimize contact with people until the catch crew arrives.

Birds may initially react with hysteria. They will suddenly fly about, squawk and try to hide. If several birds are loose and one becomes hysterical, the others will usually follow suit.

If crates (cages) have been spilled and birds are still inside, turn the crates upright, ensure no heads, wings or legs are protruding from the opening and stack them neatly by the side of the road no more than 6 high. Birds in crates that have been tipped on their sides will suffocate quickly. **Crates should be righted and stacked away from the vehicle as quickly as possible.**

Birds may be severely affected by extremes of cold or heat. In cold weather, there will be weather protection in place on poultry trucks. Birds in a disabled truck may suffocate if the weather protection is left in place on a stationary load. The birds must be closely monitored and weather protection should be adjusted if necessary to provide increased ventilation.

Turkeys and geese may be very large (up to 30 pounds) and should be caught by experienced handlers only. In the event of a roll-over of a turkey liner, as opposed to rigid crates, the load should be pulled upright by a competent wrecker service as soon as it is safe to do so. Turkey liners are divided down the center of the trailer making it impossible to access the birds on the bottom. If this cannot be achieved it is then only possible to unload the top half. The use of experienced crews is again recommended in this situation.

Do not chase birds or cause them to try to fly. It may be possible to gently, quietly and calmly herd or direct a small group of birds in a specific direction.

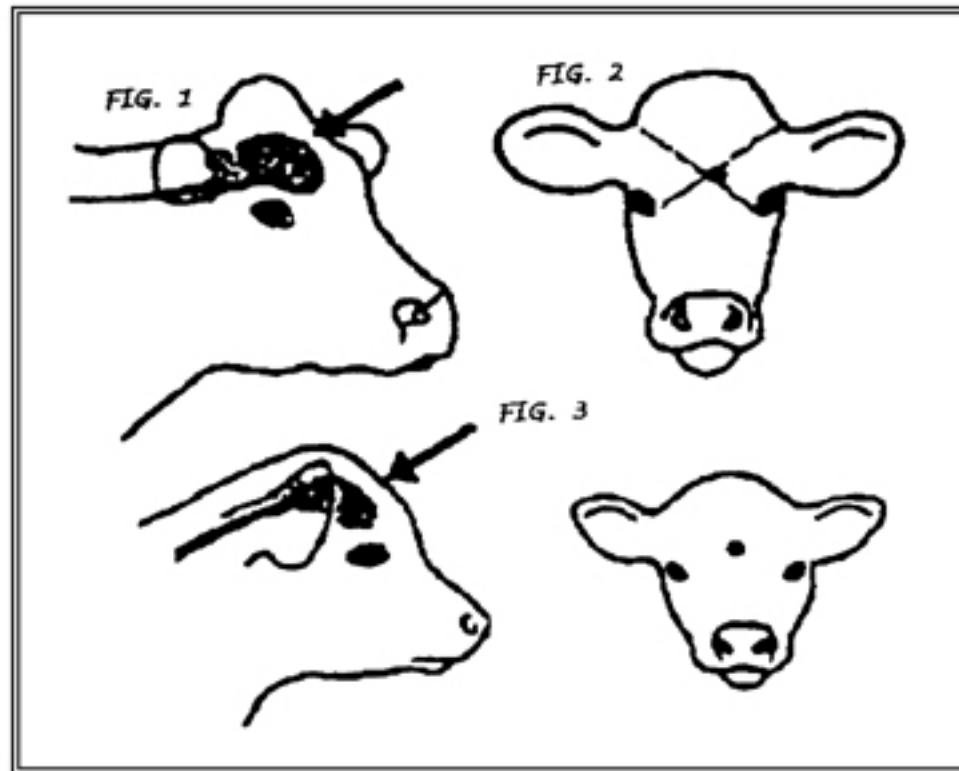
Severely injured birds should be humanely killed after dealing with the uninjured birds. Recommended methods would include use of CO₂ euthanizing chambers by experienced personnel, cervical dislocation properly performed by experienced personnel is also both humane and acceptable. Any necessary euthanasia must be performed in a secure quiet area away from public view.

Source: Adapted from *Vehicle Accidents Involving Livestock*, Halton Regional Police Service (Ontario), 1996.

Appendix 4 ♦ Guidelines for Humane Killing of Animals by Firearms

In some situations, such as traffic accidents, animals may become injured during transportation and require humane killing by firearms to promptly relieve their suffering. Safety precautions to protect other animals and people are essential. Firearms should be used outdoors and in a location that is away from public access. The direction of shooting must be chosen to avoid injuring people or other animals. The bullet from a high powered rifle may pass through the animal's head. Any person using a firearm must be licensed to do so in the particular jurisdiction.

Guidelines for humane killing of calves by firearms



Cattle

Mature Cattle

The head should be secure in a chute or by halter and shank to a solid structure. Food can be placed in front of the animal. The firearm is held at right angles to the skull and aimed at a point 2/3 of the way up the forehead at a point intersecting imaginary lines drawn between the back of the ears and the corners of the eyes (Figures 1 and 2). It may be easier to shoot slightly to the side of the ridge that runs down the center of the face.

Calves

Calves can be handled in the same manner as mature cattle but the aim of the firearm should be squarely on the midlines of the forehead slightly lower than in mature cattle (Figure 3).

Source: Longair, J. (Al), Finley, G., Laniel, M-A., Mackay, C., Mould, K., Olfert, E.D., Rowsell, H., and Preston, A. 1991. Guidelines for euthanasia of domestic animals by firearms. Can. Vet. J. 32: 724-726 December.

Guidelines for humane killing of deer by firearms

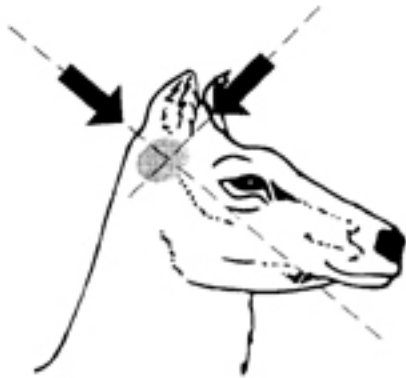


Figure 1

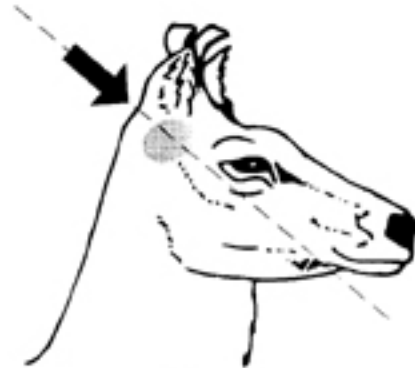


Figure 3

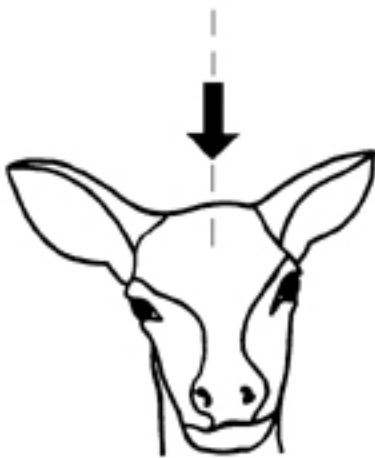


Figure 2



Figure 4

Deer without antlers

Deer can be handled in the same manner as goats or sheep -- food can be offered to the animal. The aim of the firearm should either be from behind or from the front as described in the humane killing of deer with antlers or from the top of the head at a point high up on the head equal distance from the eyes and ears (Figures 1 and 2).

Deer with antlers

If the animal has antlers, the approach should be from the rear and the aim directed between the base of the horns towards the mouth (Figure 3). Alternatively, the firearm can be aimed from the front just above the eyes on the midline, shooting towards the spine (Figure 4).

Source: Recommended code of practice for the care and handling of farmed deer (cervidae). 1996.

Guidelines for humane killing of horses, mules and donkeys by firearms



Figure 1



Figure 2

The animal must be adequately restrained to ensure proper placement of the shot. The muzzle of the firearm must be placed close to the animal's head, above the eyes, pointing in the required direction (Figure 1). The optimal distance from the muzzle to the head is 3 to 5 cms (1 - 2"). The bullet or shot should enter the skull at the point where imaginary lines crossing from each eye to the opposite ear intersect (Figure 2). The direction of the shot should be down towards the withers (Figure 1).

Adapted from: Longair, J. (Al), Finley, G., Laniel, M-A., Mackay, C., Mould, K., Olfert, E.D., Rowsell, H., and Preston, A. 1991. Guidelines for euthanasia of domestic animals by firearms. Can. Vet. J. 32: 724-726 December.

Guidelines for humane killing of pigs on farm

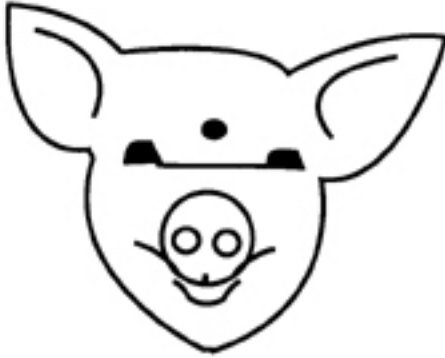


Fig. 3-1 Site of shooting.



Fig. 3-2 Direction of aim.

Blow to the head

The best method of killing a piglet (under 3 weeks of age) quickly and painlessly, is to strike the animal on the top of its head with a heavy, blunt object, such as a hammer. The blow must be administered swiftly, firmly, and with absolute determination.

Overdose of anesthetic

Under some circumstances, you may have to ask a veterinarian to euthanize a pig with an overdose of an anesthetic. These drugs are strictly controlled and must be administered by a veterinarian. The meat from animals killed in this manner cannot be used for human food or animal feed. Therefore the disposal of the carcass presents a problem.

Firearms

Shooting an animal should only be done by persons well versed in handling firearms and licensed to use firearms. Safety must be considered. To avoid the possibility of a bullet ricocheting off concrete floors and walls, take the pig outdoors. Restrain the pig with a noose around its upper jaw. The person holding the restraining rope or snare should stand in front of the pig and behind the person with the gun.

The site of shooting is on the mid-line of the forehead, one finger's width above eye level (Figure 3-1). In most cases, the barrel of the firearm should be 3-5 cm (1¼ - 2") from the head if using a rifle, pistol, or 0.410-gauge shotgun or up to 25 cm (10") if using a larger gauge shotgun or rifle. The aim should be well up into the skull (Figure 3-2).

A 0.22 rifle or 0.410 shotgun are only appropriate for animals under 24 weeks of age. Older animals require a more powerful firearm.

Source: Recommended code of practice for the care and handling of farm animals -- Pigs. 1993.

Guidelines for humane killing of sheep b firearms



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

Figures 1 and 2: Without horns. Figures 3-5: With horns.

Sheep and goats without horns

Sheep and goats can be handled in the same manner as cattle -- the head should be secured with a halter, and food offered to the animal. The aim of the firearm should be from behind or from the top of the head at a point high up on the head an equal distance from the eyes and ears (Figures 1 and 2).

Sheep and goats with horns

If the animals have horns, the approach should be from the rear and the aim directed between the base of the horns towards the mouth (Figure 3). Alternatively the firearm can be aimed from the front just above the eyes on the midline, shooting towards the spine (Figure 4). Goats are treated as per horned sheep (Figure 5).

Source: Longair, J. (Al), Finley, G., Laniel, M-A., Mackay, C., Mould, K., Olfert, E.D., Rowsell, H., and Preston, A. 1991. Guidelines for euthanasia of domestic animals by firearms. Can. Vet. J. 32: 724-726 December.

Appendix 5 ♦ Wind-Chill Factors

Wind speed (km/h)	Actual air temperature (°C)						
	10	4	-1	-7	-12	-18	-23
Wind chill factor							
8	9	2	-3	-8	-15	-21	-26
16	4	-2	-8	-15	-22	-29	-34
24	2	-5	-12	-21	-28	-34	-41
32	0	-8	-16	-23	-31	-37	-45
40	-1	-9	-18	-26	-33	-39	-48
48	-2	-11	-21	-28	-36	-42	-51
56	-3	-12	-21	-29	-37	-44	-54
64	-3	-12	-22	-29	-38	-47	-56
72	-4	-13	-22	-30	-39	-48	-57
80	-4	-13	-23	-31	-40	-48	-58

Source: Kansas State University and Livestock Conservation Institute.

Appendix 6 ♦ References

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Recommended Code of Practice for the Care and Handling of Farm Animals -- Pigs (1993).

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Appendix 7 ◇ Participants

Representatives of the following organizations provided input at various stages in the drafting of this code. However, the code does not necessarily have the unequivocal endorsement of any agency.

<i>Organization</i>	<i>Representative</i>
Aaron Metzger Limited	W. Metzger
Agriculture and Agri-Food Canada	S.K. Ho
Brian's Poultry Services Ltd.	B. Herman
Canadian Cattlemen's Association	R. Dobson
	H. Graham
	P. Strankman
Canadian Council on Animal Care	J. Wong
Canadian Federation of Humane Societies	J. Ripley
	F. Rodenburg
Canadian Food Inspection Agency	G. Doonan
	R. Sauder
Canadian Mink Breeders Association	H. Freeman
Canadian Pork Council	S. Fortin
	M. Rice
	W. Vaags
Canadian Poultry and Egg Processors Council	M. Pelletier
Canadian Sheep Federation	R. Stern
Canadian Society of Agricultural Engineering	J. Feddes
Canadian Society of Animal Science	A-M. de Passillé
	A. Schaefer (Chair)
Canadian Turkey Marketing Agency	S. Singh
Canadian Venison Council	D. Smith
	I. Thorleifson
Canadian Veterinary Medical Association	A. Preston
D & D Livestock Trucking	D. Heatherington
D.A.C. Checker Produce Limited	C. Scherders
Dairy Farmers of Canada	D. Beggs
	P. MacLean
Heartland Livestock Services	D. Darroch
Manitoba Agriculture and Food	T. Whiting
Ontario Veal Association	J. Haley