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## REPORT OF THE FOURTH MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE

Teramo (Italy), 7-9 September 2005

(Extract from the September 2005 meeting of the  
OIE Terrestrial Animal Health Standards Commission)

The OIE Working Group on Animal Welfare held its fourth meeting at the OIE Collaborating Centre for Animal Welfare at Teramo on 7-9 September 2005.

The members of the Working Group and other participants are listed in [Appendix A](#). The Agenda adopted is given in [Appendix B](#). Dr D. Bayvel chaired the meeting.

On behalf of Dr B. Vallat, Director General of the OIE, Dr A. Petrini welcomed the members of the Working Group and thanked them for agreeing to continue their work on this important mandate of the OIE. Ms Barbara Alessandrini of the Collaborating Centre welcomed all participants.

Dr Petrini advised that three industry experts (from the International Dairy Federation [IDF], the International Meat Secretariat [IMS] and the International Federation of Agricultural Producers [IFAP]) had been invited to participate in the meeting on the second day.

### 1. Proposed aquatic animal welfare standards

Prof. Tore Håstein updated the Working Group on the initial work of the two *ad hoc* Groups on Aquatic Animal Welfare, meetings of which he had chaired in June 2005. The *ad hoc* Groups had used the relevant chapters in the OIE *Terrestrial Animal Health Code* (hereafter referred to as the *Terrestrial Code*) to produce proposed chapters on the transport of fish by land and sea, the killing of fish and the slaughter of fish for human consumption. Prof. Håstein advised that the guiding principles on animal welfare had been revised to better address aquatic animal issues. The proposed chapters covered wild-caught and farmed fish.

The Working Group congratulated Prof. Håstein and the experts on their work to date and supported the additional work proposed by Prof. Håstein on the development of standards for other aquatic species. The Working Group noted that information on the experts' work had been included in the report of the August 2005 meeting of the OIE Aquatic Animal Health Standards Commission (hereafter referred to as the Aquatic Animals Commission), and supported the proposed chapters being distributed to Member Countries by the Aquatic Animals Commission for discussion in 2006, with the expectation that they would be proposed for adoption in 2007.

It was agreed that the Aquatic Animal Welfare Guiding Principles would be revised to better align them with the most recent terrestrial animal version.

Appendix XXXV (contd)**2. Revision of adopted standards**

The Working Group examined comments received on and changes proposed to the four terrestrial animal welfare standards which had been adopted at the 2005 General Session. Dr Petrini explained that comments had been received from Member Countries and international organisations, most of them just prior to the 73<sup>rd</sup> General Session. Those comments able to be addressed by the Secretariat had been incorporated into the working document while technical comments had been referred to the members of the relevant *ad hoc* Group.

The Working Group made some modifications to the four standards (see Appendices C-F), taking into account the views of the members of the *ad hoc* Groups who had responded. Noting that the modified standards will need to be considered by the OIE Terrestrial Animal Health Standards Commission (hereafter referred to as the Terrestrial Code Commission) at its meeting in September 2005, the Working Group was of the strong view that the Terrestrial Code Commission should put them to the OIE International Committee for adoption at the 2006 General Session.

Several issues required particular attention:

- the handling of foetuses – this issue was deferred to experts and remained under study;
- the use of CO<sub>2</sub>/air mixtures – due to reports of aversive reactions; this issue was deferred to experts and Article 3.7.6.12 was placed under study.

The commitment to outcome-focused, rather than prescriptive, guidelines (as detailed in the adopted guiding principles) was discussed. The Working Group was advised of the OIE intention to establish an *ad hoc* group to provide specific guidance and model examples in this important area.

**3. Educational resources in the area of Animal Welfare**

The Working Group was of the view that, in order to begin providing information on educational resources in animal welfare, the OIE should develop a list of institutions offering animal welfare programmes or courses. The role of Collaborating Centres should also be described. It suggested that the information be linked to the OIE web site. Members offered to provide relevant information.

**4. Urban animal control (companion animal welfare)**

The Working Group discussed the document prepared by Drs Wilkins, Aidaros and Rahman (Appendix G). The Working Group recognised that the paper had aimed at covering the broad issues, and that there was a need to prioritise. It decided to ask the OIE (through the Terrestrial Code Commission) to set up an *ad hoc* group to define the issues and set priorities. The Working Group also decided to concentrate exclusively on dogs and not on any other stray or feral animals (e.g. cats).

As the Working Group recognised that the issue was very broad, it expressed interest in the need to emphasise the animal welfare issues which arise from urban control programmes (particularly for rabies) and to propose actions which would improve welfare but still complement the programmes.

**5. Laboratory animal welfare**

A discussion paper on laboratory animal welfare was presented by Dr Bayvel (Appendix H), in which the key international organisations were identified. The OIE's work with VICH was noted. The Working Group discussed ways to proceed and agreed that a meeting with other key international organisations may help to minimise duplication, and identify a clear role from the OIE. A one-day workshop in association with a relevant conference (e.g. AALAS, ICLAS) was a possibility. It was agreed that Prof. Fraser will represent OIE at the November 2005 ICLAS International consortium meeting in St. Louis). The Working Group also decided to ask the OIE (through the Terrestrial Code Commission) to set up an *ad hoc* group to define the issues of laboratory animal usage in areas closest to the OIE's mandate, which would include the production and testing of vaccines and diagnostics.

## **6. Welfare Quality (Science and Society improving animal welfare)**

The Working Group noted the work underway on this extensive and significant EU project and that the OIE was an active participant. The November Conference in Brussels will be attended by Prof. Fraser, Dr Gavinelli and Central Bureau staff.

## **7. WSPA Universal Declaration**

Dr Wilkins updated the Working Group on the World Society for the Protection of Animals (WSPA) Universal Declaration on Animal Welfare. He indicated that WSPA was of the view that such a declaration would provide a useful basis for government animal welfare policy, especially in developing countries. Dr Wilkins recalled that, at its 2004 meeting, the Working Group had discussed whether an OIE Resolution on the issue could be drafted, but this had not been possible. He advised that WSPA was in the final stages of organising a meeting of six interested countries to act as a steering committee to carry the issue forward.

## **8. Evaluation of the Working Group Performance**

The members were reminded of the questionnaire for evaluation of the performance of the Working Group which had been circulated for their input and agreed to complete and return within one month.

## **9. OIE Collaborating Centres**

The Working Group noted the interest among institutions in Europe, the USA and Australia/New Zealand in becoming recognised as OIE Collaborating Centres on animal welfare. The Working Group decided to examine the current mandate for OIE Collaborating Centres with a view to ensuring that animal welfare is appropriately addressed. The Working Group agreed that centres which meet the qualification criteria should be encouraged to apply to the OIE for consideration.

## **10. Communications and consultation**

The Working Group noted the presentations on animal welfare made by members of the Working Group and by OIE Central Bureau staff at various conferences and seminars. Members indicated that they would send to the Secretariat copies of presentations made, for circulation to other members.

It was recognised that, to ensure the best communication, Working Group members should consult with the OIE Director General prior to accepting any invitations to represent the OIE.

## **11. Membership of the Working Group**

In welcoming the experts from industry, the Chair recalled that the Working Group had proposed that experts from industry be included in its membership to ensure a balanced membership to enable the Working Group to fulfil its role as a steering committee. The industry experts indicated that their organisations were of the view that expertise from the private sector was essential to the OIE's work on animal welfare. To assist communications, each organisation would notify a single contact point for animal welfare.

The Working Group believed that the OIE *ad hoc* group system provided the ideal mechanism for utilising specific independent technical expertise and for ensuring the scientific basis of OIE standards. The OIE was requested to seek the advice of Working Group members on the membership of *ad hoc* groups as early in the process as possible. The experts from industry were encouraged to submit names of experts for consideration by the OIE for future *ad hoc* groups.

Appendix XXXV (contd)

The Working Group noted the revised Commission meetings calendar and discussed with the industry experts the most effective pathways for technical input into OIE standards development. To improve the effectiveness of document development between meetings, the OIE was requested to develop a system for collaboration via the OIE Web page.

**12. International relationships**

Dr Thiermann advised the Working Group of the continuing OIE collaboration with the International Air Transport Association (IATA), Animal Transport Association (ATA), World Association of Zoos and Aquaria (WAZA) and other organisations, in an effort to harmonise animal transport standards.

The Working Group noted the desirability of the OIE and FAO coordinating their animal welfare work.

**13. 2005 Work plan review**

The Working Group reviewed its 2005 work programme (see Appendix J). It was agreed that the Chair/Central Bureau would prepare a first draft of the 2006 Work Plan, for working group member comment, by mid – November.

**14. Next meeting**

The Working Group agreed that its next meeting should be held before the main meeting of the Terrestrial Animal Health Standards Commission in September 2006, to enable it to review the work of the various animal welfare *ad hoc* groups meeting prior to consideration by the Terrestrial Code Commission. It decided to plan for a meeting in June 2006 but the final agreed date would be guided by a Central Bureau review of the implications of the new extended two-year consultation cycle. It was agreed that agenda material and background papers should be provided prior to the meeting and that, for some members, provision of hard copy may be necessary.

**15. Other business**

Dr Wilkins raised for discussion whether an overriding ethical policy on animal welfare should be included in the guiding principles e.g. that animals should not, as a matter of principle, travel long distances for slaughter. The Working Group discussed the merit of this proposal and noted that the OIE Strategic Plan indicated that the OIE intends to address such policy issues, and that such a proposal should be brought to the attention of the Administrative Commission.

Both Dr Gavinelli and Dr Wilkins raised the issue of uptake and promulgation of adopted guidelines and agreed to develop an issues and options discussion paper in conjunction with other working group members.

It was also agreed to document committee terms of reference and to prepare a draft strategic plan to link with the 2006-2010 OIE strategic plan.

The Chair thanked all Working Group members and Central Bureau staff for their active and positive contributions, and thanked the OIE Collaborating Centre for hosting the meeting.

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.../Appendices

## FOURTH MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE

Teramo (Italy), 7-9 September 2005

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Appendix XXXV (contd)Appendix A (contd)**OTHER PARTICIPANTS (contd)**

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**FOURTH MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE****Teramo (Italy), 7- 9 September 2005**

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**Agreed agenda**

1. Introduction/Formalities
2. Revision of the AW chapters approved in May 2005
3. Chapters on Aquatic Animal Welfare
4. Current issues
  - Educational resources in the area of AW
  - Urban animal control
  - Laboratory Animal Welfare
  - OIE and NGOs activities
  - European Commission – Chile (2004-2005 seminars)
  - Evaluation of WG (questionnaire)
  - WSPA - UN declaration
  - Communication and Consultation
  - OIE Collaborating Centres
  - Membership AWWG
  - International Relationships
  - 2005 Work Plan Review
  - 2006 Work Plan Preparation
  - Other
5. Other Business
  - Next meeting: timing, preparation
  - WG strategic plan
  - FAO
  - Orientation (fish general principles)



## APPENDIX 3.7.2.

GUIDELINES FOR THE TRANSPORT  
OF ANIMALS BY SEA

**Preamble:** These guidelines apply to the following live domesticated animals: cattle, buffalo, deer, camelids, sheep, goats, pigs and equines. They may also be applicable to other domesticated animals.

Article 1

The amount of time animals spend on a journey should be kept to the minimum possible.

Article 3.7.2.1. bis**Responsibilities**

Once the decision to transport animals by sea has been made, the welfare of animals during their journey ~~transport~~ is the paramount consideration and is the joint responsibility of all people involved. These guidelines may also be applied to the transport of animals by water within a country.

The management of animals at post-discharge facilities is outside the scope of this Appendix.

The roles of each of those responsible are defined below:

1. Exporters, owners of animals and managers of facilities are jointly responsible for the general health of the animals and their fitness for the journey, and for their overall welfare during the journey, regardless of whether duties are subcontracted to other parties during transport.
2. The exporter has overall responsibility for the organisation, carrying out and completion of the journey, regardless of whether duties are subcontracted to other parties during transport. The exporter is also responsible for ensuring that equipment and medication are provided as appropriate for the species and journey, and for the presence during the journey of at least one animal handler<sup>1</sup> competent for the species being transported. The exporter is also responsible for ensuring compliance of the animals with any required veterinary certification and, in the case of animals for export, any other requirements of the *importing* and *exporting countries*.
3. Business or buying/selling agents have a joint responsibility with owners for the selection of animals that are fit to travel. They have a joint responsibility with masters of vessels and managers of facilities at the start and at the end of the journey for the availability of suitable facilities for the assembly, loading, transport, unloading and holding of animals, and for emergencies.

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<sup>1</sup> An animal handler is a person with a knowledge of the behaviour and needs of animals which, with appropriate experience and a professional and positive response to an animal's needs, results in effective management and good welfare; their competence should be demonstrated through independent assessment and certification.

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4. Animal handlers are responsible for the humane handling and care of animals, especially during loading and unloading and for maintaining a journey log. To carry out these responsibilities, they should have the authority to take prompt action.
5. The exporter, the shipping company and the master of the vessel are jointly responsible for planning the journey to ensure the care of the animals, including:
  - a) choosing appropriate vessels and ensuring that ~~competent~~ animal handlers are available to care for loading and caring for the animals throughout the journey;
  - b) developing and keeping up to date contingency plans to address emergencies (including adverse weather conditions) and minimise stress during transport;
  - c) correct loading of the ship, regular inspections during the journey and for appropriate responses to problems arising;
  - d) disposal of carcasses according to international law.
6. To carry out these responsibilities, the people involved should be competent regarding transport regulations, equipment usage, and the humane handling and ~~the~~ care of animals.
7. Managers of facilities during loading of the animals are responsible for:
  - a) providing suitable premises for loading the animals;
  - b) providing ~~competent~~ animal handlers to load the animals ~~in a manner that causes~~ with minimum stress and injury;
  - c) providing appropriate facilities for emergencies;
  - d) providing facilities and veterinarians or ~~competent~~ animal handlers capable of killing animals humanely when required.
8. Managers of facilities at the end of the journey are responsible for:
  - a) providing suitable facilities for unloading the animals onto transport vehicles for immediate movement or securely holding the animals in lairage, with shelter, water and feed, when required, for transit;
  - b) providing ~~competent~~ animal handlers to unload the animals with minimum stress and injury;
  - c) minimising the opportunities for disease transmission while the animals are in the facilities;
  - d) providing appropriate facilities for emergencies;
  - e) providing facilities and veterinarians or ~~competent~~ animal handlers capable of killing animals humanely when required.

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9. The responsibilities of the *Competent Authority* of the *exporting country* include:
- a) establishing minimum standards for animal welfare, including requirements for inspection of animals before and during their travel, and for certification and record keeping;
  - b) approving facilities, containers, vehicles/vessels for the holding and transport of animals;
  - c) setting competence standards for animal handlers and managers;
  - d) ensuring that the vessel transporting animals meets the required standards, including those of the *importing country*;
  - e) implementation of the standards, including through accreditation of / interaction with other organisations and Competent Authorities;
  - f) monitoring and evaluating health and welfare performance, including the use of any veterinary medications.
10. The responsibilities of the *Competent Authority* of the *importing country* include:
- a) establishing minimum standards for animal welfare, including requirements for inspection of animals after their travel, and for certification and record keeping;
  - b) approving facilities, containers and vehicles for the unloading, holding and transport of animals;
  - c) setting competence standards for animal handlers and managers;
  - d) implementation of the standards, including through accreditation of / interaction with other organisations and Competent Authorities;
  - e) ensuring that the *exporting country* is aware of the required standards for the vessel transporting the animals;
  - f) monitoring and evaluating health and welfare performance, including the use of any veterinary medications.
11. When travelling on vessels with the animals, veterinarians are responsible for the humane handling and treatment of the animals during the journey. To carry out these responsibilities, they should have the authority to act and report independently. The veterinarian should meet with the Master, Chief Officer and the senior animal handler on a daily basis.
12. The receiving *Competent Authority* should report back to the sending *Competent Authority* on significant animal welfare problems which occurred during the journey.

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## Article 3.7.2.2.

**Competence**

1. All people ~~handling animals or who are otherwise~~ responsible for animals during *journeys*, should be competent according to their responsibilities listed in Article 3.7.2.1. Competence in areas other than animal welfare would need to be addressed separately. Competence may be gained through formal training and/or practical experience.
2. ~~This~~ The competence of animal handlers should be demonstrated through a current certificate from an independent body accredited by a *Competent Authority*. The certificate should be in one of the OIE official languages if the international transport of animals is involved.
3. The assessment of competence ~~for~~ of animal handlers should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:
  - a) responsibilities for animals during the journey;
  - b) sources of advice and assistance;
  - c) animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation;
  - ~~x)~~ assessment of fitness to travel;
  - d) relevant authorities and applicable transport regulations, and associated documentation requirements;
  - e) general disease prevention procedures, including cleaning and disinfection;
  - f) appropriate methods of animal handling during transport and associated activities such as assembling, loading, and unloading;
  - g) methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
  - h) species-specific aspects and age-specific aspects of animal handling and care, including feeding, watering and inspection;
  - i) ~~appropriate record keeping and~~ maintaining a journey log and other records.
4. Assessment of competence for exporters should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:
  - a) planning a journey, including appropriate space allowances, and feed, water and ventilation requirements;
  - b) relevant authorities and applicable transport regulations, and associated documentation requirements;

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- c) appropriate methods of animal handling during transport and associated activities such as cleaning and *disinfection*, assembling, loading, and unloading;
- d) species-specific aspects of animal handling and care, including appropriate equipment and medication;
- e) sources of advice and assistance;
- f) appropriate record keeping ~~and journey log~~;
- g) managing situations frequently encountered during transport, such as adverse weather conditions, and dealing with emergencies.

## Article 3.7.2.3.

**Planning the journey**1. General considerations

- a) Adequate planning is a key factor affecting the welfare of animals during a journey.
- b) Before the journey starts, plans should be made in relation to:
  - x) preparation of animals for the journey:
    - i) type of transport vessel required;
    - ii) route, taking into account distance, expected weather and sea conditions;
    - iii) nature and duration of journey;
    - iv) daily care and management of the animals by providing the appropriate number of *animal handlers*;
    - v) avoiding the mixing of animals from different sources in a single pen group;
    - vi) provision of appropriate equipment and medication for the numbers and species carried;
    - vii) emergency response procedures.

X) Preparation of animals for the journey

- a) When animals are to be provided with a novel diet e.g. for dry food, and or unfamiliar methods of supplying of feed and or water, they should be preconditioned may be required.
- b) There should be planning for water and feed availability during the journey. Feed should be of appropriate quality and composition for the species, age, condition of the animals, etc.

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- c) Extreme weather conditions are hazards for animals undergoing transport and require appropriate vessel design to minimise risks. Special precautions should be taken for animals that have not been acclimatised or which are unsuited to either hot or cold conditions. In some extreme conditions of heat or cold, animals should not be transported at all.
- x) Animals more accustomed to contact with humans and with being handled are likely to be less fearful of being loaded and transported. Animals should be handled and loaded in a manner that reduces their fearfulness and improves their approachability.
- g) Behaviour-modifying or other medication should not be used routinely during transport. Such medicines should only be administered when a problem exists in an individual animal, and should be administered by a veterinarian or other person who has been instructed in their use by a veterinarian. Treated animals should be placed in a dedicated area.
- ~~e) Where there is a potential for spread of infectious disease, and when requested by the *Veterinary Authority of the importing country*, animals should be vaccinated against diseases to which they are likely to be exposed at their destination.~~
- ~~h) There should be an emergency management plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.~~

XX) Control of disease

As animal transport is often a significant factor in the spread of infectious diseases, journey planning should take into account the following:

- xx) when possible and agreed by the *Veterinary Authority of the importing country*, animals should be vaccinated against diseases to which they are likely to be exposed at their destination;
- xy) medications used prophylactically or therapeutically should only be administered by a veterinarian or other person who has been instructed in their use by a veterinarian;
- xz) mixing of animals from different sources in a single consignment should be minimized.

2. Vessel and container design and maintenance

- a) Vessels used for the sea transport of animals should be designed, constructed and fitted as appropriate to the species, size and weight of the animals to be transported. Special attention should be paid to the avoidance of injury to animals through the use of secure smooth fittings free from sharp protrusions and the provision of non-slip flooring. The avoidance of injury to animal handlers while carrying out their responsibilities should be emphasised.
- b) Vessels should be designed to permit thorough cleaning and *disinfection*, and the management of faeces and urine.
- c) Vessels and their fittings should be maintained in good mechanical and structural condition.

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- d) Vessels should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported. The ventilation system should be ~~capable of operating effective~~ when the vessel is stationary ~~and the air flow should be adjustable~~. An emergency power supply should be available to maintain ventilation in the case of primary machinery breakdown.
  - e) The feeding and watering system should be designed to permit adequate access to feed and water appropriate to the species, size and weight of the animals, and to minimise soiling of pens.
  - f) Vessels should be designed so that the faeces or urine from animals on upper levels do not soil animals on lower levels, or their feed or water.
  - g) Loading and stowage of feed and bedding should be carried out in such a way to ensure protection from fire hazards, the elements and sea water
  - h) Where appropriate, suitable bedding, such as straw or sawdust, should be added to vessel floors to assist absorption of urine and faeces, provide better footing for animals and protect animals (especially young animals) from hard or rough flooring surfaces and adverse weather conditions.
  - i) The above principles apply also to containers used for the transport of animals.
3. Special provisions for transport in road vehicles on roll-on/roll-off vessels or for containers
- a) Road vehicles and containers should be equipped with a sufficient number of adequately designed, positioned and maintained securing points enabling them to be securely fastened to the vessel.
  - b) Road vehicles and containers should be secured to the ship before the start of the sea journey to prevent them being displaced by the motion of the vessel.
  - c) Vessels should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported, especially where the animals are transported in a secondary vehicle/container on enclosed decks.
  - d) Due to the risk of limited airflow on certain vessels' decks, a road vehicle or container may require a forced ventilation system of greater capacity than that provided by natural ventilation.

X) Nature and duration of the journey

The maximum duration of a journey should be determined according to:

- x1) the ability of the animals to cope with the stress of transport (such as very young, old, lactating or pregnant animals);
- x2) the animals' previous transport experience;
- x3) the likely onset of fatigue;
- x4) the need for special attention;

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- ~~x5) the need for feed and water;~~
- ~~x6) the increased susceptibility to injury and disease;~~
- ~~x7) space allowance and vessel design;~~
- ~~x8) weather conditions.~~

4. Space allowance

- a) The number of animals which should be transported on a vessel and their allocation to different pens on the vessel should be determined before loading.
- b) The amount of space required, including headroom, depends on the species of animal and should allow the necessary thermoregulation. Each animal should be able to assume its natural position for transport (including during loading and unloading) without coming into contact with the roof or upper deck of the vessel. When animals lie down, there should be enough space for every animal to adopt a ~~comfortable~~, normal lying posture.
- c) Calculations for the space allowance for each animal should be carried out, using the figures given in ~~these guidelines~~ Appendix XXX or, in their absence, in a relevant national or international document. The size of pens will affect the number of animals in each.
- d) The same principles apply when animals are transported in containers.

5. Ability to observe animals ~~en route~~ during the journey

- a) Animals should be positioned to enable them to be observed regularly and clearly by the animal handler or other responsible person, during the journey to ensure their safety and good welfare.
- b) ~~To allow an adequate inspection of animals en route, it should be possible for each animal to be clearly observed by the animal handler or other responsible person.~~

6. Emergency response procedures

~~Appropriate contingency plans to address emergencies should be prepared in advance.~~

There should be an emergency management plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.

Article 3.7.2.4.

**Documentation**

1. Animals should not be loaded until the documentation required to that point is complete.

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2. The documentation accompanying the consignment should include:
  - a) journey travel plan (including a contingency plan for emergencies);
  - b) time, date and place of loading;
  - c) the journey log – a daily record of inspection and important events which includes records of morbidity and mortality and actions taken, climatic conditions, food and water consumed, medication provided, mechanical defects;
  - d) expected time, date and place of arrival and unloading;
  - e) veterinary certification, when required;
  - f) animal identification to allow traceback of individual animals to the premises of departure, and, where possible, to the premises of origin;
  - g) details of any animals considered 'at risk' (Article 3.7.2.5);
  - h) number of animal handlers on board, and their competencies;
  - i) stocking density estimate for each load in the consignment.
3. When veterinary certification ~~should~~ is required to accompany consignments of animals ~~and it should~~ address:
  - a) when required, cleaning and details of disinfection carried out of the vessel;
  - b) fitness of the animals to travel;
  - c) animal identification (description, number, etc.) ;
  - d) health status including any tests, treatments and vaccinations carried out, ~~if required~~.

Article 3.7.2.5.

### **Pre-journey period**

1. General considerations
  - a) Before each journey, vessels should be thoroughly cleaned and, if necessary, treated for animal and public health purposes, using chemicals approved by the *Competent Authority*. When cleaning is necessary during a journey, this should be carried out with the minimum of stress to the animals.
  - b) In some circumstances, animals may require pre-journey assembly. In these circumstances, the following points should be considered:
    - x1) Pre-journey rest is necessary if the welfare of animals has become poor during the collection period because of the physical environment or the social behaviour of the animals.

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- i) For animals such as pigs which are susceptible to motion sickness, and in order to reduce urine and faeces production during the journey, a short period of feed deprivation prior to loading is desirable.
  - ii) ~~When animals will be provided with a novel diet or method of water provision during or after transport, an adequate period of pre-exposure is necessary. Preconditioning to the feed to be used on the vessel may be necessary in such cases.~~
  - x2) When animals are to be provided with a novel diet or unfamiliar methods of supplying of feed or water, they should be preconditioned.
  - X) Where an animal handler believes that there is a significant risk of disease among the animals to be loaded or significant doubt as to their fitness to travel, the animals should be examined by a veterinarian.
  - c) Pre-journey assembly /holding areas should be designed to:
    - i) securely contain the animals;
    - ii) maintain an environment safe from hazards, including predators and disease;
    - iii) protect animals from exposure to adverse weather conditions; ~~and~~
    - iv) allow for maintenance of social groups, and
    - v) allow for rest, watering and feeding.
2. Selection of compatible groups

Compatible groups should be selected before transport to avoid adverse animal welfare consequences. The following guidelines should be applied when assembling groups of animals:

- a) animals of different species should not be mixed unless they are judged to be compatible;
- b) animals of the same species can be mixed unless there is a significant likelihood of aggression; aggressive individuals should be segregated (recommendations for specific species are described in detail in Article 3.7.2.10.). For some species, animals from different groups should not be mixed because poor welfare occurs unless they have established a social structure;
- c) young or small animals may need to be separated from older or larger animals, with the exception of nursing mothers with young at foot;
- d) animals with horns or antlers should not be mixed with animals lacking horns or antlers, unless judged to be compatible;
- e) animals reared together should be maintained as a group; animals with a strong social bond, such as a dam and offspring, should be transported together.

Appendix XXXV (contd)Appendix C (contd)3. Fitness to travel

- a) Animals should be inspected by a veterinarian or an animal handler to assess fitness to travel. If its fitness to travel is in doubt, the animal should be examined by a veterinarian. Animals found unfit to travel before travel and those found unfit to travel by farm staff, an animal handler or a veterinarian, should not be loaded onto a vessel.
- b) Humane and effective arrangements should be made by the owner or agent for the handling and care of any animal rejected as unfit to travel.
- c) Animals that are unfit to travel include:
  - i) those that are sick, injured, weak, disabled or fatigued;
  - ii) those that are unable to stand unaided ~~and~~ or bear weight on each leg;
  - iii) those that are blind in both eyes;
  - iv) those that cannot be moved without causing them additional suffering;
  - v) newborn with an unhealed navel;
  - vi) females travelling without young which have given birth within the previous 48 hours;
  - vii) pregnant animals which would be in the final 10% of their gestation period at the planned time of unloading.
- d) Risks during transport can be reduced by selecting animals best suited to the conditions of travel and those that are acclimatised to expected weather conditions.
- e) Animals at risk, and requiring better conditions and additional attention during transport include:
  - i) very large or obese individuals;
  - ii) very young or old animals;
  - iii) excitable or aggressive animals;
  - iv) animals subject to motion sickness;
  - v) animals which have had little contact with humans;
  - vi) females in the last third of pregnancy or in heavy lactation.
- f) Hair or wool length ~~needs consideration~~ should be considered in relation to the weather conditions expected during transport.

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## Article 3.7.2.6.

**Loading**1. Experienced Competent supervision

- a) Loading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.
- b) Loading should be supervised by the *Competent Authority* and ~~managed~~ conducted by an animal handler(s). Animal handlers should ensure that animals are loaded quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.
- e) ~~Ventilation during loading and the journey should provide for fresh air, and the removal of excessive heat, humidity and noxious fumes (such as ammonia and carbon monoxide). Under warm and hot conditions, ventilation should allow for the adequate convective cooling of each animal. In some instances, adequate ventilation can be achieved by increasing the space allowance for animals.~~

2. Facilities

- a) The facilities for loading including the collecting area at the wharf, races and loading ramps should be designed and constructed to take into account of the needs and abilities of the animals with regard to dimensions, slopes, surfaces, absence of sharp projections, flooring, sides, etc.
- x) Ventilation during loading and the journey should provide for fresh air, and the removal of excessive heat, humidity and noxious fumes (such as ammonia and carbon monoxide). Under warm and hot conditions, ventilation should allow for the adequate convective cooling of each animal. In some instances, adequate ventilation can be achieved by increasing the space allowance for animals.
- b) ~~All~~ Loading facilities should be properly illuminated to allow the animals to be easily inspected by the animal handler(s), and to allow the animals' ease of movement at all times. Facilities should provide uniform lighting light levels directly over approaches to sorting pens, chutes, loading ramps, with brighter lighting light levels inside vehicles / containers, in order to minimise baulking. Dim lighting light levels may be advantageous for the catching of some animals. Artificial lightening may be required.

3. Goads and other aids

The following principles should apply:

- a) ~~Goads (aids for encouraging animals to move) should not be used on~~ Animals that have little or no room to move should not be subjected to physical force or goads and other aids which compel movement.

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- b) Useful and permitted goads include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags and metallic rattles; they should be used in a manner sufficient to encourage and direct movement of the animals ~~but without physical contact with them.~~
- x) Painful procedures (including whipping, tail twisting, use of nose twitches, pressure on eyes, ears or external genitalia), or the use of unsuitable goads or other aids (including sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts), should not be used to move animals.
- e) ~~Unsuitable goads such as large wooden sticks, sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts should not be used to strike animals.~~
- d) The use of goads which administer electric shocks should be discouraged, and restricted to that necessary to assist movement of the animal. ~~If Such use is necessary, it~~ should be limited to battery-powered goads on the hindquarters of pigs and large ruminants, and never on sensitive areas such as the eyes, mouth, ears, anogenital region or belly. Such instruments should not be used on horses, sheep and goats of any age, or on calves or piglets.
- x) Shouting or yelling at animals or making loud noises e.g. through the cracking of whips to encourage them to move should not occur, as such actions may make the animals agitated, leading to crowding or falling.
- e) The use of well trained dogs to help with the *loading* of some species may be acceptable.
- f) Manual lifting is permissible for young animals that may have difficulty negotiating ramps, but the lifting of animals by body parts such as their tail, head, horns, ears, limbs, wool or hair should not be permitted. The throwing or dropping of animals should not be permitted.

## Article 3.7.2.7.

**Travel**1. General considerations

- a) Animal handler(s) should check the consignment immediately before departure to ensure that the animals have been loaded according to the load plan. Each consignment should be checked again within ~~24~~ 12 hours.
- b) Adjustments should be made to the stocking density ~~within 48 hours of departure and~~ as appropriate during the journey.
- c) Each pen of animals should be observed on a daily basis for normal behaviour, health and welfare, and the correct operation of ventilation, watering and feeding systems. There should also be a night patrol. Any necessary corrective action should be undertaken promptly.
- d) Adequate access to suitable feed and water should be ensured for all animals in each pen.

Appendix XXXV (contd)Appendix C (contd)2. Sick and injured animals

- a) Sick ~~and or~~ injured animals should be segregated/~~isolated~~ if possible.
- b) Sick ~~or~~ and injured animals should be appropriately treated ~~promptly and or humanely killed, in accordance with a predetermined emergency response plan (Article 3.7.2.3).~~ and Veterinary advice should be sought if necessary. All drugs and products should be used in accordance with the manufacturer's or veterinarian's recommendations.
- e) ~~A record of treatments carried out and their outcomes should be kept.~~
- d) When euthanasia is necessary, the person responsible for the animals must ensure that it is carried out humanely, ~~and results in immediate death. When necessary.~~ Assistance should be sought from a veterinarian or other person(s) competent in euthanasia procedures. Recommendations for specific species are described in Appendix 3.7.6. on humane killing of animals for disease control purposes.

3. Cleaning and disinfection

- a) ~~Vessels and containers used to carry the animals should be cleaned before re use through the physical removal of manure and bedding by scraping, washing and flushing vessels and containers with water. This should be followed by *disinfection* when there are concerns about disease transmission.~~
- b) ~~Manure, litter and bedding should be disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.~~
- e) ~~Where cleaning or *disinfestation* is necessary during travel, it should be carried out with the minimum stress to the animals.~~

Article 3.7.2.8.

**Unloading and post-journey handling**1. General considerations

- a) The required facilities and the principles of animal handling detailed in Article 3.7.2.6. apply equally to unloading, but consideration should be given to the likelihood that the animals will be fatigued.
- b) Unloading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.
- c) A livestock vessel should have priority attention when arriving in port and have priority access to a berth with suitable unloading facilities. As soon as possible after the ship's arrival at the port and acceptance of the consignment by the *Competent Authority*, animals should be unloaded into appropriate facilities.
- d) The accompanying veterinary certificate and other documents should meet the requirements of the *importing country*. Veterinary inspections should be completed as quickly as possible.

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- e) Unloading should be supervised by the *Competent Authority* and ~~managed~~ conducted by an ~~competent~~ animal handler(s). The animal handlers should ensure that animals are unloaded as soon as possible after arrival but sufficient time should be allowed for unloading to proceed quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.

2. Facilities

- a) The facilities for unloading including the collecting area at the wharf, races and unloading ramps should be designed and constructed to take into account of the needs and abilities of the animals with regard to dimensions, slopes, surfaces, absence of sharp projections, flooring, sides, etc.
- b) All unloading facilities should ~~be properly illuminated~~ have sufficient lighting to allow the animals to be easily inspected by the animal handler(s), and to allow the animals' ease of movement at all times.
- c) ~~In case of emergencies,~~ Port facilities should provide animals with appropriate care and comfort, adequate space, access to quality feed and clean drinking water, and shelter from extreme weather conditions.

3. Sick and injured animals

- x) An animal that has become sick, injured or disabled during a journey should be appropriately treated or humanely killed (see Appendix 3.7.6.). When necessary, veterinary advice should be sought in the care and treatment of these animals.
- a) In some cases, where animals are non-ambulatory due to fatigue, injury or sickness, it may be in the best welfare interests of the animal to be treated or euthanased aboard the vessel.
- b) If unloading is in the best welfare interests of animals that are fatigued, injured or sick, there should be appropriate facilities and equipment for the humane unloading of such animals. These animals should be unloaded in a manner that causes the least amount of suffering. After unloading, separate pens and other appropriate facilities and treatments should be provided for sick or injured animals.

X) Cleaning and disinfection

- X1) Vessels and containers used to carry the animals should be cleaned before re-use through the physical removal of manure and bedding, by scraping, washing and flushing vessels and containers with water until visibly clean. This should be followed by disinfection when there are concerns about disease transmission.
- X2) Manure, litter and bedding should be disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.
- X3) Where cleaning or disinfection is necessary during travel, it should be carried out with the minimum of stress to the animals.

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## Article 3.7.2.9.

**Actions in the event of a refusal to allow the importation of a shipment**

1. The welfare of the animals should be the first consideration in the event of a refusal to import.
2. When ~~a shipment has~~ animals have been refused import, the *Competent Authority* of that country should make available suitable isolation facilities to allow the unloading of animals from a vessel and their secure holding, without posing a risk to the health of the national herd, pending resolution of the situation. In this situation, the priorities should be:
  - a) the *Competent Authority* of the *importing country* should provide urgently in writing the reasons for the refusal;
  - b) in the event of a refusal for animal health reasons, the *Competent Authority* of the *importing country* should provide urgent access to an OIE-appointed veterinarian(s) to assess the animals' health status with regard to the *importing country's* concerns, and the necessary facilities and approvals to expedite the required diagnostic testing;
  - c) the *Competent Authority* of the *importing country* should provide access to allow continued assessment of the ongoing health and welfare situation;
  - d) if the matter cannot be promptly resolved, the *Competent Authority* of the *exporting* and *importing countries* should call on the OIE to mediate.
3. In the event that the animals are required to remain on the *vessel*, the priorities should be:
  - a) the *Competent Authority* of the *importing country* should allow reprovision of the vessel with water and feed as necessary;
  - b) the *Competent Authority* of the *importing country* should provide urgently in writing the reasons for the refusal;
  - c) in the event of a refusal for animal health reasons, the *Competent Authority* of the *importing country* should provide urgent access to an OIE-appointed veterinarian(s) to assess the animals' health status with regard to the *importing country's* concerns, and the necessary facilities and approvals to expedite the required diagnostic testing;
  - d) the *Competent Authority* of the *importing country* should provide access to allow continued assessment of the ongoing health ~~and welfare situation~~ other aspects of the welfare of the animals, and the necessary actions to deal with any issues which arise;
  - e) if the matter cannot be urgently resolved, the *Competent Authorities* of the *exporting* and *importing countries* should call on the OIE to mediate.
4. The OIE should utilise its dispute settlement mechanism to identify a mutually agreed solution which will address the animal health and welfare issues in a timely manner.

## Article 3.7.2.10.

**Species specific issues**

**Cattle** are sociable animals and may become agitated if they are singled out. Social order is usually established at about two years of age. When groups are mixed, social order has to be re-established and aggression may occur until a new order is established. Crowding of cattle may also increase aggression as the animals try to maintain personal space. Social behaviour varies with age, breed and sex; *Bos indicus* and *B. indicus*-cross animals are usually more temperamental than European breeds. Young bulls, when moved in groups, show a degree of playfulness (pushing and shoving) but become more aggressive and territorial with age. Adult bulls have a minimum personal space of six square metres. Cows with young calves can be very protective, and handling calves in the presence of their mothers can be dangerous.

**Goats** should be handled calmly and are more easily led or driven than if they are excited. When goats are moved, their gregarious tendencies should be exploited. Activities which frighten, injure or cause agitation to animals should be avoided. Bullying is particularly serious in goats. Housing strange goats together could result in fatalities, either through physical violence, or subordinate goats being refused access to food and water.

**Sheep** are sociable animals with good eyesight and tend to “flock together”, especially when they are agitated. They should be handled calmly and their tendency to follow each other should be exploited when they are being moved. Sheep may become agitated if they are singled out for attention and will strive to rejoin the group. Activities which frighten, injure or cause agitation to sheep should be avoided. They can negotiate steep ramps.

**Pigs** have poor eyesight, and may move reluctantly in strange surroundings. They benefit from well lit loading bays. Since they negotiate ramps with difficulty, these should be as level as possible and provided with secure footholds. Ideally, a hydraulic lift should be used for greater heights. Pigs also negotiate steps with difficulty. A good ‘rule-of-thumb’ is that no step should be higher than the pig’s front knee. Serious aggression may result if unfamiliar animals are mixed. Pigs are highly susceptible to heat stress.

**Horses** in this context include all solipeds, donkeys, mules, hinnies and zebra. They have good eyesight and a very wide angle of vision. They may have a history of loading resulting in good or bad experiences. Good training should result in easier loading, but some horses can prove difficult, especially if they are inexperienced or have associated loading with poor transport conditions. In these circumstances, two experienced handlers can load an animal by linking arms or using a strop below its rump. Blindfolding may even be considered. Ramps should be as shallow as possible. Steps are not usually a problem when horses mount a ramp, but they tend to jump a step when descending, so steps should be as low as possible. Horses benefit from being individually stalled, but may be transported in compatible groups. When horses are to travel in groups, their shoes should be removed.

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**Camelids** in this context comprise llamas, alpacas, guanaco and vicuna. They have good eyesight and, like sheep, can negotiate steep slopes, though ramps should be as shallow as possible. They load most easily in a bunch as a single animal will strive to rejoin the others. Whilst they are usually docile, they have an unnerving habit of spitting in self-defence. During transport, they usually lie down. They frequently extend their front legs forward when lying, so gaps below partitions should be high enough so that their legs are not trapped when the animals rise.

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## APPENDIX 3.7.3.

GUIDELINES FOR THE TRANSPORT  
OF ANIMALS BY LAND

**Preamble:** These guidelines apply to the following live domesticated animals: cattle, buffalo, camels, sheep, goats, pigs, poultry and equines. They will also be largely applicable to some other animals (e.g. deer, other camelids and ratites). Wild, feral and partly domesticated animals may need different conditions.

Article 1

The amount of time animals spend on a journey should be kept to the minimum possible.

Article 3.7.3.1. bis

**Responsibilities**

Once the decision to transport the animals has been made, the welfare of animals during their journey transport is the paramount consideration and is the joint responsibility of all people involved.

The roles of each of those responsible are defined below:

1. The owners and managers of the animals are responsible for the general health of the animals and their fitness for the journey, and for their overall welfare during the journey, regardless of whether duties are subcontracted to other parties during transport. They are also responsible for ensuring compliance with any required veterinary or other certification and for the presence during the journey of at least one animal handler<sup>2</sup> competent for the species being transported, with the authority to take prompt action. They are also responsible for ensuring that equipment and veterinary assistance are provided as appropriate for the species and journey.
2. Business agents or buying/selling agents have a joint responsibility with owners for the selection of animals that are fit to travel. They have a joint responsibility with market owners and managers of facilities at the start and at the end of the journey for the availability of suitable facilities for the assembly, loading, transport, unloading and holding of animals, and for emergencies.
3. Animal handlers are responsible for the humane handling and care of the animals, especially during loading and unloading, and for maintaining a journey log. To carry out their responsibilities, they should have the authority to take prompt action. In the absence of a separate animal handler, the driver is the animal handler.
4. Transport companies, vehicle owners and drivers are responsible for planning the journey to ensure the care of the animals:

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<sup>2</sup> An animal handler is a person with a knowledge of the behaviour and needs of animals which, with appropriate experience and a professional and positive response to an animal's needs, results in effective management and good welfare; their competence should be demonstrated through independent assessment and certification.

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- a) transport companies and vehicle owners are responsible for choosing appropriate vehicles and ensuring that properly trained staff are available for loading and caring for animals;
  - b) transport companies and vehicle owners are responsible for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport;
  - c) transport companies and vehicle owners are responsible for producing a journey plan which includes a loading plan, journey duration and location of resting places;
  - d) drivers are responsible for loading only those animals which are fit to travel, for their correct loading into the vehicle and their inspection during the journey, and for appropriate responses to problems arising. If its fitness to travel is in doubt, the animal should be examined by a veterinarian in accordance with point 5 a) of Article 3.7.3.5.
5. Managers of facilities at the start and at the end of the journey and at resting points are responsible for:
- a) providing suitable premises for loading, unloading and securely holding the animals, with water and feed when required, until further transport, sale or other use (including rearing or slaughter);
  - b) providing competent animal handlers to load, unload, drive and hold animals in a manner that causes minimum stress and injury;
  - c) minimising the opportunities for disease transmission;
  - d) providing appropriate facilities, with water and feed when required;
  - e) providing appropriate facilities for emergencies;
  - f) providing facilities for washing and disinfecting vehicles after unloading;
  - g) providing facilities and competent staff to allow the humane killing of animals when required;
  - h) ensuring proper rest times and minimal delay during stops.
6. The responsibilities of *Competent Authorities* include:
- a) establishing minimum standards for animal welfare, including requirements for inspection of animals before, during and after their travel, and appropriate certification and record keeping;
  - b) approving facilities, containers and vehicles for the transport of animals;
  - c) setting standards for the competence of drivers, animal handlers and managers;
  - d) ensuring appropriate awareness and training of drivers, animal handlers and managers;
  - e) implementation of the standards, including through accreditation of / interaction with other organisations;

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- f) monitoring and evaluating the effectiveness of standards of health and other aspects of welfare;
  - g) monitoring and evaluating the use of veterinary medications.
7. All individuals, including veterinarians, involved in transporting animals and the associated handling procedures should receive appropriate training and be competent to meet their responsibilities.
  8. The receiving *Competent Authority* should report back to the sending *Competent Authority* on significant animal welfare problems which occurred during the journey.

## Article 3.7.3.2.

**Competence**

1. All people ~~handling animals, or who are otherwise~~ responsible for animals during *journeys*, should be competent according to their responsibilities listed in Article 3.7.3.1. Competence may be gained through formal training and/or practical experience. Competence in areas other than animal welfare would need to be addressed separately.
2. The competence of animal handlers should be demonstrated through a current certificate from an independent body, accredited by the *Competent Authority*. The certificate should be in one of the OIE official languages if the international transport of animals is involved.
3. The assessment of the competence of animal handlers should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:
  - a) planning a journey, including appropriate space allowance, and feed, water and ventilation requirements;
  - b) responsibilities for animals during the journey, ~~including loading and unloading;~~
  - c) sources of advice and assistance;
  - d) animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation;
  - xx) assessment of fitness to travel;
  - e) relevant authorities and applicable transport regulations, and associated documentation requirements;
  - f) general disease prevention procedures, including cleaning and disinfection;
  - g) appropriate methods of driving;
  - h) methods of inspecting animals, managing situations frequently encountered during *transport* such as adverse weather conditions, and dealing with emergencies;
  - i) species-specific and age-specific aspects of animal handling and care, including feeding, watering and inspection;
  - j) maintaining a journey log and other records.

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## Article 3.7.3.3.

**Planning the journey**1. General considerations

- a) Adequate planning is a key factor affecting the welfare of animals during a journey.
- b) Before the journey starts, plans should be made in relation to:
  - i) preparation of animals for the journey;
  - ii) choice of road or rail;
  - iii) nature and duration of the journey;
  - iv) vehicle / container design and maintenance, including roll-on roll-off vessels;
  - v) required documentation;
  - vi) space allowance;
  - vii) rest, water and feed;
  - viii) observation of animals en route;
  - ix) control of disease; and
  - x) emergency response procedures.
- c) Regulations concerning drivers (for example, maximum driving periods) should be harmonised with maximum transport journey intervals appropriate for the species.

2. Preparation of animals for the journey

- a) When animals are to be provided with a novel diet or method of water provision during transport, an adequate period of adaptation should be planned. For animals such as pigs which are susceptible to motion sickness, and in order to reduce urine and faeces production during the journey, a short period of feed deprivation prior to loading may be desirable.
- b) ~~Animals should be exposed to appropriate contact with humans and handling conditions (including methods of restraint) prior to transport to reduce their fearfulness and improve their approachability (see Article 3.7.3.5).~~ Since animals more accustomed to contact with humans and with being handled are likely to be less fearful of being loaded and transported. People handling animals should handle and load animals in a manner that reduces their fearfulness and improves their approachability.

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- c) Behaviour-modifying compounds (such as tranquillisers) should not be used routinely during transport. Such compounds should only be administered when a problem exists in an individual animal, and should be administered by a veterinarian or other person who has been instructed in their use by a veterinarian.

### 3. Nature and duration of the journey

The maximum duration of a journey should be determined according to:

- a) the ability of the animals to cope with the stress of transport (such as very young, old, lactating or pregnant animals);
- b) the animals' previous transport experience;
- c) the onset of fatigue;
- d) the need for special attention;
- e) the need for feed and water;
- f) the increased susceptibility to injury and disease;
- g) space allowance, vehicle design, road conditions and driving quality;
- h) weather conditions.

### 4. Vehicle and container design and maintenance

- a) Vehicles and containers used for the transport of animals should be designed, constructed and fitted as appropriate to the species, size and weight of the animals to be transported; special attention should be paid to the avoidance of injury to animals through the use of secure smooth fittings free from sharp protrusions. The avoidance of injury to drivers and animal handlers while carrying out their responsibilities should be emphasised.
- b) Vehicles and containers should be designed with the structures necessary to provide protection from adverse weather conditions and to minimise the opportunity for animals to escape.
- c) In order to minimise the likelihood of the spread of ~~pathogenic agents~~ infectious disease during transport, vehicles and containers should be designed to permit thorough cleaning and *disinfection*, and the containment of faeces and urine during a journey.
- d) Vehicles and containers should be maintained in good mechanical and structural condition.
- e) Vehicles and containers should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported; the ventilation system should be ~~capable of operating~~ effective when the vehicles is stationary ~~and the air flow should be adjustable~~.

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- f) Vehicles should be designed so that the faeces or urine from animals on upper levels do not soil animals on lower levels, nor their feed and water.
  - g) When vehicles are carried on board ferries, facilities for adequately securing them should be available.
  - h) If feeding or watering while the vehicle is moving is required, adequate facilities on the vehicle should be available.
  - i) When appropriate, suitable bedding should be added to vehicle floors to assist absorption of urine and faeces, to minimise slipping by animals, and protect animals (especially young animals) from hard flooring surfaces and adverse weather conditions.
5. Special provisions for transport in vehicles (road and rail) on roll-on/roll-off vessels or for containers
- a) Vehicles and containers should be equipped with a sufficient number of adequately designed, positioned and maintained securing points enabling them to be securely fastened to the vessel.
  - b) Vehicles and containers should be secured to the ship before the start of the sea journey to prevent them being displaced by the motion of the vessel.
  - c) Roll-on/roll-off vessels should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported, especially where the animals are transported in a secondary vehicle/container on enclosed decks.
6. Space allowance
- a) The number of animals which should be transported on a vehicle or in a container and their allocation to ~~different~~ compartments should be determined before ~~the vehicle or container is loaded~~ loading.
  - b) The space required on a vehicle or in a container depends upon whether or not the animals need to lie down (for example, pigs, camels and poultry), or to stand (horses). Animals which will need to lie down often stand when first loaded or when the vehicle is driven with too much lateral movement or sudden braking.
  - c) When animals lie down, they should all be able to adopt a ~~comfortable~~, normal lying posture which allows necessary thermoregulation.
  - d) When animals are standing, they should have sufficient space to adopt a balanced position as appropriate to the climate and species transported (Article XXX).
  - e) The amount of headroom necessary depends on the species of animal. Each animal should be able to assume its natural position for transport (including during loading and unloading) without coming into contact with the roof or upper deck of the vehicle.

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- f) Calculations ~~according to~~ for the space allowance ~~permitted~~ for each animal should be carried out using the figures given in Appendix XXX or, in their absence, in a relevant national or international document. ~~The size of already established groups will affect the number and size of the pens, and the distribution of animals in pens on the vehicle. The number and size of pens on the vehicle should be varied to where possible accommodate already established groups of animals while avoiding group sizes which are too large.~~
- g) Other factors which may influence space allowance include:
- i) vehicle / container design;
  - ii) length of journey;
  - iii) need to provide feed and water on the vehicle;
  - iv) quality of roads;
  - v) expected weather conditions.
7. Rest, water and feed
- a) There should be planning for the availability of suitable water and feed ~~during the journey. Feed should be of appropriate quality and composition for the species, age, condition of the animals, climatic conditions, etc as appropriate and needed for the species, age, and condition of the animals, as well as the duration of the journey, climatic conditions, etc.~~
  - b) ~~Animals should be rested~~ There should be planning for the resting of animals at resting points at appropriate intervals during the journey. The type of transport the age and species of the animals being transported should determine the frequency of rest stops and whether the animals are should be unloaded. There should be planning for water and feed availability during rest stops.
8. Ability to observe animals en-route in relation to during the journey duration
- a) Animals should be positioned to enable each animal to be observed regularly during the journey to ensure their safety and good welfare.
  - b) If the animals are in crates or on multi-tiered vehicles which do not allow free access for observation, for example where the roof of the tier is too low (i.e. less than 1.3 m), animals cannot be inspected adequately, and serious injury or disease could go undetected. In these circumstances, a shorter journey duration should be allowed, and the maximum duration will vary according to the rate at which problems arise in the species and under the conditions of transport.
9. Control of disease

As animal transport is often a significant factor in the spread of infectious diseases, journey planning should take the following into account:

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- a) mixing of animals from different sources in a single consignment should be minimised;
- b) contact at resting points between animals from different sources should be avoided;
- c) when possible, animals should be vaccinated against diseases to which they are likely to be exposed at their destination;
- d) medications used prophylactically or therapeutically should only be administered by a veterinarian or other person who has been instructed in their use by a veterinarian and agreed by the Veterinary Authority of the importing country.

10. Emergency response procedures

~~Appropriate contingency plans to address emergencies should be prepared in advance.~~

There should be an emergency management plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.

11. Other considerations

- a) Extreme weather conditions are hazardous for animals undergoing transport and require appropriate vehicle design to minimise risks. Special precautions should be taken for animals that have not been acclimatised or which are unsuited to either hot or cold conditions. In some extreme conditions of heat or cold, animals should not be transported at all.
- b) In some circumstances, transportation during the night may reduce thermal stress or the adverse effects of other external stimuli.

Article 3.7.3.4.

**Documentation**

1. Animals should not be loaded until the ~~required~~ documentation required to that point is complete.
2. The documentation accompanying the consignment should include:
  - a) journey travel plan (including a contingency plan for emergencies);
  - b) date, time, and place of loading and unloading;
  - c) veterinary certification, when required;
  - d) driver's competencies;
  - e) identities of the animals transported to allow traceback of individual animals to the premises of departure and, where possible, to the premises of origin;

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- f) details of any animals considered 'at risk' (Article 3.7.3.5.);
  - g) documentation of the period of rest, and access to feed and water, prior to the journey;
  - h) stocking density estimate for each load in the consignment;
  - i) the journey log - daily record of inspection and important events, including records of morbidity and mortality and actions taken, climatic conditions, rest stops, travel time and distance, feed and water offered and estimates of consumption, medication provided, and mechanical defects.
3. When veterinary certification is required to accompany consignments of animals, it should ~~include~~ address:
- x) fitness of animals to travel;
  - a) ~~appropriate~~ animal identification (description, number, etc.);
  - b) health status including any tests, treatments and vaccinations ~~status~~ carried out;
  - c) when required, details of *disinfection* carried out.

At the time of certification, the veterinarian should notify the animal handler of any factors affecting the animals' fitness to travel for a particular journey.

Article 3.7.3.5.

### **Pre-journey period**

#### 1. General considerations

- a) Pre-journey rest is necessary if the welfare of animals has become poor during the collection period because of the physical environment or the social behaviour of the animals.
- x) Assembly/holding areas should be designed to:

  - i) securely hold the animals,
  - ii) maintain a safe environment from hazards, including predators and disease,
  - iii) protect animals from exposure to severe weather conditions,
  - iv) allow for maintenance of social groups, and
  - v) allow for rest, and appropriate water and feed.

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- y) Consideration should be given to an animal's previous transport experience, training and conditioning if known as these may reduce fear and stress in animals.
- b) Feed and water should be provided pre-journey if the journey duration is greater than the normal inter-feeding and drinking interval for the animal. Recommendations for specific species are described in detail in Article 3.7.3.10.
- c) When animals ~~will~~ are to be provided with a novel diet or method of feed or water provision during ~~or after transport~~, an adequate period of adaptation should be planned. ~~pre-exposure is necessary.~~
- d) Before each journey, vehicles and containers should be thoroughly cleaned and, if necessary, treated for animal health and public health purposes, using methods approved by the *Competent Authority*. When cleaning is necessary during a journey, this should be carried out with the minimum of stress to the animals.
- e) Where an animal handler believes that there is a significant risk of disease among the animals to be loaded or significant doubt as to their fitness to travel, the animals should be examined inspected by a veterinarian.
2. Selection of compatible groups

Compatible groups should be selected before transport to avoid adverse animal welfare consequences. The following guidelines should be applied when assembling groups of animals:

- a) animals reared together should be maintained as a group; animals with a strong social bond, such as a dam and offspring, should be transported together;
- b) animals of the same species ~~should not~~ can be mixed ~~if~~ unless there is a significant likelihood of aggression; aggressive individuals should be segregated (recommendations for specific species are described in detail in Article 3.7.3.10.). For some species, animals from different groups should not be mixed because poor welfare occurs unless they have established a social structure;
- c) young or small animals should be separated from older or larger animals, with the exception ~~that dam and offspring should be transported together~~ of nursing mothers with young at foot;
- d) animals with horns or antlers should not be mixed with animals lacking horns or antlers unless judged to be compatible;
- e) animals of different species should not be mixed unless they are judged to be compatible.
3. Shelter in the assembly/holding area

~~Assembly/holding areas should be designed to:~~

- a) ~~securely hold the animals;~~
- b) ~~maintain a safe environment from hazards, including predators and disease;~~

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- e) ~~protect animals from exposure to severe weather conditions;~~
  - d) ~~allow for maintenance of social groups, and~~
  - e) ~~allow for rest, and appropriate water and feed.~~
4. Effect of travel experience, long and short term
- a) ~~Consideration should be given to an animal's previous transport experience, training and conditioning as these may reduce fear and stress in animals. Animals that are carefully and regularly transported may show less adverse responses to transport.~~
  - b) ~~Exposure to familiar personnel should reduce the fearfulness of animals and improve their approachability during transport procedures.~~
5. Fitness to travel
- a) Each animal should be inspected by a veterinarian or an animal handler to assess fitness to travel. If its fitness to travel is in doubt, the animal should be examined by a veterinarian. Animals found unfit to travel should not be loaded onto a vehicle, except for transport to receive veterinary treatment.
  - b) Humane and effective arrangements should be made by the owner or agent for the handling and care of any animal rejected as unfit to travel.
  - c) Animals that are unfit to travel include:
    - i) those that are sick, injured, weak, disabled or fatigued;
    - ii) those that are unable to stand unaided and bear weight on each leg;
    - iii) those that are blind in both eyes;
    - iv) those that cannot be moved without causing them additional suffering;
    - xx) newborn with an unhealed navel;
    - v) ~~pregnant animals which are likely to give birth during the journey~~ pregnant animals which would be in the final 10% of their gestation period at the planned time of unloading.;
    - vi) females travelling without young which have given birth within the previous 48 hours;
    - vii) those whose body condition would result in poor welfare because of the expected climatic conditions.
  - d) Risks during transport can be reduced by selecting animals best suited to the conditions of travel and those that are acclimatised to expected weather conditions.

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- e) Animals 'at risk' which require special conditions (such as in the design of facilities and vehicles, and the length of the journey) and additional attention during transport, may include:
  - i) large or obese individuals;
  - ii) very young or old animals;
  - iii) excitable or aggressive animals;
  - iv) animals which have had little contact with humans;
  - v) animal subject to motion sickness;
  - vi) females in late pregnancy or heavy lactation, dam and offspring;
  - vii) ~~those~~ animals with a history of exposure to stressors or pathogenic agents prior to transport.

6. Specific species requirements

Transport procedures should be able to take account of variations in the behaviour of the species. Flight zones, social interactions and other behaviour vary significantly among species and even within species. Facilities and handling procedures that are successful with one species are often ineffective or dangerous with another.

Recommendations for specific species are described in detail in Article 3.7.3.10.

Article 3.7.3.6.

**Loading**1. Experienced Competent supervision

- a) ~~Since loading has been shown to be the procedure most likely to be the cause of poor welfare in transported animals, the methods to be used should be carefully planned. Loading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.~~
- b) Loading should be supervised and/or conducted by animal handlers. These animal handlers should ensure that animals are loaded quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.
- c) When containers are loaded onto a vehicle, this should be carried out in such a way to avoid poor animal welfare.

2. Facilities

- a) The facilities for loading including the collecting area, races and loading ramps should be designed and constructed to take into account the needs and abilities of the animals with regard to dimensions, slopes, surfaces, absence of sharp projections, flooring, etc.

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- b) Loading facilities should be properly illuminated to allow the animals to be observed by the animal handler(s), and to allow the animals' ease of movement at all times. Facilities should provide uniform lighting light levels directly over approaches to sorting pens, chutes, loading ramps, with brighter lighting light levels inside vehicles / containers, in order to minimise baulking. Dim lighting light levels may be advantageous for the catching of poultry and some other animals. Artificial lightening may be required.
- c) Ventilation during loading and the journey should provide for fresh air, the removal of excessive heat, humidity and noxious fumes (such as ammonia and carbon monoxide), and the prevention of accumulations of ammonia and carbon dioxide. Under warm and hot conditions, ventilation should allow for the adequate convective cooling of each animal. In some instances, adequate ventilation can be achieved by increasing the space allowance for animals.

3. Goads and other aids

The following principles should apply:

- a) Animals which have little or no room to move should not be subjected to physical force or goads and other aids which compel movement.
- b) Useful and permitted aids include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags and metallic rattles; they should be used in a manner sufficient to encourage and direct movement of the animals ~~but without physical contact with them.~~
- c) Painful procedures (including whipping, tail twisting, use of nose twitches, pressure on eyes, ears or external genitalia), or the use of unsuitable goads or other aids (including sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts), should not be used to move animals.
- d) The use of goads which administer electric shocks should be discouraged, and restricted to that necessary to assist movement of the animal. Such use should be limited to battery-powered goads on the hindquarters of adult pigs and cattle, and never on sensitive areas such as the eyes, mouth, ears, anogenital region or belly. Such instruments should not be used on other animals.
- e) The use of well trained dogs to help with the loading of some species may be acceptable.
- f) The throwing or dropping of animals, or their lifting or dragging by body parts such as their tail, head, horns, ears, limbs, wool, hair or feathers, should not be permitted. The manual lifting of small animals is permissible.
- g) Shouting or yelling at animals or making loud noises e.g. through the cracking of whips to encourage them to move should not occur, as such actions may make the animals agitated, leading to crowding or falling.

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## Article 3.7.3.7.

**Travel**1. General considerations

- a) Drivers and animal handlers should check the 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. Periodic checks should be made throughout the trip.
- b) Drivers should utilise smooth, defensive driving techniques, without sudden turns or stops, to minimise uncontrolled movements of the animals.

2. Methods of restraining or containing animals

- a) Methods of restraining animals should be appropriate to the species and age of animals involved and the training of the individual animal.
- b) Recommendations for specific species are described in detail in Article 3.7.3.10.

3. Regulating the environment within vehicles or containers

- a) Animals should be protected against harm from hot or cold conditions during travel. Effective ventilation procedures for maintaining the animals' environment within vehicles or containers will vary according to whether conditions are cold, hot and dry or hot and humid, but in all conditions a build-up of noxious gases should be prevented. Specific temperature and humidity parameters are described in detail in Appendix XXX.
- b) The animals' environment in hot weather can be regulated by the flow of air produced by the movement of the vehicle. In warm and hot weather, the duration of journey stops should be minimised and vehicles should be parked under shade, with ~~maximal~~ adequate and appropriate ventilation.
- c) To minimise slipping and soiling, and maintain a healthy environment, urine and faeces should be removed from floors when necessary and disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.

4. Sick, injured and dead animals

- a) A driver or animal handler finding sick, injured or dead animals should act according to a predetermined emergency response plan.
- b) If possible, sick or injured animals should be segregated.

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- c) Ferries (roll-on roll-off) should have procedures to treat sick or injured animals during the journey.
  - d) In order to reduce the likelihood that animal transport will increase the spread of infectious disease, contact between transported animals, or the waste products of the transported animals, and other farm animals should be minimised.
  - e) During the journey, when disposal of a dead animal becomes necessary, this should be carried out in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.
  - f) When euthanasia is necessary, the driver or animal handler should ensure that it is carried out as quickly as possible and ~~humanely, and results in immediate death. When necessary,~~ assistance should be sought from a veterinarian or other person(s) competent in humane euthanasia procedures. Recommendations for specific species are described in Appendix 3.7.6. on humane killing of animals for disease control purposes.
5. Water and feed requirements
- a) If journey duration is such that feeding or watering is required or if the species requires feed or water throughout, access to suitable feed and water for all the animals (appropriate for their species and age) carried in the vehicle should be provided. There should be adequate space for all animals to move to the feed and water sources and due account taken of likely competition for feed.
  - b) Recommendations for specific species are described in detail in Article 3.7.3.10.
6. Rest periods and conditions including hygiene
- a) Animals that are being transported should be rested at appropriate intervals during the journey and offered feed and water, either on the vehicle or, if necessary, unloaded into suitable facilities.
  - b) Suitable facilities should be used en route, when resting requires the unloading of the animals. These facilities should meet the needs of the particular animal species and should allow access of all animals to feed and water.
7. In-transit observations
- a) Animals being transported by road should be observed soon after a journey is commenced and whenever the driver has a rest stop (with a maximum interval of 5 hours). After meal breaks and refuelling stops, the animals should be observed immediately prior to departure.
  - b) Animals being transported by rail should be observed at each scheduled stop nearest to 5 hours since the last observation. The responsible rail transporter should monitor the progress of trains carrying animals and take all appropriate action to minimise delays.
  - c) During stops, it should be ensured that the animals continue to be properly confined, have appropriate feed and water, and their physical condition is satisfactory.

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## Article 3.7.3.8.

**Unloading and post-journey handling**1. General considerations

- a) The required facilities and the principles of animal handling detailed in Article 3.7.3.6. apply equally to unloading, but consideration should be given to the likelihood that the animals will be fatigued.
- b) Unloading should be supervised and/or conducted by an animal handler with knowledge and experience of the behavioural and physical characteristics of the species being unloaded. Animals should be unloaded from the vehicle into appropriate facilities as soon as possible after arrival at the destination but sufficient time should be allowed for unloading to proceed quietly and without unnecessary noise, harassment or force.
- c) Facilities should provide all animals with appropriate care and comfort, adequate space and ventilation, access to feed (if appropriate) and water, and shelter from extreme weather conditions.
- d) For details regarding the unloading of animals at a slaughterhouse, see Appendix 3.7.5. on slaughter of animals for human consumption.

2. Sick and injured animals

- a) An animal that has become sick, injured or disabled during a journey should be appropriately treated or humanely killed (see Appendix 3.7.6. on humane killing of animals for disease control purposes). When necessary, veterinary advice should be sought in the care and treatment of these animals. In some cases, where animals are non-ambulatory due to fatigue, injury or sickness, it may be in the best welfare interests of the animal to be treated or euthanased aboard the vehicle.
- b) At the destination, the animal handler during transit should ensure that responsibility for the welfare of sick, injured or disabled animals is transferred to a suitable person.
- c) There should be appropriate facilities and equipment for the humane unloading of animals that are non-ambulatory due to fatigue, injury or sickness. These animals should be unloaded in a manner that causes the least amount of suffering. After unloading, separate pens and other appropriate facilities should be available for sick or injured animals.
- d) Feed, if appropriate, and water should be available for each sick or injured animal.

3. Addressing disease risks

The following should be taken into account in addressing the greater risk of disease due to animal transport and the possible need for segregation of transported animals at the destination:

- a) increased contact among animals, including those from different sources and with different disease histories;
- b) increased shedding of pathogens and increased susceptibility to infection related to stress and impaired defences against disease, including immunosuppression;

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- c) exposure of animals to pathogens which may contaminate vehicles, resting points, markets, etc.
4. Cleaning and disinfection
- a) Vehicles, crates, containers, etc. used to carry the animals should be cleaned before re-use through the physical removal of manure and bedding by scraping, washing and flushing vehicles and containers with water and detergent. This should be followed by *disinfection* when there are concerns about disease transmission.
- b) ~~Manure, litter and bedding should be disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.~~
- e) ~~When disposal of a dead animal becomes necessary, this should be carried out in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.~~
- b) Manure, litter, bedding and the bodies of any animals which die during the journey should be disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.
- d) Establishments like livestock markets, slaughterhouses, resting sites, railway stations, etc. where animals are unloaded should be provided with appropriate areas for the cleaning and *disinfection* of vehicles.
- e) Where *disinfestation* is necessary, it should be carried out with the minimum stress to the animals.

## Article 3.7.3.9.

**Actions in the event of a refusal to allow the completion of the journey**

1. The welfare of the animals should be the first consideration in the event of a refusal to allow the completion of the journey.
2. When the animals have been refused import, the *Competent Authority* of that country should make available suitable isolation facilities to allow the unloading of animals from a vehicle and their secure holding, without posing a risk to the health of national herd or flock, pending resolution of the situation. In this situation, the priorities should be:
  - a) the *Competent Authority* of the *importing country* should provide urgently in writing the reasons for the refusal;
  - b) in the event of a refusal for animal health reasons, the *Competent Authority* of the *importing country* should provide urgent access to a veterinarian, where possible an OIE veterinarian(s) appointed by the Director General, to assess the animals' health status with regard to the *importing country's* concerns, and the necessary facilities and approvals to expedite the required diagnostic testing;
  - c) the *Competent Authority* of the *importing country* should provide access to allow continued assessment of the health and other aspects of the welfare of the animals;
  - d) if the matter cannot be promptly resolved, the *Competent Authorities* of the *exporting* and *importing countries* should call on the OIE to mediate.

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3. In the event that a *Competent Authority* requires the animals to remain on the vehicle, the priorities should be:
  - a) the *Competent Authority* should allow reprovisioning of the vehicle with water and feed as necessary;
  - b) the *Competent Authority* should provide urgently in writing the reasons for the refusal;
  - c) in the event of a refusal for animal health reasons, the *Competent Authority* should provide urgent access to an independent veterinarian(s) to assess the animals' health status, and the necessary facilities and approvals to expedite the required diagnostic testing;
  - d) the *Competent Authority* should provide access to allow continued assessment of the health and other aspects of the welfare of the animals, and the necessary actions to deal with any animal issues which arise.
4. The OIE should utilise its dispute settlement mechanism to identify a mutually agreed solution which will address animal health and any other welfare issues in a timely manner.

Article 3.7.3.10.

**Species specific issues**

(To be developed)

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## APPENDIX 3.7.5.

GUIDELINES FOR THE SLAUGHTER OF  
ANIMALS FOR HUMAN CONSUMPTION

## Article 3.7.5.1.

**General principles**1. Object

These guidelines address the need to ensure the welfare of food animals during pre-slaughter and slaughter processes, until they are dead.

These guidelines apply to the slaughter in slaughterhouses of the following ~~those~~ domestic animals ~~commonly slaughtered in slaughterhouses, that is:~~ cattle, buffalo, sheep, goats, deer, horses, pigs, ratites and poultry. Other animals, wherever they have been reared, and all animals slaughtered outside slaughterhouses should be managed to ensure that their transport, lairaging, restraint and slaughter is carried out without causing undue stress to the animals; the principles underpinning these guidelines apply also to these animals.

2. Personnel

Persons engaged in the unloading, moving, lairaging, care, restraining, stunning, slaughter and bleeding of animals play an important role in the welfare of those animals. For this reason, there should be a sufficient number of personnel, who should be patient, considerate, competent and familiar with the guidelines outlined in the present Appendix and their application within the national context.

Competence may be gained through formal training and/or practical experience. This competence should be demonstrated through a current certificate from an independent body accredited by the Competent Authority.

The management of the slaughterhouse and the Veterinary Services should ensure that slaughterhouse staff are competent and carry out their tasks in accordance with the principles of animal welfare.

The management of the slaughterhouse and the *Veterinary Services* should ensure that slaughterhouse staff carry out their tasks in accordance with the principles of animal welfare.

3. Animal behaviour

Animal handlers should be experienced and competent in handling and moving farm livestock, and understand the behaviour patterns of animals and the underlying principles necessary to carry out their tasks.

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The behaviour of individual animals or groups of animals will vary, depending on their breed, sex, temperament and age and the way in which they have been reared and handled. Despite these differences, the following behaviour patterns which are always present to some degree in domestic animals, should be taken into consideration in handling and moving the animals.

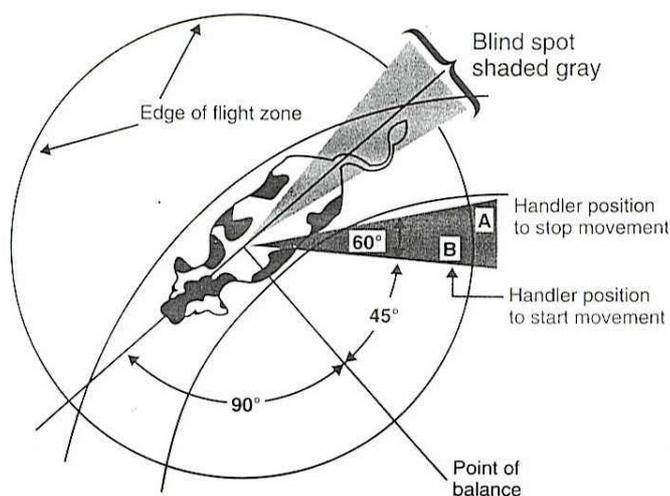
Most domestic livestock are kept in herds and follow a leader by instinct.

Animals which are likely to be hostile to each other in a group situation should not be mixed at slaughterhouses.

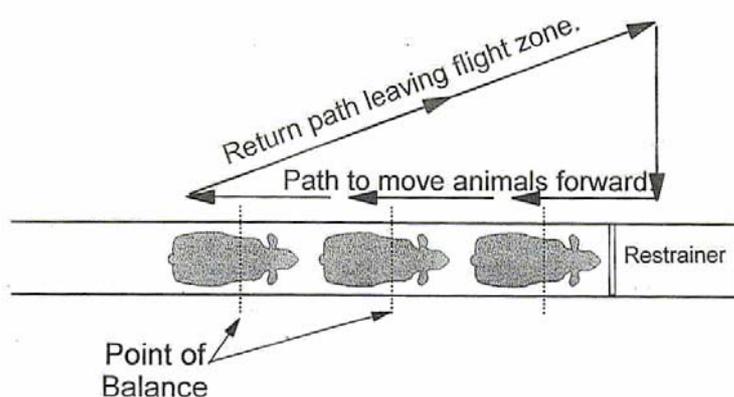
The desire of some animals to control their personal space should be taken into account in designing facilities.

Domestic animals will try to escape if an animal handler approaches closer than a certain distance. This critical distance, which defines the flight zone, varies among species and individuals of the same species, and depends upon previous contact with humans. Animals reared in close proximity to humans i.e. tame have ~~no~~ a small flight zone, whereas those kept in free range or extensive systems may have flight zones which may vary from one metre to many metres. Animal handlers should avoid sudden penetration of the flight zone which may cause a panic reaction which could lead to aggression or attempted escape.

**An example of a flight zone (cattle)**



### Handler movement pattern to move cattle forward



Animal handlers should use the point of balance at an animal's shoulder to move animals, adopting a position behind the point of balance to move an animal forward and in front of the point of balance to move it backward.

Domestic animals have wide-angle vision but only have limited forward binocular vision and poor perception of depth. This means that they can detect objects and movements beside and behind them, but can only judge distances directly ahead.

Although all domestic animals have a highly sensitive sense of smell, they react in different ways to the smells of slaughterhouses. Smells which cause fear or other negative responses should be taken into consideration when managing animals.

Domestic animals can hear over a greater range of frequencies than humans and are more sensitive to higher frequencies. They tend to be alarmed by constant loud noise and by sudden noises, which may cause them to panic. Sensitivity to such noises should also be taken into account when handling animals.

#### 4. Distractions and their removal

Distractions that may cause approaching animals to stop, baulk or turn back should be designed out from new facilities or removed from existing ones. Below are examples of common distractions and methods for eliminating them:

- a) reflections on shiny metal or wet floors - move a lamp or change lighting;
- b) dark entrances to chutes, races, stun boxes or conveyor restrainers - illuminate with indirect lighting which does not shine directly into the eyes of approaching animals;

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- c) animals seeing moving people or equipment up ahead - install solid sides on chutes and races or install shields;
- d) chains or other loose objects hanging in chutes or on fences - remove them;
- e) uneven floors or a sudden drop in floor levels at the entrance to conveyor restrainers – avoid uneven floor surfaces or install a solid false floor under the restrainer to provide an illusion of a solid and continuous walking surface;
- f) sounds of air hissing from pneumatic equipment - install silencers or use hydraulic equipment or vent high pressure to the external environment using flexible hosing;
- g) clanging and banging of metal objects - install rubber stops on gates and other devices to reduce metal to metal contact;
- h) air currents from fans or air curtains blowing into the face of animals - redirect or reposition equipment.

Article 3.7.5.2.

**Moving and handling animals**1. General considerations

Animals should be transported to slaughter in a way that minimises adverse animal health and welfare outcomes, and the transport should be conducted in accordance with the OIE guidelines for the transportation of animals (Chapters 3.7.2 and 3.7.3).

The following principles should apply to unloading animals, moving them into lairage pens, out of the lairage pens and up to the slaughter point:

- a) The conditions of the animals should be assessed upon their arrival for any animal welfare and health problems.
- b) Injured or sick animals, requiring immediate slaughter, should be killed humanely, preferably at the site where they are found in accordance with the OIE guidelines for the killing of animals for disease control purposes (Chapter 3.7.6).
- c) The use of force on animals that have little or no room to move should not occur.

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- d) The use of instruments which administer electric shocks (e.g. goads and prods) and their power output should be restricted to that necessary to assist movement of an the animals and only when an animal has a clear path ahead to move. If such use is necessary, it should be limited to the hindquarters of pigs and large ruminants, and never on sensitive areas such as the eyes, mouth, ears, anogenital region or belly. Such instruments should not be used on horses, sheep and goats of any age, or on calves or piglets, nor on animals that have little or no room to move. Performance standards should be established in which numerical scoring is used to evaluate the use of such instruments and to measure the percentage of animals moved with an electric instrument, the percentage of animals slipping or falling at a point in the slaughterhouse, it should be investigated for faults in flooring, raceway design, lighting or handling; there should be rectified to enable free movement of the animals without the need to use such instruments.
- e) ~~Performance standards should be established in which numerical scoring is used to evaluate the use of such instruments and to measure the percentage of animals moved with an electric instrument. In properly designed and constructed facilities with competent animal handlers, it should be possible to move 75% or more of the animals without the use of electric instruments.~~
- f) ~~Useful and permitted aids for moving animals include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags and metallic rattles; they should be used in a manner sufficient to encourage and direct movement of the animals but without physical contact with them. Aids for moving animals such as panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags and metallic rattles should be used in a manner sufficient to encourage and direct movement of the animals.~~
- g) Shouting or yelling at animals or making loud noises e.g. through the cracking of whips to encourage them to move should not occur as such actions may make the animals agitated, leading to crowding or falling.
- h) Implements which cause pain and suffering such as large sticks, sticks with sharp ends, metal piping, fencing wire or heavy leather belts should not be used to move animals.
- i) Animals should be grasped or lifted in a manner which avoids pain or suffering and physical damage (e.g. bruising, fractures, dislocations). In the case of quadrupeds, manual lifting by a person should only be used in young animals or small species, and in a manner appropriate to the species; grasping or lifting such animals only by their wool, hair, feet, neck, ears or tails causing pain or suffering should not be permitted, except in an emergency where animal welfare or human safety may otherwise be compromised.
- j) Conscious animals should not be thrown or dragged.
- k) Animals should not be forced to move at a speed greater than their normal walking pace, in order to minimise injury through falling or slipping. Performance standards should be established where numerical scoring of the prevalence of animals slipping or falling is used to evaluate whether animal moving practices and/or facilities should be improved. In properly designed and constructed facilities with competent animal handlers, it should be possible to move 99% of animals without their falling.
- l) ~~Animal handlers should not force an animal to walk over the top of other animals. Animals for slaughter should not be forced to walk over the top of other animals.~~

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- m) Under no circumstances should animal handlers resort to violent acts to move animals, such as crushing or breaking animals' tails, grasping animals' eyes or pulling them by their ears. Animal handlers should never apply an injurious object or irritant substance to animals and especially not to sensitive areas such as eyes, mouth, ears, anogenital region or belly. The throwing or dropping of animals, or their lifting or dragging by body parts such as their tail, head, horns, ears, limbs, wool, hair or feathers, should not be permitted. The manual lifting of small animals is permissible.
2. Provisions relevant to animals delivered in containers
- a) Containers in which animals are transported should be handled with care, and should not be thrown, dropped or knocked over. Where possible, they should be loaded and unloaded horizontally and mechanically.
- b) Animals delivered in containers with perforated or flexible bottoms should be unloaded with particular care in order to avoid injury. Where appropriate, animals should be unloaded from the containers individually.
- c) Animals which have been transported in containers should be slaughtered as soon as possible; mammals and ratites which are not taken directly upon arrival to the place of slaughter should have drinking water available to them from appropriate facilities at all times. Delivery of poultry for slaughter should be scheduled such that they are not deprived of water at the premises for longer than 12 hours. Animals which have not been slaughtered within 12 hours of their arrival should be fed, and should subsequently be given moderate amounts of food at appropriate intervals.
3. Provisions relevant to restraining and containing animals
- a) Provisions relevant to restraining animals for stunning or slaughter without stunning, to help maintain animal welfare, include:
- i) provision of a non-slip floor;
- ii) avoidance of excessive pressure applied by restraining equipment that causes struggling or vocalisation in animals;
- iii) equipment engineered to reduce noise of air hissing and clanging metal;
- iv) absence of sharp edges in restraining equipment that would harm animals;
- v) avoidance of jerking or sudden movement of restraining device.
- b) Methods of restraint causing avoidable suffering, such as the following, should not be used in conscious animals because they cause severe pain and stress:
- i) suspending or hoisting animals (other than poultry) by the feet or legs;
- ii) indiscriminate and inappropriate use of stunning equipment;

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- iii) mechanical clamping of an animal's legs or feet (other than shackles used in poultry and ostriches) as the sole method of restraint;
- iv) breaking legs, cutting leg tendons or blinding animals in order to immobilise them;
- v) severing the spinal cord, for example using a puntilla or dagger, to immobilise animals using electric currents to immobilise animals, except for proper stunning.

Article 3.7.5.3.

### **Lairage design and construction**

#### 1. General considerations

The lairage should be designed and constructed to hold an appropriate number of animals in relation to the throughput rate of the slaughterhouse without compromising the welfare of the animals.

In order to permit operations to be conducted as smoothly and efficiently as possible without injury or undue stress to the animals, the lairage areas should be designed and constructed so as to allow the animals to move freely in the required direction, using their behavioural characteristics and without undue penetration of their flight zone.

The following guidelines may help to achieve this.

#### 2. Design of lairages

- a) The lairage should be designed to allow a one-way flow of animals from unloading to the point of slaughter, with a minimum number of abrupt corners to negotiate.
- b) In red meat slaughterhouses, pens, passageways and races should be arranged in such a way as to permit inspection of animals at any time, and to permit the removal of sick or injured animals when considered to be appropriate, for which separate appropriate accommodation should be provided.
- c) Each animal should have room to stand up and lie down and, when confined in a pen, to turn around. The lairage should have sufficient accommodation for the number of animals intended to be held. Drinking water should always be available to the animals, and the method of delivery should be appropriate to the type of animal held. Troughs should be designed and installed in such a way as to minimise the risk of fouling by faeces, without introducing risk of bruising and injury in animals, and should not hinder the movement of animals.
- d) Holding pens should be designed rectangular rather than square, to allow as many animals as possible to stand or lie down against a wall. Where feed troughs are provided, they should be sufficient in number and feeding space to allow adequate access of all animals to feed. The feed trough should not hinder the movement of animals.
- e) Where tethers, ties or individual stalls are used, these should be designed so as not to cause injury or distress especially when the animals are lying down, standing up, drinking and feeding to the animals and should also allow the animals to stand, lie down and access any food or water that may need to be provided.

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- f) Passageways and races should be either straight or ~~slightly~~ consistently curved, as appropriate to the animal species. Passageways and races should have solid sides, but when there is a double race, the shared partition should allow adjacent animals to see each other. For pigs and sheep, passageways should be wide enough to enable two or more animals to walk side by side for as long as possible. At the point where passageways are reduced in width, this should be done by a means which prevents excessive bunching of the animals.
- g) Animal handlers should be positioned alongside races and passageways on the inside radius of any curve, to take advantage of the natural tendency of animals to circle an intruder. Where one-way gates are used, they should be of a design which avoids bruising. Races should be horizontal but where there is a slope, they should be constructed to allow the free movement of animals without injury.
- h) There should be a waiting pen, with a level floor and solid sides, between the holding pens and the race leading to the point of stunning or slaughter, to ensure a steady supply of animals for stunning or slaughter and to avoid having animal handlers trying to rush animals from the holding pens. The waiting pen should preferably be circular, but in any case, so designed that animals cannot be trapped or trampled.
- i) Ramps or lifts should be used for loading and unloading of animals where there is a difference in height or a gap between the floor of the *vehicle* and the unloading area. Unloading ramps should be designed and constructed so as to permit animals to be unloaded from vehicles on the level or at the minimum gradient achievable. Lateral side protection should be available to prevent animals escaping or falling. They ~~ramp~~ should be well drained, ~~non-slippery~~ with secure footholds and adjustable to facilitate easy movement of animals without causing distress or injury.

3. Construction of lairages

- a) Lairages should be constructed and maintained so as to provide protection from unfavourable climatic conditions, using strong and resistant materials such as concrete and metal which has been treated to prevent corrosion. Surfaces should be easy to clean. There should be no sharp edges or protuberances which may injure the animals.
- b) Floors should be well drained and not slippery; they should not cause injury to the animals' feet. Where necessary, floors should be insulated or provided with appropriate bedding. Drainage grids should be placed at the sides of pens and passageways and not where animals would have to cross them. Discontinuities or changes in floor patterns or texture which could cause baulking in the movement of animals should be avoided.
- c) Lairages should be provided with adequate lighting, but care should be taken to avoid harsh lights and shadows, which frighten the animals or affect their movement. The fact that animals will move more readily from a darker area into a well-lit area might be exploited by providing for lighting that can be regulated accordingly.
- d) ~~Lairages should be well ventilated, and the air flow should be arranged so that odours and draughts do not adversely affect the health and welfare of the animals~~ adequately ventilated to ensure that waste gases, e.g. ammonia do not build up and that draughts at animal height are minimised. Ventilation should be able to cope with the range of expected climatic conditions and the number of animals the lairage will be expected to hold.

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- e) Care should be taken to protect the animals from excessively or potentially disturbing noises, for example by avoiding the use of noisy hydraulic or pneumatic equipment, and muffling noisy metal equipment by the use of suitable padding, or by minimising the transmission of such noise to the areas where animals are held and slaughtered.
- f) Where animals are kept in outdoor lairages without natural shelter or shade, they should be protected from the effects of adverse weather conditions.

Article 3.7.5.4.

### Care of animals in lairages

Animals in lairages should be cared for in accordance with the following guidelines:

1. As far as possible, established groups of animals should be kept together. Each animal should have enough space to stand up, lie down and turn around. Animals hostile to each other should be separated.
2. Where tethers, ties or individual stalls are used, they should allow animals to stand up and lie down without causing injury or distress.
3. Where bedding is provided, it should be maintained in a condition that minimises risks to the health and safety of the animals, and sufficient bedding should be used so that animals do not become soiled with manure.
4. Animals should be kept securely in the lairage, and care should be taken to prevent them from escaping and from predators.
5. Suitable drinking water should be available to the animals on their arrival and at all times to animals in lairages unless they are to be slaughtered without delay.
6. If animals are not to be slaughtered as soon as possible, suitable feed should be available to the animals on arrival and at intervals appropriate to the species. Unweaned animals should be slaughtered as soon as possible.
7. In order to prevent heat stress, animals subjected to high temperatures, particularly pigs and poultry, should be cooled by the use of water sprays, fans or other suitable means. However, the potential for water sprays to reduce the ability of animals to thermoregulate (especially poultry) should be considered in any decision to use water sprays.
8. The lairage area should be well lit in order to enable the animals to see clearly without being dazzled. During the night, the lights should be dimmed. Lighting should also be adequate to permit inspection of all animals. Subdued lighting, and for example, blue light may be useful in poultry lairages in helping to calm birds.
9. The condition and state of health of the animals in a lairage should be inspected at least every morning and evening by a veterinarian or, under the latter's responsibility, by another competent person. Animals which are sick, weak, injured or showing visible signs of distress should be treated or humanely killed immediately.

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10. Lactating dairy animals should be slaughtered as soon as possible. Dairy animals with obvious udder distension should be milked to minimise udder discomfort.
11. Pregnant animals giving birth during the journey or in the lairage should be slaughtered as soon as possible or provided with conditions which are appropriate for suckling for its welfare and the welfare of the newborn. Under normal circumstances, animals which are expected to give birth during a journey should not be transported.
12. Animals with horns or tusks capable of injuring other animals, if aggressive, should be penned separately.

Recommendations for specific species are described in detail in Articles 3.7.5.5. to 3.7.5.8.

Article 3.7.5.5.  
(under study)

**Management of foetuses during slaughter of pregnant animals**

The welfare of foetuses during slaughter of pregnant animals needs to be safeguarded.

- Foetuses should not be removed from the uterus sooner than five minutes after the maternal neck or chest cut, to ensure absence of consciousness. A foetal heartbeat will usually still be present and foetal movements may occur at this stage, but these are only a cause for concern if the exposed foetus successfully breathes air.
- If a live mature foetus is removed from the uterus, it should be prevented from inflating its lungs and breathing air (e.g. by clamping the trachea).
- When uterine, placental or foetal tissues, including foetal blood, are not to be collected as part of the post-slaughter processing of pregnant animals, all foetuses should be left inside the unopened uterus until they are dead. When uterine, placental or foetal tissues are to be collected, where practical, foetuses should not be removed from the uterus until at least 15-20 minutes after the maternal neck or chest cut.
- If there is any doubt about consciousness, the foetus should be killed with a captive bolt or a blow to the head with a suitable blunt instrument.

The above guidelines do not refer to foetal rescue. Foetal rescue, the practice of attempting to revive foetuses found alive at evisceration of the dam, should not be attempted during normal commercial slaughter as it may lead to serious welfare complications in the newborn animal. These include impaired brain function resulting from oxygen shortage before rescue is completed, compromised breathing and body heat production because of foetal immaturity, and an increased incidence of infections due to a lack of colostrum.

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Article 3.7.5.6.

## Summary of acceptable handling and restraining methods and the associated animal welfare issues

	Presentation of animals	Specific procedure	Specific purpose	AW concerns/implications	Key AW requirements	Applicable species
No restraint	Animals are grouped	Group container	Gas stunning	Specific procedure is suitable only for gas stunning	Competent animal handlers in lairage; facilities; stocking density	Pigs, poultry
		In the field	Free bullet	<del>Shooting distance, calibre and</del> Inaccurate targeting and inappropriate ballistics <u>not achieving outright kill with first shot</u>	Operator competence	Deer
		Group stunning pen	Head-only electrical Captive bolt	Uncontrolled movement of animals impedes use of hand operated electrical and mechanical stunning methods	Competent animal handlers in lairage and at stunning point	Pigs, sheep, goats, calves
	Individual animal confinement	Stunning pen/box	Electrical and mechanical stunning methods	Loading of animal; accuracy of stunning method, slippery floor and animal falling down	Competent animal handlers	Cattle, buffalo, sheep, goats, horses, pigs, deer, camelids, ratites
Restraining methods	Head restraint, upright	Halter/ head collar/bridle	Captive bolt Free bullet	Suitable for halter-trained animals; stress in untrained animals	Competent animal handlers	Cattle, buffalo, horses, camelids
	Head restraint, upright	Neck yoke	Captive bolt Electrical-head-only Free bullet Slaughter without stunning	Stress of loading and neck capture; stress of prolonged restraint, horn configuration; unsuitable for fast line speeds, animals struggling and falling due to slippery floor, excessive pressure	Equipment; competent animal handlers, prompt stunning or slaughter	Cattle
	Leg restraint	Single leg tied in flexion (animal standing on 3 legs)	Captive bolt Free bullet	Ineffective control of animal movement, misdirected shots	Competent animal handler	Breeding pigs (boars and sows)

Appendix XXXV (contd)Appendix E (contd)**Summary of acceptable handling and restraining methods and the associated animal welfare issues (contd)**

	<b>Presentation of animals</b>	<b>Specific procedure</b>	<b>Specific purpose</b>	<b>AW concerns/implications</b>	<b>Key AW requirements</b>	<b>Applicable species</b>
Restraining methods	Upright restraint	Beak holding	Captive bolt Electrical-head-only	Stress of capture	Sufficient competent animal handlers	Ostriches
		Head restraint in electrical stunning box	Electrical-head-only	Stress of capture and positioning	Competent animal handler	Ostriches
	Holding body upright- manual	Manual restraint	Captive bolt Electrical-head-only Slaughter without stunning	Stress of capture and restraint; accuracy of stunning/slaughter	Competent animal handlers	Sheep, goats, calves, ratites, small camelids, poultry
	Holding body upright mechanical	Mechanical clamp / crush / squeeze/ V-restrainer (static)	Captive bolt Electrical methods Slaughter without stunning	Loading of animal and overriding; excessive pressure	Proper design and operation of equipment	Cattle, buffalo, sheep, goats, deer, pigs, ostriches
	Lateral restraint – manual or mechanical	Restrainer/cradle/crush	Slaughter without stunning	Stress of restraint	Competent animal handlers	Sheep, goats, calves, camelids, cattle
	Upright restraint mechanical	Mechanical straddle (static)	Slaughter without stunning Electrical methods Captive bolt	Loading of animal and overriding	Competent animal handlers	Cattle, sheep, goats, pigs
	Upright restraint – manual or mechanical	Wing shackling	Electrical	Excessive tension applied prior to stunning	Competent animal handlers	Ostriches

Appendix XXXV (contd)Appendix E (contd)**Summary of acceptable handling and restraining methods and the associated animal welfare issues (contd)**

	<b>Presentation of animals</b>	<b>Specific procedure</b>	<b>Specific purpose</b>	<b>AW concerns/implications</b>	<b>Key AW requirements</b>	<b>Applicable species</b>
Restraining and /or conveying methods	Mechanical - upright	V-restrainer	Electrical methods Captive bolt Slaughter without stunning	Loading of animal and overriding; excessive pressure, size mismatch between restrainer and animal	Proper design and operation of equipment	Cattle, calves, sheep, goats, pigs
	Mechanical - upright	Mechanical straddle – band restrainer (moving)	Electrical methods Captive bolt Slaughter without stunning	Loading of animal and overriding, size mismatch between restrainer and animal	Competent animal handlers, proper design and layout of restraint	Cattle, calves, sheep, goats, pigs
	Mechanical - upright	Flat bed/deck Tipped out of containers on to conveyors	Presentation of birds for shackling prior to electrical stunning Gas stunning	Stress and injury due to tipping in dump-module systems height of tipping conscious poultry broken bones and dislocations	Proper design and operation of equipment	Poultry
	Suspension and/or inversion	Poultry shackle	Electrical stunning Slaughter without stunning	Inversion stress; pain from compression on leg bones	Competent animal handlers; proper design and operation of equipment	Poultry
	Suspension and/or inversion	Cone	Electrical – head-only Captive bolt Slaughter without stunning	Inversion stress	Competent animal handlers; proper design and operation of equipment	Poultry
	Upright restraint	Mechanical leg clamping	Electrical – head-only	Stress of resisting restraint in ostriches	Competent animal handlers; proper equipment design and operation	Ostriches

Appendix XXXV (contd)Appendix E (contd)

## Summary of acceptable handling and restraining methods and the associated animal welfare issues (contd)

	Presentation of animals	Specific procedure	Specific purpose	AW concerns/implications	Key AW requirements	Applicable species
Restraining by inversion	Rotating box	Fixed side(s) (e.g. Weinberg pen)	Slaughter without stunning	Inversion stress; stress of resisting restraint, prolonged restraint, <u>inhalation of blood and ingesta</u> . Keep restraint as brief as possible	Proper design and operation of equipment	Cattle
		Compressible side(s)	Slaughter without stunning	Inversion stress, stress of resisting restraint, prolonged restraint Preferable to rotating box with fixed sides Keep restraint as brief as possible	Proper design and operation of equipment	Cattle
Body restraint	Casting/hobbling	Manual	Mechanical stunning methods Slaughter without stunning	Stress of resisting restraint; animal temperament; bruising. Keep restraint as short as possible	Competent animal handlers	Sheep, goats, calves, small camelids, pigs
Leg restraints		Rope casting	Mechanical stunning methods Slaughter without stunning	Stress of resisting restraint; prolonged restraint, animal temperament; bruising Keep restraint as short as possible	Competent animal handlers	Cattle, camelids
		Tying of 3 or 4 legs	Mechanical stunning methods Slaughter without stunning	Stress of resisting restraint; prolonged restraint, animal temperament; bruising Keep restraint as short as possible	Competent animal handlers	Sheep, goats, small camelids, pigs

## Article 3.7.5.7.

**Stunning methods**1. General considerations

The competence of the operators, and the appropriateness, ~~and~~ effectiveness of the method used for stunning and the maintenance of the equipment are the responsibility of the management of the slaughterhouse, and should be checked regularly by a Competent Authority.

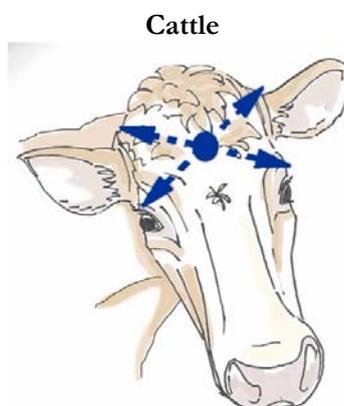
Persons carrying out stunning should be properly trained and competent, and should ensure that:

- a) the animal is adequately restrained;
- b) animals in restraint are stunned as soon as possible;
- c) the equipment used for stunning is maintained and operated properly in accordance with the manufacturer's recommendations, in particular with regard to the species and size of the animal;
- d) the instrument is applied correctly;
- e) stunned animals are bled out (slaughtered) as soon as possible;
- f) animals should not be stunned when slaughter is likely to be delayed;
- g) backup stunning devices are available for immediate use if the primary method of stunning fails.

In addition, such persons should be able to recognise when an animal is not correctly stunned and should take appropriate action.

2. Mechanical stunning

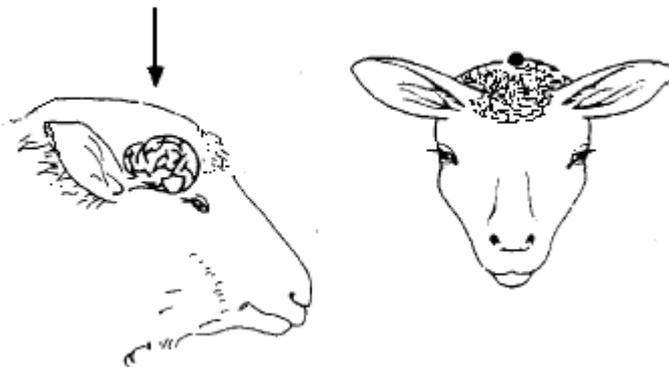
A mechanical device should be applied usually to the front of the head and perpendicular to the bone surface. The following diagrams illustrate the proper application of the device for certain species.



The optimum position for cattle is at the intersection of two imaginary lines drawn from the rear of the eyes to the opposite horn buds.

Appendix XXXV (contd)Appendix E (contd)**Pigs**

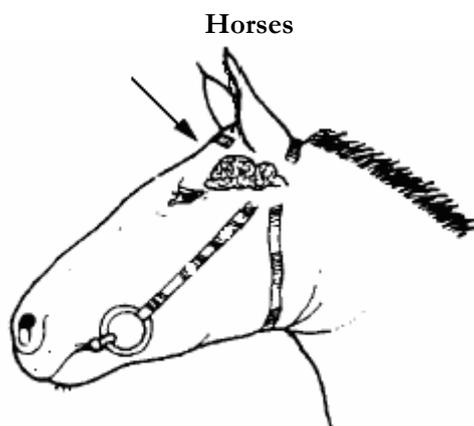
The optimum position for pigs is on the midline just above ~~the eyes level~~, with ~~and directing~~ the shot directed down the line of the spinal cord.

**Sheep**

The optimum position for hornless sheep and goats is on the midline, in the highest point of the head, just above the eye level, and directing the shot down the line of the spinal cord.

**Goats**

The optimum position for heavily horned sheep and horned goats is behind the poll, aiming towards the angle of the jaw.



~~Place the muzzle~~ The optimum position for horses is at right angles to the frontal surface, well above the point where imaginary lines from eyes to ears cross.

Signs of correct stunning using a mechanical instrument are as follows:

- a) the animal collapses immediately and does not attempt to stand up;
- b) the body and muscles of the animal become tonic (rigid) immediately after the shot;
- c) normal rhythmic breathing stops; and
- d) the eyelid is open with the eyeball facing straight ahead and is not rotated.

### 3. Electrical stunning

#### a) General considerations

An electrical device should be applied to the animal in accordance with the following guidelines. Electrodes should be designed, constructed, maintained and cleaned regularly to ensure that the flow of current is optimal and in accordance with ~~to~~ manufacturing specifications. They should be placed so that they span the brain. The application of electrical currents which bypass the brain is unacceptable unless the animal has been stunned. The use of a single current leg-to-leg is unacceptable as a stunning method.

If, in addition, it is intended to cause cardiac arrest, the electrodes should either span the brain and immediately thereafter the heart, on the condition that it has been ascertained that the animal is adequately stunned, or span brain and heart simultaneously.

Electrical stunning equipment should not be applied on animals as a means of guidance, movement, restraint or immobilisation, and shall not deliver any shock to the animal before the actual stunning or killing.

Electrical stunning apparatus should be tested prior to application on animals using appropriate resistors or dummy loads to ensure the power output is adequate to stun animals.

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The apparatus should incorporate a device which monitors and displays stunning current delivered to the animals.

Appropriate measures, such as removing excess wool or wetting the skin only at the point of contact, can be taken to minimise impedance of the skin and facilitate effective stunning.

The stunning apparatus required for electrical stunning should be provided with adequate power to achieve continuously the minimum current level recommended for stunning as indicate in the table below:

Species	Minimum current levels
Cattle	1.5 amps
Calves	1.0 amps
Pigs	1.25 amps
Sheep and goats	1.0 amps
<u>Lambs</u>	<u>0.7 amps</u>
Ostriches	0.4 amps

In all cases, the correct current level shall be attained within one second of the initiation of stun and maintained at least for between one and three seconds and in accordance with the manufacturer's instructions.

b) Electrical stunning of birds using a waterbath

In the case of birds suspended on a moving line, measures should be taken to ensure that the birds are not wing flapping at the entrance of the stunner. The birds should be secure in their shackle, but there should not be undue pressure on their shanks.

Waterbaths for poultry should be adequate in size and depth for the type of bird being slaughtered, and their height should be adjustable to allow for the head of each bird to be immersed. The electrode immersed in the bath should extend the full length of the waterbath. Birds should be immersed in the bath up to the base of their wings.

The waterbath should be designed and maintained in such a way that when the shackles pass over the water, they are in continuous contact with the earthed rubbing bar.

The control box for the waterbath stunner should incorporate an ammeter which displays the total current flowing through the birds.

The shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve electrical conductivity of the water it is recommended that salt be added in the waterbath as necessary. Additional salt should be added regularly as a solution to maintain suitable constant concentrations in the waterbath.

Using waterbaths, birds are stunned in groups and different birds will have different impedances. The voltage should be adjusted so that the total current is the required current per bird as shown in the table hereafter, multiplied by the number of birds in the waterbath at the same time. The following values have been found to be satisfactory when employing a 50 Hertz sinusoidal alternating current.

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Birds should receive the current for at least 4 seconds.

Species	Current (milliamperes per bird)
Broilers	120
Layers (spent hens)	120
Turkeys	150
Ducks and Geese	130

While a lower current may also be satisfactory, the current shall in any case be such as to ensure that unconsciousness occurs immediately and lasts until the bird has been killed by cardiac arrest or by bleeding. When higher electrical frequencies are used, higher currents may be required.

Every effort shall be made to ensure that no conscious or live birds enter the scalding tank.

In the case of automatic systems, until fail-safe systems of stunning and bleeding have been introduced, a manual back-up system should be in place to ensure that any birds which have missed the waterbath stunner and/or the automatic neck-cutter are immediately stunned and/or killed immediately, and they are dead before entering scald tank.

To lessen the number of unstunned birds, reaching neck cutters, steps should be taken to ensure that small birds do not go on the line amongst bigger birds and that these small birds are stunned separately.

#### 4. Gas stunning

##### a) Stunning of pigs by exposure to carbon dioxide (CO<sub>2</sub>)

The concentration of CO<sub>2</sub> for stunning should be preferably 90% by volume but in any case no less than 80% by volume. After entering the stunning chamber, the animals should be conveyed to the point of maximum concentration of the gas as rapidly as possible and be kept until they are dead or brought into a state of insensibility which lasts until death occur due to bleeding. Ideally, pigs should be exposed to this concentration of CO<sub>2</sub> for 3 minutes. Sticking should occur as soon as possible after exit from the gas chamber.

In any case, the concentration of the gas should be such that it minimises as far as possible all stress of the animal prior to loss of consciousness.

The chamber in which animals are exposed to CO<sub>2</sub> and the equipment used for conveying them through it shall be designed, constructed and maintained in such a way as to avoid injury or unnecessary stress to the animals. The animal density within the chamber should be such to avoid stacking animals on top of each others.

The conveyor and the chamber shall be adequately lit to allow the animals to see their surroundings and, if possible, each other.

It should be possible to inspect the CO<sub>2</sub> chamber whilst it is in use, and to have access to the animals in emergency cases.

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The chamber shall be equipped to continuously measure and display register at the point of stunning the CO<sub>2</sub> concentration and the time of exposure, and to give a clearly visible and audible warning if the concentration of CO<sub>2</sub> falls below the required level.

## b) Inert gas mixtures for stunning pigs (under study)

Inhalation of high concentration of carbon dioxide is aversive and can be distressing to animals. Therefore, the use of non-aversive gas mixtures is being developed.

Such gas mixtures include:

- i) a maximum of 2% by volume of oxygen in argon, nitrogen or other inert gases, or
- ii) to a maximum of 30% by volume of carbon dioxide and a maximum of 2% by volume of oxygen in mixtures with carbon dioxide and argon, nitrogen or other inert gases.

Exposure time to the gas mixtures should be sufficient to ensure that no pigs regain consciousness before death supervenes through bleeding or cardiac arrest is induced.

## c) Gas stunning of poultry

The main objective of gas stunning is to avoid the pain and suffering associated with shackling conscious poultry under water bath stunning and killing systems. Therefore, gas stunning should be limited to birds contained in crates or on conveyors only. The gas mixture should be non-aversive to poultry.

Gas stunning of poultry in their transport containers will eliminate the need for live bird handling at the processing plant and all the problems associated with the electrical stunning. Gas stunning of poultry on a conveyor eliminates the problems associated with the electrical water bath stunning.

Live poultry should be conveyed into the gas mixtures either in transport crates or on conveyor belts.

## i) Gas mixtures used for stunning poultry include:

- minimum of 2 minutes exposure to 40% carbon dioxide, 30% oxygen and 30% nitrogen, followed by a minimum of one minute exposure to 80% carbon dioxide in air; or
- minimum of 2 minutes exposure to any mixture of argon, nitrogen or other inert gases with atmospheric air and carbon dioxide, provided that the carbon dioxide concentration does not exceed 30% by volume and the residual oxygen concentration does not exceed 2% by volume; or
- minimum of 2 minutes exposure to argon, nitrogen, other inert gases or any mixture of these gases in atmospheric air with a maximum of 2% residual oxygen by volume; or
- minimum of 2 minutes exposure to a minimum of 55% carbon dioxide in air.

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ii) Requirements for effective use are as follows:

- compressed gases should be vaporised prior to administration into the chamber and should be at room temperature to prevent any thermal shock. Under no circumstances, should solid gases with freezing temperatures enter the chamber;
- gas mixtures should be humidified;
- appropriate gas concentrations should be monitored and displayed continuously at the level of the birds inside the chamber.

Under no circumstances, should birds exposed to gas mixtures be allowed to regain consciousness. If necessary, the exposure time should be extended.

#### 5. Bleeding

From the point of view of animal welfare, animals which are stunned with a reversible method should be bled without delay and in any case within the following time limits:

<b>Stunning method</b>	<b>Maximum delay for bleeding to be started</b>
Electrical methods and non penetrating <u>captive</u> bolt	20 seconds
CO <sub>2</sub>	60 seconds (after leaving the chamber)

All animals should be bled by incising both carotid arteries, or the vessels from which they arise (e.g. chest stick). However, when the stunning method used causes cardiac arrest, the incision of all of these vessels is not necessary from the point of animal welfare.

It should be possible for staff to observe, inspect and access the animals throughout the bleeding period. Any animal showing signs of recovering consciousness should be restunned.

After incision of the blood vessels, no scalding carcass treatment or dressing procedures should be performed on the animals for at least 30 seconds, or in any case until all brain-stem reflexes have ceased.

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Article 3.7.5.8.

**Summary of acceptable stunning methods and the associated animal welfare issues**

Method	Specific method	AW concerns/implications	Key AW requirements applicable	Species	Comment
Mechanical	Free bullet	Inaccurate targeting and inappropriate ballistics	<del>Accuracy; head shots only correct ballistics,</del> <u>Operator competence, achieving outright kill with first shot</u>	Cattle, calves, buffalo, deer, horses, pigs (boars and sows)	Personnel safety
	Captive bolt - penetrating	Inaccurate targeting, velocity and diameter of bolt	Competent operation and maintenance of equipment; restraint; accuracy	Cattle, calves, buffalo, sheep, goats, deer, horses, pigs, camelids, ratites	(Unsuitable for specimen collection from TSE suspects). A back-up gun should be available in the event of an ineffective shot
	Captive bolt - non-penetrating	Inaccurate targeting, velocity of bolt, potentially higher failure rate than penetrating captive bolt	Competent operation and maintenance of equipment; restraint; accuracy	Cattle, calves, sheep, goats, deer, pigs, camelids, ratites	Presently available devices are not recommended for young bulls and animals with thick skull
	Manual percussive blow	Inaccurate targeting; insufficient power; size of instrument	Competent animal handlers; restraint; accuracy. Not recommended for general use	Young and small mammals, ostriches and poultry	Mechanical devices potentially more reliable. Where manual percussive blow is used, unconsciousness should be achieved with single sharp blow delivered to central skull bones
Electrical	Split application: 1. across head then head to chest; 2. across head then across chest	Accidental pre-stun electric shocks; electrode positioning; application of a current to the body while animal conscious; inadequate current and voltage	Competent operation and maintenance of equipment; restraint; accuracy	Cattle, calves, sheep, goats and pigs, ratites and poultry	Systems involving repeated application of head-only or head-to-leg with short current durations (<1 second) in the first application should not be used. <del>Where cardiac arrest occurs, the carcass may not be suitable for Halal</del>

Appendix XXXV (contd)

Appendix E (contd)

## Summary of acceptable stunning methods and the associated animal welfare issues

Method	Specific method	AW concerns/implications	Key AW requirements applicable	Species	Comment
Electrical	Single application: 1. head only; 2. head to body; 3. head to leg	Accidental pre-stun electric shocks; inadequate current and voltage; wrong electrode positioning; recovery of consciousness	Competent operation and maintenance of equipment; restraint; accuracy	Cattle, calves, sheep, goats, pigs, ratites, poultry	<del>Where cardiac arrest occurs, the carcass may not be suitable for Halal</del>
	Waterbath	Restraint, accidental pre-stun electric shocks; inadequate current and voltage; recovery of consciousness	Competent operation and maintenance of equipment	Poultry only	<del>Where cardiac arrest occurs, the carcass may not be suitable for Halal</del>
Gaseous	CO <sub>2</sub> air/O <sub>2</sub> mixture; CO <sub>2</sub> inert gas mixture	Aversiveness of high CO <sub>2</sub> concentrations, respiratory distress; inadequate exposure	Concentration; duration of exposure; design, maintenance and operation of equipment; stocking density management	Pigs, poultry	<del>Gaseous methods may not be suitable for Halal</del>
	Inert gases	Recovery of consciousness	Concentration; duration of exposure; design, maintenance and operation of equipment; stocking density management	Pigs, poultry	<del>Gaseous methods may not be suitable for Halal</del>

## Appendix XXXV (contd)

## Appendix E (contd)

## Article 3.7.5.9.

## Summary of acceptable slaughter methods and the associated animal welfare issues

Slaughter methods	Specific method	AW concerns / implications	Key requirements	Species	Comments
Bleeding out by severance of blood vessels in the neck without stunning	Full frontal cutting across the throat	Failure to cut both common carotid arteries; occlusion of cut arteries.	A very sharp blade or knife, of sufficient length so that the point of the knife remains outside the incision during the cut; the point of the knife should not be used to make the incision. An incision which does not close over the knife during the throat cut.	Cattle, buffalo, horses, camelids, sheep, goats, poultry, ratites	<del>This method is applicable to Halal and Kosher slaughter for relevant species</del>
Bleeding with prior stunning	<u>Full frontal cutting across the throat</u>	<u>Failure to cut both common carotid arteries; occlusion of cut arteries; pain during and after the cut.</u>	<u>A very sharp blade or knife, of sufficient length so that the point of the knife remains outside the incision during the cut; the point of the knife should not be used to make the incision. An incision which does not close over the knife during the throat cut.</u>	<u>Cattle, buffalo, horses, camelids, sheep, goats,</u>	
	Neck stab followed by forward cut	Ineffective stunning; failure to cut both common carotid arteries; impaired blood flow; delay in cutting after reversible stunning	Prompt and accurate cutting	Camelids, sheep, goats, poultry, ratites	
	Neck stab alone	Ineffective stunning; failure to cut both common carotid arteries; impaired blood flow; delay in cutting after reversible stunning	Prompt and accurate cutting	Camelids, sheep, goats, poultry, ratites	

## Appendix XXXV (contd)

## Appendix E (contd)

## Summary of acceptable slaughter methods and the associated animal welfare issues (contd)

Slaughter methods	Specific method	AW concerns / implications	Key requirements	Species	Comments
Bleeding with prior stunning (contd)	Chest stick into major arteries or hollow-tube knife into heart	Ineffective stunning; Inadequate size of stick wound inadequate length of sticking knife; delay in sticking after reversible stunning	Prompt and accurate sticking	Cattle, sheep, goats, pigs	
	Neck skin cut followed by severance of vessels in the neck	Ineffective stunning; Inadequate size of stick wound; Inadequate length of sticking knife; delay in sticking after reversible stunning	Prompt and accurate cutting of vessels	Cattle	
	Automated mechanical cutting	Ineffective stunning; failure to cut and misplaced cuts. Recovery of consciousness following reversible stunning systems	Design, maintenance and operation of equipment; accuracy of cut; manual back-up	Poultry only	
	Manual neck cut on one side	Ineffective stunning; recovery of consciousness following reversible stunning systems	Prior non-reversible stunning	Poultry only	N.B. slow induction of unconsciousness under slaughter without stunning
	Oral cut	Ineffective stunning; recovery of consciousness following reversible stunning systems	Prior non-reversible stunning	Poultry only	N.B. slow induction of unconsciousness in non-stun systems
Other methods without stunning	Decapitation with a sharp knife	Pain due to loss of consciousness not being immediate		Sheep, goats, poultry	This method is only applicable to Jhatka slaughter
	Manual neck dislocation and decapitation	Pain due to loss of consciousness not being immediate; difficult to achieve in large birds	Neck dislocation should be performed in one stretch to sever the spinal cord	Poultry only	Slaughter by neck dislocation should be performed in one stretch to sever the spinal cord

Appendix XXXV (contd)Appendix E (contd)

Slaughter methods	Specific method	AW concerns / implications	Key requirements	Species	Comments
Cardiac arrest in a waterbath electric stunner	Bleeding by evisceration		Induction of cardiac arrest	Quail	
	Bleeding by neck cutting			Poultry	

Article 3.7.5.10.

**Methods, procedures or practices unacceptable on animal welfare grounds**

1. The restraining methods which work through immobilisation by injury such as ‘~~punctilla~~’, breaking legs and ‘leg tendon cutting’, cause severe pain and stress in animals. Those methods are not acceptable in any species.
2. The use of the electrical stunning method with a single application leg to leg is ineffective and unacceptable in any species, as it is likely to be painful. The animal welfare concerns are:
  - a) accidental pre-stun electric shocks;
  - b) inadequate current and voltage;
  - c) wrong electrode positioning;
  - d) recovery of consciousness.
3. The slaughter method of brain stem severance by piercing through the eye socket or skull bone without prior stunning, is not acceptable in any species.

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APPENDIX 3.7.6.  
GUIDELINES FOR THE KILLING OF  
ANIMALS FOR DISEASE CONTROL PURPOSES

Article 3.7.6.1.

**General principles**

~~This Appendix is~~ These guidelines are based on the premise that a decision to kill the animals has been made, and address the need to ensure the welfare of the animals until they are dead.

1. All personnel involved in the humane killing of animals should have the relevant skills and competencies. Competence may be gained through formal training and/or practical experience. This competence should be demonstrated through a current certificate from an independent body accredited by a *Competent Authority*.
2. As necessary, operational procedures should be adapted to the specific circumstances operating on the premises and should address, apart from animal welfare, operator safety, biosecurity and environmental aspects.
3. Following the decision to kill the animals, killing should be carried out as quickly as possible and normal husbandry should be maintained until the animals are killed.
4. The handling and movement of animals should be minimised and when done, it should be done in accordance with the guidelines described below.
5. Animal restraint should be sufficient to facilitate effective killing, and in accordance with animal welfare and operator safety requirements; when restraint is required, killing should follow with minimal delay.
6. When animals are killed for disease control purposes, methods used should result in immediate death or immediate loss of consciousness lasting until death; when loss of consciousness is not immediate, induction of unconsciousness should be non-aversive and should not cause anxiety, pain, distress or suffering in the animals.
7. For animal welfare considerations, young animals should be killed before older animals; for biosecurity considerations, infected animals should be killed first, followed by in-contact animals, and then the remaining animals.
8. There should be continuous monitoring of the procedures by the *Competent Authorities* to ensure they are consistently effective with regard to animal welfare, operator safety and biosecurity.
9. When the operational procedures are concluded, there should be a written report describing the practices adopted and their effect on animal welfare, operator safety and biosecurity.

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10. ~~To the extent possible to minimise public distress, killing of animals and carcass disposal should be carried out away from public view.~~
44. These general principles should also apply when animals need to be killed for other purposes such as after natural disasters.

## Article 3.7.6.2.

**Organisational structure**

Disease control contingency plans should be in place at a national level and should contain details of management structure, disease control strategies and operational procedures; animal welfare considerations should be addressed within these disease control contingency plans. The plans should also include a strategy to ensure that an adequate number of personnel trained competent in the humane killing of animals is available. Local level plans should be based on national plans and be informed by local knowledge.

Disease control contingency plans should address the animal welfare issues that may result from animal movement controls.

The operational activities should be led by an official veterinarian who has the authority to appoint the personnel in the specialist teams and ensure that they adhere to the required animal welfare and biosecurity standards. When appointing the personnel, he/she should ensure that the personnel involved has the required competencies.

The official veterinarian should be responsible for all activities across one or more affected premises and should be supported by coordinators for planning (including communications), operations and logistics to facilitate efficient operations.

The official veterinarian should provide overall guidance to personnel and logistic support for operations on all affected premises to ensure consistency in adherence to the OIE animal welfare and animal health guidelines.

A specialist team, led by a team leader answerable to the *official veterinarian*, should be deployed to work on each affected premises. The team should consist of personnel with the competencies to conduct all required operations; in some situations, personnel may be required to fulfil more than one function. Each team should contain a veterinarian or have access to veterinary advice at all times.

In considering the animal welfare issues associated with killing animals, the key personnel, their responsibilities and competencies required are described in Article 3.7.6.3.

## Article 3.7.6.3.

**Responsibilities and competencies of the specialist team**

1. Team leader
  - a) Responsibilities
    - i) plan overall operations on an affected premises;

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- ii) determine and address requirements for animal welfare, operator safety and biosecurity;
- iii) organise, brief and manage team of people to facilitate humane killing of the relevant animals on the premises in accordance with national regulations and these guidelines;
- iv) determine logistics required;
- v) monitor operations to ensure animal welfare, operator safety and biosecurity requirements are met;
- vi) report upwards on progress and problems;
- vii) provide a written report at the conclusion of the killing, describing the practices adopted and ~~their effect on~~ animal welfare, operator safety and biosecurity outcomes.

## b) Competencies

x) appreciation of normal animal husbandry practices;

- i) appreciation of animal welfare and the underpinning behavioural, anatomical and physiological processes involved in the killing process;
- ii) skills to manage all activities on premises and deliver outcomes on time;
- iii) awareness of psychological effects on farmer, team members and general public;
- iv) effective communication skills.

2. Veterinarian

## a) Responsibilities

- i) determine and implement the most appropriate killing method to ensure that animals are killed without avoidable pain and distress;
- ii) determine and implement the additional requirements for animal welfare, including the order of killing;
- x) ensure that confirmation of animals deaths is carried out by competent persons at appropriate times after the killing procedure;
- iii) minimise the risk of disease spread within and from the premises through the supervision of biosecurity procedures;
- iv) continuously monitor animal welfare and biosecurity procedures;
- v) in cooperation with the leader, prepare a written report at the conclusion of the killing, describing the practices adopted and their effect on animal welfare.

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## b) Competencies

- i) ability to assess animal welfare, especially the effectiveness of stunning and killing, and to correct any deficiencies;
- ii) ability to assess biosecurity risks.

3. Animal handlers

## a) Responsibilities

- i) review on-site facilities in terms of their appropriateness;
- ii) design and construct temporary animal handling facilities, when required;
- ii) move and restrain animals.

## b) Competencies

X1) ~~An experience of~~ Animal handling in emergency situations and in close confinement is required.

X2) An appreciation of biosecurity and containment principles.

4. Slaughterers

## a) Responsibilities

A humane killing of animals through effective stunning and killing should be ensured.

## b) Competencies

- i) when required by regulations, licensed to use necessary equipment or licensed to be slaughterers;
- ii) competent to use and maintain relevant equipment;
- iii) competent to use techniques for the species involved;
- iv) competent to assess effective stunning and killing.

5. Carcass disposal personnel

## a) Responsibilities

An efficient carcass disposal (to ensure killing operations are not hindered) should be ensured.

## b) Competencies

The personnel should be competent to use and maintain available equipment and apply techniques for the species involved.

6. Farmer/owner/manager

## a) Responsibilities

i) assist when requested.

## b) Competencies

i) specific knowledge of his/her animals and their environment.

Article 3.7.6.4.

**Considerations in planning the humane killing of animals**

Many activities will need to be conducted on affected premises, including the humane killing of animals. The team leader should develop a plan for humanely killing animals on the premises which should include consideration of:

1. minimising handling and movement of animals;
2. killing the animals on the affected premises; however, there may be circumstances where the animals may need to be moved to another location for killing; when the killing is conducted at an abattoir, the guidelines in the Chapter on slaughter of animal for human consumption should be followed;
3. the species, number, age and size of animals to be killed, and the order of killing them;
4. methods of killing the animals, and their cost;
5. housing and location of the animals;
6. the availability and effectiveness of equipment needed for killing of the animals;
7. the facilities available on the premises that will assist with the killing;
8. biosecurity and environmental issues;
9. the health and safety of personnel conducting the killing;
10. any legal issues that may be involved, for example where restricted veterinary drugs or poisons may be used, or where the process may impact on the environment; and
11. the presence of other nearby premises holding animals.

In designing a killing plan, it is essential that the method chosen be consistently reliable to ensure that all animals are humanely and quickly killed.

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## Article 3.7.6.5.

**Table summarising killing methods described in Articles 3.7.6.6.-3.7.6.17.**

Species	Age range	Procedure	Restraint necessary	Animal welfare concerns with inappropriate application	Article reference
Cattle	all	free bullet	no	non-lethal wounding	3.7.6.6.
	all except neonates	captive bolt - penetrating, followed by pithing or bleeding	yes	ineffective stunning	3.7.6.7.
	adults only	captive bolt - non-penetrating, followed by bleeding	yes	ineffective stunning, regaining of consciousness before killing	3.7.6.8.
	calves only	electrical, two stage application	yes	pain associated with cardiac arrest after ineffective stunning	3.7.6.10.
	calves only	electrical, single application (method 1)	yes	ineffective stunning	3.7.6.11.
	all	injection with barbiturates and other drugs	yes	non-lethal dose, pain associated with injection site	3.7.6.15.
Sheep and goats	all	free bullet	no	non-lethal wounding	3.7.6.6.
	all except neonates	captive bolt - penetrating, followed by pithing or bleeding	yes	ineffective stunning, regaining of consciousness before <del>killing</del> <u>death</u>	3.7.6.7.
	all except neonates	captive bolt - non-penetrating, followed by bleeding	yes	ineffective stunning, regaining of consciousness before <del>killing</del> <u>death</u>	3.7.6.8.
	neonates	captive bolt - non-penetrating	yes	non-lethal wounding	3.7.6.8.
	all	electrical, two stage application	yes	pain associated with cardiac arrest after ineffective stunning	3.7.6.10.
	all	electrical, single application (Method 1)	yes	ineffective stunning	3.7.6.11.

Table summarising killing methods described in Articles 3.7.6.6.-3.7.6.17. (contd)

Species	Age range	Procedure	Restraint necessary	Animal welfare concerns with inappropriate application	Article reference
	neonates only	CO <sub>2</sub> / air mixture	yes	slow induction of unconsciousness, aversiveness of induction	3.7.6.12.
	neonates only	nitrogen and/or inert gas mixed with CO <sub>2</sub>	yes	slow induction of unconsciousness, aversiveness of induction	3.7.6.13.
	neonates only	nitrogen and/or inert gases	yes	slow induction of unconsciousness,	3.7.6.14.
	all	injection of barbiturates and other drugs	yes	non-lethal dose, pain associated with injection site	3.7.6.15.
Pigs	all	free bullet	no	non-lethal wounding	3.7.6.6.
	all except neonates	captive bolt - penetrating, followed by pithing or bleeding	yes	ineffective stunning, <u>regaining of consciousness before death</u>	3.7.6.7.
	neonates only	captive bolt - non-penetrating	yes	non-lethal wounding	3.7.6.8.
	all §	electrical, two stage application	yes	pain associated with cardiac arrest after ineffective stunning	3.7.6.10.
	all	electrical, single application (Method 1)	yes	ineffective stunning	3.7.6.11.
	neonates only	CO <sub>2</sub> / air mixture	yes	slow induction of unconsciousness, aversiveness of induction	3.7.6.12.
	neonates only	nitrogen and/or inert gas mixed with CO <sub>2</sub>	yes	slow induction of unconsciousness, aversiveness of induction	3.7.6.13.
	neonates only	nitrogen and/or inert gases	yes	slow induction of unconsciousness,	3.7.6.14.

Appendix XXXV (contd)Appendix F (contd)**Table summarising killing methods described in Articles 3.7.6.6.-3.7.6.17. (contd)**

Species	Age range	Procedure	Restraint necessary	Animal welfare concerns with inappropriate application	Article reference
Pigs (contd)	all	injection with barbiturates and other drugs	yes	non-lethal dose, pain associated with injection site	3.7.6.15.
Poultry	adults only	captive bolt - non-penetrating	yes	ineffective stunning	3.7.6.8.
	day-olds and eggs only	maceration	no	non-lethal wounding, non- immediacy;	3.7.6.9.
	adults only	electrical single application (Method 2)	yes	ineffective stunning	3.7.6.11.
	adults only	electrical single application, followed by killing (Method 3)	yes	ineffective stunning; regaining of consciousness before <u>killing death</u>	3.7.6.11.
	all	CO <sub>2</sub> / air mixture Method 1 Method 2	yes no	slow induction of unconsciousness, aversiveness of induction	3.7.6.12.
	all	nitrogen and/or inert gas mixed with CO <sub>2</sub>	yes	slow induction of unconsciousness, aversiveness of induction	3.7.6.13.
	all	nitrogen and/or inert gases	yes	slow induction of unconsciousness	3.7.6.14.
	all	injection of barbiturates and other drugs	yes	non-lethal dose, pain associated with injection site	3.7.6.15.
	adults only	addition of anaesthetics to feed or water, followed by an appropriate killing method	no	ineffective or slow induction of unconsciousness	3.7.6.16.

\* The methods are described in the order of mechanical, electrical and gaseous, not in an order of desirability from an animal welfare viewpoint.

§ The only preclusion against the use of this method for neonates is the design of the stunning tongs that may not facilitate their application across such a small-sized head/body.

## Article 3.7.6.6.

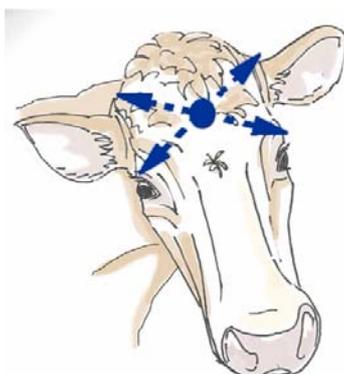
**Free bullet**1. Introduction

- a) A free bullet is a projectile fired from a shotgun, rifle, handgun or purpose-made humane killer.
- b) The most commonly used firearms for close range use are:
  - i) humane killers (specially manufactured/adapted single-shot weapons);
  - ii) shotguns (12, 16, 20, 28 bore and .410);
  - iii) rifles (.22 rimfire);
  - iv) handguns (various calibres from .32 to .45).
- c) The most commonly used firearms for long range use are rifles (.22, .243, .270 and .308).
- d) A free bullet used from long range should be aimed to penetrate the skull or soft tissue at the top of the neck of the animal, to cause irreversible concussion and death and should only be used by properly trained and competent marksmen.

2. Requirements for effective use

- a) The marksman should take account of human safety in the area in which he/she is operating. Appropriate vision and hearing protective devices should be worn by all personnel involved.
- b) The marksman should ensure that the animal is not moving and in the correct position to enable accurate targeting and the range should be as short as possible (5 –50 cm for a shotgun) but the barrel should not be in contact with the animal's head.
- c) The correct cartridge, calibre and type of bullet for the different species age and size should be used. Ideally the ammunition should expand upon impact and dissipate its energy within the cranium.
- d) Shot animals should be checked to ensure the absence of brain stem reflexes.

**Figure 1.** The optimum shooting position for cattle is at the intersection of two imaginary lines drawn from the rear of the eyes to the opposite horn buds.



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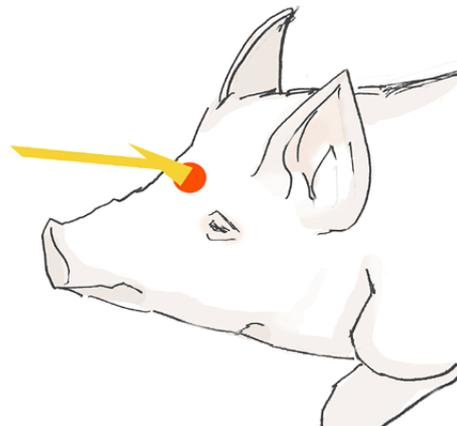
**Figure 2.** The optimum shooting position for hornless sheep and goats is on the midline, just above ~~the~~ eyes level, with and directing the shot directed down the line of the spinal cord.



**Figure 3.** The optimum shooting position for heavily horned sheep and horned goats is behind the poll aiming towards the angle of the jaw.



**Figure 4.** The optimum shooting position for pigs is just above ~~the~~ eyes level, with and directing the shot directed down the line of the spinal cord.



Appendix XXXV (contd)Appendix F (contd)3. Advantages

- a) Used properly, a free bullet provides a quick and effective method for killing.
- b) It requires minimal or no restraint and can be used to kill from a distance.
- c) It is suitable for killing agitated animals in open spaces.

4. Disadvantages

- a) The method is potentially dangerous to humans and other animals in the area.
- b) It has the potential for non-lethal wounding.
- c) Destruction of brain tissue may preclude diagnosis of some diseases.
- d) Leakage of bodily fluids may present a biosecurity risk.
- e) Legal requirements may preclude or restrict use.
- f) There is a limited availability of competent personnel.

4. Conclusions

The method is suitable for cattle, sheep, goats and pigs, including large animals in open spaces.

Article 3.7.6.7.

**Penetrating captive bolt**1. Introduction

A penetrating captive bolt is fired from a gun powered by either compressed air or a blank cartridge. There is no free projectile.

The captive bolt should be aimed on the skull in a position to penetrate the cortex and mid-brain of the animal. The impact of the bolt on the skull produces unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death, however pithing or bleeding should be performed as soon as possible after the shot to ensure the death of the animal.

2. Requirements for effective use

- a) For cartridge powered and compressed air guns, the bolt velocity and the length of the bolt should be appropriate to the species and type of animal, in accordance with the manufacturer's recommendations.
- b) Captive bolt guns should be frequently cleaned and maintained in good working condition.

Appendix XXXV (contd)Appendix F (contd)

- c) More than one gun may be necessary to avoid overheating and a back-up gun should be available in the event of an ineffective shot.
  - d) Animals should be restrained; at a minimum they should be penned for cartridge powered guns and in a race for compressed air guns.
  - e) The operator should ensure that the animal's head is accessible.
  - f) The operator should fire the captive bolt at right angles to the skull in the optimal position (see figures 1, 3 & 4. The optimum shooting position for hornless sheep is on the highest point of the head, on the midline and aim towards the angle of the jaw).
  - g) To ensure the death of the animal, pithing or bleeding should be performed as soon as possible after stunning.
  - h) Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes.
3. Advantages
- a) Mobility of cartridge powered equipment reduces the need to move animals.
  - b) The method induces an immediate onset of a sustained period of unconsciousness.
4. Disadvantages
- a) Poor gun maintenance and misfiring, and inaccurate gun positioning and orientation may result in poor animal welfare.
  - b) Post stun convulsions may make pithing difficult and hazardous.
  - c) The method is difficult to apply in agitated animals.
  - d) Repeated use of a cartridge powered gun may result in over-heating.
  - e) Leakage of bodily fluids may present a biosecurity risk.
  - f) Destruction of brain tissue may preclude diagnosis of some diseases.
5. Conclusions
- The method is suitable for cattle, sheep, goats and pigs (except neonates), when followed by pithing or bleeding.

## Article 3.7.6.8.

**Captive bolt - non-penetrating**1. Introduction

A non-penetrating captive bolt is fired from a gun powered by either compressed air or a blank cartridge. There is no free projectile.

The gun should be placed on the front of the skull to deliver a percussive blow which produces unconsciousness in cattle (adults only), sheep, goats and pigs, and death in poultry and neonate sheep, goats and pigs. ~~In mammals~~, Bleeding should be performed as soon as possible after the blow to ensure the death of the animal.

2. Requirements for effective use

- a) For cartridge powered and compressed air guns, the bolt velocity should be appropriate to the species and type of animal, in accordance with the manufacturer's recommendations.
- b) Captive bolt guns should be frequently cleaned and maintained in good working condition.
- c) More than one gun may be necessary to avoid overheating and a back-up gun should be available in the event of an ineffective shot.
- d) Animals should be restrained; at a minimum mammals should be penned for cartridge powered guns and in a race for compressed air guns; birds should be restrained in cones, shackles, crushes or by hand.
- e) The operator should ensure that the animal's head is accessible.
- f) The operator should fire the captive bolt at right angles to the skull in the optimal position (figures 1-4).
- g) To ensure death in non-neonate mammals, bleeding should be performed as soon as possible after stunning.
- h) Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes.

3. Advantages

- a) The method induces an immediate onset of unconsciousness, and death in birds and neonates.
- b) Mobility of equipment reduces the need to move animals

4. Disadvantages

- a) As consciousness can be regained quickly in non-neonate mammals, they should be bled as soon as possible after stunning.

Appendix XXXV (contd)Appendix F (contd)

- b) Laying hens in cages have to be removed from their cages and most birds have to be restrained.
- c) Poor gun maintenance and misfiring, and inaccurate gun positioning and orientation may result in poor animal welfare.
- d) Post stun convulsions may make bleeding difficult and hazardous.
- e) Difficult to apply in agitated animals; such animals may be sedated in advance of the killing procedure.
- f) Repeated use of a cartridge powered gun may result in over-heating.
- g) Bleeding may present a biosecurity risk.

5. Conclusions

- a) The method is suitable for poultry, and neonate sheep, goats and pigs.
- b) If bleeding does not present a biosecurity issue, this is a suitable method for cattle (adults only), and non-neonate sheep, goats and pigs when followed by bleeding.

Article 3.7.6.9.

**Maceration**1. Introduction

Maceration, utilising a mechanical apparatus with rotating blades or projections, causes immediate fragmentation and death in day-old poultry and embryonated eggs.

2. Requirements

- a) Maceration requires specialised equipment which should be kept in excellent working order.
- b) The rate of introducing the birds should not allow the equipment to jam, birds to rebound from the blades or the birds to suffocate before they are macerated.

3. Advantages

- a) Procedure results in immediate death.
- b) Large numbers can be killed quickly.

4. Disadvantages

- a) Specialised equipment is required.
- b) Macerated tissues may present a biosecurity issue.

5. Conclusion

The method is suitable for killing day-old poultry and embryonated eggs.

Article 3.7.6.10.

### Electrical – two stage application

#### 1. Introduction

A two stage application of electric current comprises firstly an application of current to the head by scissor-type tongs, immediately followed by an application of the tongs across the chest in a position that spans the heart.

The application of sufficient electric current to the head will induce 'tonic/clonic' epilepsy and unconsciousness. Once the animal is unconscious, the second stage will induce ventricular fibrillation (cardiac arrest) resulting in death. The second stage (the application of low frequency current across the chest) should only be applied to unconscious animals to prevent unacceptable levels of pain.

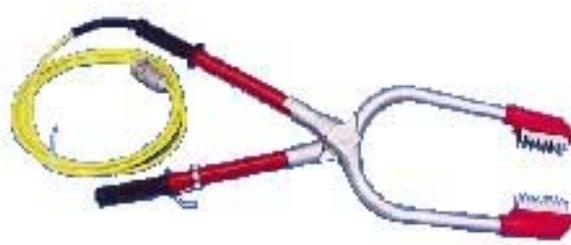


Figure 6. Scissor-type stunning tongs.

#### 2. Requirements for effective use

- a) The stunner control device should generate a low frequency (30 – 60 Hz) current with a minimum voltage of 250 volts true RMS under load.
- b) Appropriate protective clothing (including rubber gloves and boots) should be worn.
- c) Animals should be restrained, at a minimum free-standing in a pen, close to an electrical supply.
- d) Two team members are required, the first to apply the electrodes and the second to manipulate the position of the animal to allow the second application to be made.
- e) A stunning current should be applied via scissor-type stunning tongs in a position that spans the brain for a minimum of 3 seconds; immediately following the application to the head, the electrodes should be transferred to a position that spans the heart and the electrodes applied for a minimum of 3 seconds.
- f) Electrodes should be cleaned regularly and after use, to enable optimum electrical contact to be maintained.
- g) Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes.

#### 3. Advantages

- a) The application of the second stage minimises post-stun convulsions and therefore the method is particularly effective with pigs.
- b) Non-invasive technique minimises biosecurity risk.

Appendix XXXV (contd)Appendix F (contd)4. Disadvantages

- a) The method requires a reliable supply of electricity.
- b) The electrodes must be applied and maintained in the correct positions to produce an effective stun and kill.
- c) Most stunner control devices utilise low voltage impedance sensing as an electronic switch prior to the application of high voltages; in unshorn sheep, contact impedance may be too high to switch on the required high voltage (especially during stage two).
- d) The procedure may be physically demanding, leading to operator fatigue and poor electrode placement.

5. Conclusion

The method is suitable for calves, sheep and goats, and especially for pigs (over one week of age).

Article 3.7.6.11.

**Electrical – single application**1. Method 1

Method 1 comprises the single application of sufficient electrical current to the head and back, to simultaneously stun the animal and fibrillate the heart. Provided sufficient current is applied in a position that spans both the brain and heart, the animal will not recover consciousness.

- a) Requirements for effective use
  - i) The stunner control device should generate a low frequency (30 – 60 Hz) current with a minimum voltage of 250 volts true RMS under load.
  - ii) Appropriate protective clothing (including rubber gloves and boots) should be worn.
  - iii) Animals should be individually and mechanically restrained close to an electrical supply as the maintenance of physical contact between the stunning electrodes and the animal is necessary for effective use.
  - iv) The rear electrode should be applied to the back, above or behind the heart, and then the front electrode in a position that is forward of the eyes, with current applied for a minimum of 3 seconds.
  - v) Electrodes should be cleaned regularly between animals and after use, to enable optimum electrical contact to be maintained.
  - vi) Water or saline may be necessary to improve electrical contact with sheep.
  - vii) An effective stun and kill should be verified by the absence of brain stem reflexes.

Appendix XXXV (contd)Appendix F (contd)

- b) Advantages
- i) Method 1 stuns and kills simultaneously.
  - ii) It minimises post-stun convulsions and therefore is particularly effective with pigs.
  - iii) A single team member only is required for the application.
  - iv) Non-invasive technique minimises biosecurity risk.
- c) Disadvantages
- i) Method 1 requires individual mechanical animal restraint.
  - ii) The electrodes must be applied and maintained in the correct positions to produce an effective stun and kill.
  - iii) Method 1 requires a reliable supply of electricity.
- d) Conclusion
- Method 1 is suitable for calves, sheep, goats, and pigs (over 1 week of age).

2. Method 2

Method 2 stuns and kills by drawing inverted and shackled poultry through an electrified waterbath stunner. Electrical contact is made between the 'live' water and earthed shackle and, when sufficient current is applied, poultry will be simultaneously stunned and killed.

- a) Requirements for effective use
- i) A mobile waterbath stunner and a short loop of processing line are required.
  - ii) A low frequency (30-60 Hz) current applied for a minimum of 3 seconds is necessary to stun and kill the birds.
  - iii) Poultry need to be manually removed from their cage, house or yard, inverted and shackled onto a line which conveys them through a waterbath stunner with their heads fully immersed.
  - iv) The required minimum currents to stun and kill dry birds are:
    - Quail - 100 mA/bird
    - Chickens – 160 mA/bird
    - Ducks & Geese – 200 mA/bird
    - Turkeys – 250 mA/bird.

A higher current is required for wet birds.
  - v) An effective stun and kill should be verified by the absence of brain stem reflexes.

Appendix XXXV (contd)Appendix F (contd)

## b) Advantages

- i) Method 2 stuns and kills simultaneously.
- ii) It is capable of processing large numbers of birds reliably and effectively.
- iii) This non-invasive technique minimises biosecurity risk.

## c) Disadvantages

- i) Method 2 requires a reliable supply of electricity.
- ii) Handling, inversion and shackling of birds are required.

## d) Conclusion

Method 2 is suitable for large numbers of poultry.

3. Method 3

Method 3 comprises the single application of sufficient electrical current to the head of poultry in a position that spans the brain, causing unconsciousness; this is followed by a killing method (Article 17).

## a) Requirements for effective use

- i) The stunner control device should generate sufficient current (more than 300 mA/bird) to stun.
- ii) Appropriate protective clothing (including rubber gloves and boots) should be worn.
- iii) Birds should be restrained, at a minimum manually, close to an electrical supply.
- iv) A stunning current should be applied in a position that spans the brain for a minimum of 3 seconds; immediately following this application, the birds should be killed (Article 17).
- v) Electrodes should be cleaned regularly and after use, to enable optimum electrical contact to be maintained.
- vi) Birds should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes.

## b) Advantages

Non-invasive technique (when combined with ~~neck~~ cervical dislocation) minimises biosecurity risk.

## c) Disadvantages

- i) Method 3 requires a reliable supply of electricity.

ii) The electrodes must be applied and maintained in the correct position to produce an effective stun.

iii) Birds must be individually restrained.

iv) It must be followed by a killing method.

d) Conclusion

Method 3 is suitable for small numbers of poultry.

Article 3.7.6.12.  
(under study)

## **CO<sub>2</sub> / air mixture**

### 1. Introduction

Controlled atmosphere killing is performed by exposing animals to a predetermined gas mixture, either by placing them in a gas-filled container or apparatus (Method 1) or by the gas being introduced into a poultry house (Method 2).

Inhalation of carbon dioxide (CO<sub>2</sub>) induces respiratory and metabolic acidosis and hence reduces the pH of cerebrospinal fluid (CSF) and neurones thereby causing unconsciousness and, after prolonged exposure, death.

### 2. Method 1

The animals are placed in a gas-filled container or apparatus.

a) Requirements for effective use in a container or apparatus

i) Containers or apparatus should allow the required gas concentration to be maintained and accurately measured.

ii) When animals are exposed to the gas individually or in small groups in a container or apparatus, the equipment used should be designed, constructed, and maintained in such a way as to avoid injury to the animals and allow them to be observed.

iii) Animals should be introduced into the container or apparatus after it has been filled with the required CO<sub>2</sub> concentration, and held in this atmosphere until death is confirmed.

iv) Team members should ensure that there is sufficient time allowed for each batch of animals to die before subsequent ones are introduced into the container or apparatus.

v) Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

b) Advantages

i) CO<sub>2</sub> is readily available.

ii) Application methods are simple.

Appendix XXXV (contd)Appendix F (contd)

- c) Disadvantages
  - i) The need for properly designed container or apparatus ~~special equipment~~
  - ii) The aversive nature of high CO<sub>2</sub> concentrations
  - iii) No immediate loss of consciousness
  - iv) The risk of suffocation due to overcrowding
  - v) Difficulty in verifying death while the animals are in the container or apparatus.

## d) Conclusion

Method 1 is suitable for use in poultry and neonatal sheep, goats and pigs.

3. Method 2The gas is introduced into a poultry house.

- a) Requirements for effective use in a poultry house
  - i) Prior to introduction of the CO<sub>2</sub>, the poultry house should be appropriately sealed to allow control over the gas concentration.
  - ii) The house should be gradually filled with CO<sub>2</sub> so that all birds are exposed to a concentration of >40% until they are dead; a vaporiser may be required to prevent freezing.
  - iii) Devices should be used to accurately measure the gas concentration at the ~~highest level~~ maximum height accommodation of birds.
- b) Advantages
  - i) Applying gas to birds *in situ* eliminates the need to manually remove live birds.
  - ii) CO<sub>2</sub> is readily available.
  - iii) Gradual raising of CO<sub>2</sub> concentration minimises the aversiveness of the induction of unconsciousness.
- c) Disadvantages
  - i) It is difficult to determine volume of gas required to achieve adequate concentrations of CO<sub>2</sub> in some poultry houses.
  - ii) It is difficult to verify death while the birds are in the poultry house.
- d) Conclusion

Method 2 is suitable for use in poultry in closed-environment sheds

## Article 3.7.6.13.

**Nitrogen and/or inert gas mixed with CO<sub>2</sub>**1. Introduction

CO<sub>2</sub> may be mixed in various proportions with nitrogen or an inert gas eg argon, and the inhalation of such mixtures leads to hypercapnic-hypoxia and death when the oxygen concentration by volume is  $\leq 2\%$ . This method involves the introduction of animals into a container or apparatus containing the gases. Such mixtures do not induce immediate loss of consciousness, therefore the aversiveness of various gas mixtures containing high concentrations of CO<sub>2</sub> and the respiratory distress occurring during the induction phase, are important animal welfare considerations.

Pigs and poultry appear not to find low concentrations of CO<sub>2</sub> strongly aversive, and a mixture of nitrogen or argon with  $\leq 30\%$  CO<sub>2</sub> by volume and  $\leq 2\%$  O<sub>2</sub> by volume can be used for killing poultry and neonatal sheep, goats and pigs.

2. Requirements for effective use

- a) Containers or apparatus should allow the required gas concentrations to be maintained, and the O<sub>2</sub> and CO<sub>2</sub> concentrations accurately measured during the killing procedure.
- b) When animals are exposed to the gases individually or in small groups in a container or apparatus, the equipment used should be designed, constructed, and maintained in such a way as to avoid injury to the animals and allow them to be observed.
- c) Animals should be introduced into the container or apparatus after it has been filled with the required gas concentrations (with  $\leq 2\%$  O<sub>2</sub>), and held in this atmosphere until death is confirmed.
- d) Team members should ensure that there is sufficient time allowed for each batch of animals to die before subsequent ones are introduced into the container or apparatus.
- e) Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

3. Advantages

Low concentrations of CO<sub>2</sub> cause little aversiveness and, in combination with nitrogen or an inert gas, produces a fast induction of unconsciousness.

4. Disadvantages

- a) A properly designed container or apparatus is needed.
- b) It is difficult to verify death while the animals are in the container or apparatus.
- c) There is no immediate loss of consciousness.
- d) Exposure times required to kill are considerable.

Appendix XXXV (contd)Appendix F (contd)5. Conclusion

The method is suitable for poultry and neonatal sheep, goats and pigs.

Article 3.7.6.14.

**Nitrogen and/or inert gasses**1. Introduction

This method involves the introduction of animals into a container or apparatus containing nitrogen or an inert gas such as argon. The controlled atmosphere produced leads to unconsciousness and death from hypoxia.

Research has shown that hypoxia is not aversive to pigs and poultry, and it doesn't induce any signs of respiratory distress prior to loss of consciousness.

2. Requirements for effective use

- a) Containers or apparatus should allow the required gas concentrations to be maintained, and the O<sub>2</sub> concentration accurately measured.
- b) When animals are exposed to the gases individually or in small groups in a container or apparatus, the equipment used should be designed, constructed, and maintained in such a way as to avoid injury to the animals and allow them to be observed.
- c) Animals should be introduced into the container or apparatus after it has been filled with the required gas concentrations (with  $\leq 2\%$  O<sub>2</sub>), and held in this atmosphere until death is confirmed.
- d) Team members should ensure that there is sufficient time allowed for each batch of animals to die before subsequent ones are introduced into the container or apparatus.
- e) Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

3. Advantages

Animals are unable to detect nitrogen or inert gases, and the induction of hypoxia by this method is not aversive to animals.

4. Disadvantages

- a) A properly designed container or apparatus is needed.
- b) It is difficult to verify death while the animals are in the container or apparatus.
- c) There is no immediate loss of consciousness.
- d) Exposure times required to kill are considerable.

## 5. Conclusion

The method is suitable for poultry and neonatal sheep, goats and pigs.

Article 3.7.6.15.

## **Lethal injection**

### 1. Introduction

A lethal injection using high doses of anaesthetic and sedative drugs causes CNS depression, unconsciousness and death. In practice, barbiturates in combination with other drugs are commonly used.

### 2. Requirements for effective use

- a) Doses and routes of administration that cause rapid loss of consciousness followed by death should be used.
- b) Prior sedation may be necessary for some animals.
- c) Intravenous administration is preferred, but intraperitoneal or intramuscular administration may be appropriate, especially if the agent is non-irritating.
- d) Animals should be restrained to allow effective administration.
- e) Animals should be monitored to ensure the absence of brain stem reflexes.

### 3. Advantages

- a) The method can be used in all species.
- b) Death can be induced smoothly.

### 4. Disadvantages

- a) Restraint and/or sedation may be necessary prior to injection.
- b) Some combinations of drug type and route of administration may be painful, and should only be used in unconscious animals.
- c) Legal requirements may restrict use to veterinarians.
- d) Contaminated carcasses may present a risk to other wild or domestic animals.

### 5. Conclusion

The method is suitable for killing small numbers of cattle, sheep, goats, pigs and poultry.

Appendix XXXV (contd)Appendix F (contd)

## Article 3.7.6.16.

**Addition of anaesthetics to feed or water**1. Introduction

An anaesthetic agent which can be mixed with poultry feed or water may be used to kill poultry in houses. Poultry which are only anaesthetised need to be killed by another method such as cervical dislocation.

2. Requirements for effective use

- a) Sufficient quantities of anaesthetic need to be ingested rapidly for effective response.
- b) Intake of sufficient quantities is facilitated if the birds are fasted or water is withheld.
- c) Must be followed by killing (see Article 3.7.6.17) if birds are anaesthetised only.

3. Advantages

- a) Handling is not required until birds are anaesthetised.
- b) There may be biosecurity advantages in the case of large numbers of diseased birds.

4. Disadvantages

- a) Non-target animals may accidentally access the medicated feed or water when provided in an open environment.
- b) Dose taken is unable to be regulated and variable results may be obtained.
- c) Animals may reject adulterated feed or water due to illness or adverse flavour.
- d) The method may need to be followed by killing.
- e) Care is essential in the preparation and provision of treated feed or water, and in the disposal of uneaten treated feed/water and contaminated carcasses.

5. Conclusion

The method is suitable for killing large numbers of poultry in houses.

## Article 3.7.6.17.

**Killing methods in unconscious animals**1. Method 1: Cervical dislocation (manual and mechanical)

## a) Introduction

Poultry may be killed by either manual cervical dislocation (stretching) or mechanical neck crushing with a pair of pliers. Both methods result in death from asphyxiation and/or cerebral anoxia.

Appendix XXXV (contd)Appendix F (contd)

- b) Requirements for effective use
  - i) Killing should be performed either by manually or mechanically stretching the neck to sever the spinal cord or by using mechanical pliers to crush the cervical vertebrae with consequent major damage to the spinal cord.
  - ii) Consistent results require strength and skill so team members should be rested regularly to ensure consistently reliable results.
  - iii) Birds should be monitored continuously until death to ensure the absence of brain stem reflexes.
- c) Advantages
  - i) It is a non-invasive killing method.
  - ii) It can be performed manually on small birds.
- d) Disadvantages
  - i) Operator fatigue.
  - ii) The method is more difficult in larger birds.
- e) Conclusion

This method is suitable for killing unconscious poultry.

## 2. Method 2: Decapitation

- a) Introduction

Decapitation results in death by cerebral ischaemia using a guillotine or knife.
- b) Requirements for effective use

The required equipment should be kept in good working order.
- c) Advantages

The technique is effective and does not require monitoring.
- d) Disadvantages

The working area is contaminated with body fluids.
- e) Conclusion

This method is suitable for killing unconscious poultry.

Appendix XXXV (contd)Appendix F (contd)3. Method 3: Pithing

## a) Introduction

Pithing is a method of killing animals which have been stunned by a penetrating captive bolt, without immediate death. Pithing results in the physical destruction of the brain and upper regions of the spinal cord, through the insertion of a rod or cane through the bolt hole.

## b) Requirements for effective use

- i) Pithing cane or rod is required.
- ii) An access to the head of the animal and to the brain through the skull is required.
- iii) Animals should be monitored continuously until death to ensure the absence of brain stem reflexes.

## c) Advantages

The technique is effective in producing immediate death.

## d) Disadvantages

- i) A delayed and/or ineffective pithing due to convulsions may occur.
- ii) The working area is contaminated with body fluids.

## e) Conclusion

This method is suitable for killing unconscious animals which have been stunned by a penetrating captive bolt.

4. Method 4: Bleeding

## a) Introduction

Bleeding is a method of killing animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and death.

## b) Requirements for effective use

- i) A sharp knife is required.
- ii) An access to the neck or chest of the animal is required.
- iii) Animals should be monitored continuously until death to ensure the absence of brain stem reflexes.

Appendix XXXV (contd)

Appendix F (contd)

c) Advantages

The technique is effective in producing death after an effective stunning method which does not permit pithing.

d) Disadvantages

a) A delayed and/or ineffective bleeding due to convulsions may occur.

b) The working area is contaminated with body fluids.

e) Conclusion

This method is suitable for killing unconscious animals.

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## **Dog Welfare – Urban Animal Control**

### **Introduction**

The OIE General Assembly in May 2005 accepted the proposals of the Permanent Animal Welfare Group for priorities for 2005/2006. Amongst those priorities was the subject of Urban Animal Control and establishing international standards for the benefit of member countries of the OIE who are faced with the problems caused by stray/feral dogs.

Profs Abdul Rahman and Hassan Aidaros, and Dr. David Wilkins were invited to put forward proposals for progressing this issue.

### **Background**

Stray and feral stray dogs pose serious human health, socio-economic, political and animal welfare problems in many countries of the world. Many of these are developing countries and others fall in the least developed category. For example: Over 80 countries (almost all developing countries) have endemic canine rabies. Some 4 million people annually receive post – exposure treatment and in excess of 30,000 deaths from rabies are reported every year. At the same time many millions of animals contract and die of rabies each year and many of the control schemes introduced by authorities are ineffective and cause major animal welfare problems. Whilst acknowledging the need to prioritise human health, the OIE also recognises the importance of doing so without causing unnecessary or avoidable animal suffering

### **Proposal**

As a first step it is proposed that an ad hoc group of experts be established in order to fully evaluate the problem. It would identify existing control programmes and where any relevant data can be found. If it is agreed that OIE can play a significant role in identifying and proposing practical solutions to the animal welfare problems created by control programmes then guidelines/standards should be drafted. In drafting such standards consideration should be given to the following factors:

### **Definition of issue:**

- Identification of target population via definition of ‘urban’ or ‘rural’. ‘Urban’ areas of high human population density and ‘rural’ areas of low human population density.
- Definition of various types of urban or rural animal (pet, community, stray, feral, etc).
- Identification of problems caused by urban animals (zoonoses, environmental pollution, nuisance behaviour, traffic accidents) to ensure the key issues are addressed.
- Identification of problems caused by rural animals.
- Assessment of existing substantial stray/feral control programmes.

Appendix XXXV (contd)Appendix G (contd)**Sources of stray urban animals:**

- Irresponsible animal ownership
  - o Allowing owned animals to roam unsupervised
  - o Abandonment of unwanted animals
- Uncontrolled breeding within...
  - o Owned population and subsequent abandonment of offspring.
  - o Stray population.
  - o Commercial breeders producing an excess of animals, poor conditions leading to the production of unsuitable pet animals
- Carrying capacity of environment
  - o Identification of essential resources and which resource is the most limiting factor (often food)
  - o Reduction of carrying capacity (e.g. via improved solid waste management)
  - o Reduction of carrying capacity should be done concurrently with reduction in animal population via other methods

**Urban Animal control strategy:**

Addressing the sources of stray urban animals

- o Legislation. Including registration and identification of owned animals, vaccination requirements, legal requirements for breeding facilities and pet shops, prevention of abandonment and unsupervised roaming and protection against animal cruelty.
- o Enforcement. Collaboration between authorities and veterinary community. Animal control department/officers.
- o Education. Responsible animal ownership and public awareness of urban animal control programmes.
- o Neutering/sterilisation of owned animals. Provision of neutering services and incentives for animal owners.

Current stray population

- o Estimating the existing numbers and distribution of strays.
- o Reuniting lost animals with owners. Registration and identification and minimum holding time.

Appendix XXXV (contd)Appendix G (contd)

- Re-homing. Fostering services or re-homing centres. Minimum standards for re-homing centres including healthy environment, quarantine, veterinary treatment, limitation on holding capacity, humane euthanasia, sterilisation and financial issues.
- Catch-Neuter-Release. Sensitivity of local community, animal catching, humane euthanasia, vaccinations, sterilisation techniques, marking, release and long-term impact on population. Limitations of this method.
- Control of zoonoses
  - Mass vaccination campaigns or humane eradication:
    - Of stray animals, with or without concurrent sterilisation
    - Of owned animals, publicising the event and incentives for owners
  - Legislation, enforcement and education for animal owners on the importance of vaccinating and controlling parasites (including regular boosters/treatment)

**Establishing an Ad Hoc expert group**

It is important that experts are selected who have international experience of this problem and of the practical problems that have to be overcome for any control measures to be effective.

Several international animal welfare NGOs, such as the World Society for the Protection of Animals (WSPA), already possess a wealth of knowledge and experience in this area and should be invited to send an expert to this ad hoc group.

It is also important that the World Health Organisation be invited to be involved in this process. It is relevant to point out here that there already exists a document jointly produced by WHO and WSPA entitled "Guidelines for Dog Population Management" which could be a valuable reference for the ad hoc group's work.

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**DISCUSSION PAPER**  
**OIE Permanent Animal Working Group Meeting No 4**  
**Teramo (Italy), 7 – 9 September 2005**  
**Laboratory Animal Welfare**  
**Issues and Options**

**Introduction:**

The use of animals in research, testing and teaching was discussed at the February 2004 Global Conference on Animal Welfare as a possible future element of the OIE's strategic initiative on animal welfare. This led to a formal offer of international stakeholder support from Dr. Marilyn Brown and an invitation to speak at both the AALAS annual conference and the ICLAS International Committee meeting in October 2004. Laboratory animal welfare was one of four priority strategic items identified in the December 2004 meeting of the Permanent Animal Welfare Working Group. The Director General emphasized the importance of the OIE's international network of reference laboratories and diagnostic centres and the role that laboratory animals play both in these centres and in the regulatory testing of veterinary medicinal and biological products conducted by OIE Member Countries.

Support for OIE involvement in laboratory animal welfare was received from the floor at the May 2005 OIE General Session and a written offer of support has subsequently been received from the CVO of Norway. The opportunity was also taken to briefly discuss potential OIE involvement in this area, with staff from the OIE Collaborating Centre for Animal Welfare in Teramo, at meetings in London and Paris in March and May 2005 respectively.

Relevant review papers by Drs Clement Gauthier and Vera Baumanns will be published in the October 2005 OIE Scientific and Technical Review Series (SATRS) issue "Animal Welfare: Global Issues, Trends and Challenges". A number of key current international issues and trends are also addressed in the concluding paper of the SATRS publication.

This discussion paper provides some selected background information, identifies some key issues and roles and makes some recommendations for initial OIE involvement in this specialised and often controversial area of animal use.

**Discussion**

The use of animals for scientific purposes is the subject of an extensive international literature, with a number of well established international organisations playing key roles in promoting humane science and good laboratory animal practice, in encouraging ethical debate, in countering the misinformation promulgated by "antivivisection" groups and in fostering the ethical principles of the three Rs of Russell and Burch.

Key organisations include:

- International Council for Laboratory Animal Science (ICLAS)
- American Association for Laboratory Animal Science (AALAS)
- Canadian Council for Animal Care (CCAC)

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- Universities Federation for Animal Welfare (UFAW)
- Australian and New Zealand council for the Care of Animals in Research and Teaching (ANZCCART)
- American College for Laboratory Animal Medicine (ACLAM)
- European College for Laboratory Animal Medicine (ECLAM)
- European Centre for the Validation of Alternative Methods (ECVAM)
- US Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM)
- Fund for the Replacement of Animals in Medical Experimentation (FRAME)
- Interniche
- Council of Europe ETS 123 Review
- European Food Safety Authority (EFSA) Working Group on Experimental Animal Welfare
- Organisation for Economic Cooperation and Development (OECD)
- Federation of European Laboratory Animal Science Association (FELASA)
- Zentralstelle zur Erfassung und Bewertung von Ersatz- und Ergänzungsmethoden zum Tierversuch (ZEBET)

The Three Rs of Russell & Burch have provided an important ethical underpinning for the use of animals in science and research groups are established in Baltimore, Davis, Berlin, Utrecht and London to specifically promote the Three Rs and encourage relevant research.

The Five World Congresses on Alternatives and Animal Use in the Life Sciences, held from 1993 to 2005, have made a major contribution to international dialogue on this subject. These congresses are excellent examples of a forum where a range of view-points can be heard, within a framework of problem solving and trust. Regular updates are provided on the reduction, refinement and replacement of animal use in regulatory testing of veterinary biological products, in particular.

The issue of international harmonisation of the use of animals in regulatory testing is now being addressed by the International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicine Products (VICH) programme. The VICH is an international forum to provide guidance on technical requirements for the registration of new veterinary medicinal products in order to protect public health and animal health and welfare, as well as the environment. VICH is a programme of collaboration primarily between the regulatory authorities and the animal health industry of the EU, Japan and the USA. Australia, New Zealand and Canada participate as active observer members, while the OIE participates as an associate member in supporting and disseminating outcomes worldwide.

VICH was officially launched in 1996 and the factors which influenced its establishment specifically included:

- The drive to reduce the number of animals used in regulatory testing by eliminating the need for duplication of tests in each VICH region
- The international drive to harmonize regulatory standards and minimize their impact on trade

Appendix XXXV (contd)Appendix H (contd)

The objectives of VICH also specifically refer to establishing and monitoring harmonized regulatory requirements for veterinary medicinal products in the VICH Regions, which meet high quality safety and efficacy standards and minimize the use of test animals and costs of product development.

Replacement of animal use in veterinary undergraduate teaching is another area where major advances have been made in recent years. Considerable expertise has been developed in, for example, the veterinary schools in Norway and New Zealand and there would be scope for the OIE to facilitate uptake and adoption of such teaching techniques.

**Recommendations:**

In recognition of the complexity and specialised nature of this topic, it is recommended that the OIE initially adopt a very focussed strategy and establish an *ad hoc* Group of experts to address the following priority areas:

- 1) The development of principles and guidelines for the use of animals in regulatory testing of veterinary medicinal and biological products.
- 2) The development of principles and guidelines for the use of animals in veterinary undergraduate teaching.
- 3) Review and recommend options for OIE involvement in the use of animals in research.
- 4) Liaison with VICH to facilitate the regulatory acceptance and adoption of international validated non-animal test methods.
- 5) Identification of key international stakeholders and availability of relevant resource material.

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29 August 2005

## Animal Welfare Working Group 2005 work programme

	Priorities of Working Group	Implementation	Status at September 2005
Further work on adopted standards	land transport sea transport slaughter for human consumption killing for disease control purposes	Review outcomes of General Session, including regarding need for future meetings of <i>ad hoc</i> groups  Address outstanding species-specific issues	Revised standards, pending advice from <i>ad hoc</i> groups  Continuing
Aquatic animal welfare standards	Proceed initially on development of standards for transportation and killing/slaughter, to be followed by production standards	AHGs to meet in first half 2005, under chairmanship of Prof Hastein	AHGs met, AAC to review outputs in March 2006
Expertise database	Identification of possible expertise (centres of expertise and individual experts)	Continuing (all)	To be given enhanced priority – on OIE Web site by Sept 2006
Presentation at OIE General Session	Chair of Working Group to present paper and respond to questions from Member Country delegates	May 2005 (Bayvel)	Completed, with feedback to WG members
Improved animal welfare awareness within veterinary profession	Coordinate with WVA / CVA activities OIE Collaborating Centre at Teramo	Continuing (Rahman)  Discuss role of Centre and relationship with WG (Gavinelli/ Wilson)	Continuing  Continuing
Inclusion of animal welfare in veterinary curricula and CPD	Encourage uptake of WSPA Concepts programme	Continuing (Rahman/Wilkins/Masiga)	Continuing
Communications plan	Working Group members to take up opportunities for publishing information articles in appropriate journals, Web pages and newsletters  Working Group members to utilise OIE Regional conferences, and other relevant conferences  OIE and the WTO to draft a document clarifying the international legal issues associated with animal welfare and international trade	Continuing (All)  Continuing (All)  (Thiermann)	Continuing CVA Journal Paper OIE Bulletin Update Regional Conference (Aidaros) Completed (SATRS 24 (2) and WVA/AVMA conference)

Appendix XXXV (contd)Appendix J (contd)**Animal Welfare Working Group 2005 work programme (contd)**

	<b>Priorities of Working Group</b>	<b>Implementation</b>	<b>Status at September 2005</b>
Communications plan (contd)	To liaise with governments and international organisations re animal welfare topics at upcoming conferences	Continuing (All)	WVA Congress (Aug 2005) CIWF meeting (March 2005) WSPA meeting (June 2006)
<i>OIE Revue Scientifique et Technique</i>	Request to coordinate mid-2005 edition on animal welfare	(Bayvel, Rahman, Gavinelli)	Completed Publication October, 2005
Membership	Member drawn from animal industries with an interest in animal transport, production and slaughter.	Meeting with OIE Director-General resulted in agreement that 3 industry organisations (IDF, IMS, IFAP) send experts to next meeting of Working Group	3 experts participated in meeting
Coordination with other international organisations	IDF/IMS IFAP FAO  AATA/IATA/WAZA	Director General to discuss continuing collaboration with FAO Coordination on transport standards	Formal agreements signed Formal agreements signed  Ongoing Discussion during AATA Calgary meeting
Education	Animal welfare in the veterinary curriculum content/facilities personnel capacity building		WSPA meeting March 2005 WVA Congress (Aug 2005)
Development of new standards	Companion animal welfare - urban animal control	Collaborating Centre to review existing information (Rahman/Aidaros/Wilkins)	Discussion paper to be further developed following discussion at meeting
	Wildlife and zoo animal welfare harvesting/culling		Masiga/Wilkins/Rahman to develop scoping paper for next meeting of WG

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	<b>Priorities of Working Group</b>	<b>Implementation</b>	<b>Status at September 2005</b>
Development of new standards (contd)	Laboratory animal welfare housing animals used in regulation and diagnostic testing (including on vaccines) alternatives to animal use	Collaborating Centre to review existing information (Bayvel)	Discussion paper on lab animal welfare to be further developed following discussion at meeting
	Terrestrial animal welfare – housing/production generic housing systems		Fraser/Aidaros to develop scoping paper for next meeting of WG