REPORT OF THE SECOND MEETING OF THE OIE AD HOC GROUP ON BSE SURVEILLANCE

Paris, 14-16 September 2005

The OIE ad hoc Group on Surveillance for Bovine Spongiform Encephalopathy (BSE) met for the second time at the OIE Headquarters from 14 to 16 September 2005. The members of the ad hoc Group and other participants are listed in Appendix I. The Agenda adopted is given in Appendix II.

On behalf of Dr B. Vallat, Director General of the OIE, Dr D. Wilson welcomed the participants and thanked them for their willingness to continue working on improving the BSE surveillance guidelines in the OIE Terrestrial Animal Health Code (hereafter referred to as the Terrestrial Code). It was recalled that a significantly revised BSE chapter and surveillance appendix had been adopted at the 2005 General Session, but that the section in the appendix dealing with type B surveillance had been the subject of significant debate. Comments on the appendix had been received from Member Countries (Canada, Switzerland, Japan, New Zealand, the Southern Cone countries of South America, Australia and the EU) which informed the ad hoc Group’s discussions. A peer review conducted by two OIE Collaborating Centres on the BSurvE model was also taken into account.

Due to the comments received and the new information available, and to the essential linkage between the Terrestrial Code BSE chapter and appendix, the ad hoc Group decided to review both documents.

The ad hoc Group noted the significantly different approach accorded to BSE surveillance compared to surveillance for other diseases such as foot and mouth disease (FMD) and avian influenza (AI), and recommended that, in the longer term, the OIE promote a similar approach to BSE surveillance as for other diseases. It recognised however that, in the short term, its task was to refine the current BSE surveillance approach to meet the practical needs of Member Countries.

The ad hoc Group considered that type B surveillance conducted by countries, zones or compartments of negligible BSE risk status had the following goals:

a) to show whether BSE was occurring despite the applied risk mitigating measures;

b) to contribute to maintain confidence that BSE risk remained negligible, irrespective of the means by which that status was achieved;

c) to contribute to the evaluation of the effectiveness of veterinary and farmer education programmes, and reporting and diagnostic systems.
Appendix XXXIII (contd)

Point 3) b) of Article 2.3.13.3 of the chapter was modified to reflect the importance of the date of birth of an indigenous case rather than the date the case was reported, as the date of birth is more reflective of the time of exposure than the date of reporting. A BSE case in an animal born after the imposition of a feed ban is far more important in assessing the effectiveness of measures imposed than a BSE case in an animal born before the feed ban was imposed.

Article 2.3.13.4 of the chapter was modified to clarify the wording in the chapeau concerning the generic measures.

The ad hoc Group noted that, in the current BSE chapter, the prevalence of the disease in a BSE-affected country was not a factor in the categorisation of a country, zone or compartment, except in general terms of a type A surveillance being in place. Unless the results of the surveillance will be used to compartmentalise part of the cattle population (for example by age or husbandry type), conducting surveillance at a high level at that point does not add useful information.

The ad hoc Group believed that greater resources should be directed towards mitigating the factors identified in the risk assessment rather than in conducting high levels of surveillance, as this would be commensurate with their relative contributions to addressing public health risks. This would be particularly relevant when, as a result of compartmentalisation, different risk mitigating strategies are in place. Assurances regarding public health derive more from risk mitigating measures than from detailed knowledge of BSE prevalence.

The ad hoc Group believed that the characteristics of BSE epidemiology lend the disease to compartmentalisation, for example the brief susceptibility window and the means of transmission. It recognised that compartmentalisation had been used in managing the risks associated with BSE in the United Kingdom (UK), using ‘date of birth’ in relation to the date of implementation of an effective feed ban as the separator. The Terrestrial Code recommendations on compartmentalisation should be used to provide guidance. The ad hoc Group believed that the focus could be on compartments rather than countries as a whole if groups of animals can be shown to have different epidemiologic characteristics that result in differing levels of BSE risk.

The ad hoc Group noted the importance of the linkage from the risk assessment to the recommended surveillance. The results of the risk assessment determines the type of surveillance needing to be carried out (and the target subpopulations selected) and the mitigating measures needing to be put in place, according to the risk factors identified. Selection of the target subpopulations should aim at validating the effectiveness of the mitigating measures.

The ad hoc Group confirmed that, where negligible risk had been demonstrated, type A surveillance would be unnecessary and type B surveillance would provide the level of confidence required.

The ad hoc Group considered that, in line with the General Guidelines for Animal Health Surveillance, there should be an indication in the Terrestrial Code of the circumstances under which surveillance for BSE could conclude.

As in all countries except the UK, cases appear to be the result of a Member Country’s import policy, the ad hoc Group discussed whether it may be appropriate for countries demonstrating negligible risk to redistribute their risk mitigation measures from the interior to their external borders.

The ad hoc Group recognised that, under the current 4 sub-population system, there were advantages of testing animals in the ‘clinical suspect’ category compared to the fallen stock and emergency slaughter categories. It wanted to retain the differential between ‘clinical suspects’ and other animals, because of the contribution the former sub-population makes to knowledge of the BSE situation. The ad hoc Group also discussed whether the casualty or emergency slaughter or downer cattle, and fallen stock sub-populations should be combined but decided that this would be a matter for a Member Country to determine based on the demographics and epidemiological characteristics of its cattle population. In such a case, the score accorded to that combined subpopulation would be that of ‘fallen stock’.
The *ad hoc* Group considered that all clinical suspects should be investigated, regardless of the number of points accumulated, in a similar fashion to the other diseases for which Member Countries have reporting obligations.

A detailed explanation of the manner in which the figures in the tables in the appendix were derived may be found in the report of the first meeting of the *ad hoc* Group which was attached to the report of the Terrestrial Code Commission meeting of January 2005. At that meeting, the *ad hoc* Group had made use of a background document developed by the OIE Collaborating Centre for Risk Analysis and Surveillance. The origin of the values referred to in the model (showing the relative effectiveness and efficiency of one stream vs another in the detection of BSE) may be found on the European Commission Web site [http://europa.eu.int/comm/food/food/biosafety/bse/monitoring_en.htm](http://europa.eu.int/comm/food/food/biosafety/bse/monitoring_en.htm). An examination of the pathogenesis of BSE and the performance of diagnostic tests determined the relative effectiveness and efficiency of testing animals according to age. The two parameters described, age and subpopulation, form the basis of the points distribution in the BSurvE model. Table 2 in the appendix was the result of a compression of these age categories; this compression was to accommodate the fact that Member Countries do not generally have the degree of age detail required in the BSurvE model.

At this meeting, the *ad hoc* Group modified Table 1 to make the points targets applicable to any country, no matter the number of BSE cases. The emphasis in the table was on a high level of confidence of diagnosing the first case. The *ad hoc* Group believed that, where a first case of BSE had been detected, it was unnecessary to increase the level of surveillance to maintain the same confidence that the true prevalence was less than the design prevalence. The precise determination of prevalence through an increase in surveillance beyond type A surveillance was considered to be less important than the application of relevant risk mitigating measures.

Consistent with this position, Article 3.8.4.5 was deleted.

The point values in Table 2 are derived from the pathogenesis of BSE and from the composite surveillance experience of countries in Europe, at a certain stage in the BSE epidemic (the only data source at the time). While several Member Countries, based on individual national experience, have questioned their relevance regarding the current stage of the epidemic in Europe or elsewhere, the point value distributions are believed to be most sensitive to the detection of an epidemic in its growth phase. The *ad hoc* Group considered that epidemics in their growth phase represent the greatest detection challenge. The *ad hoc* Group considered that the points values in Table 2 should be reviewed in line with changes in knowledge and diagnostic techniques, and with revisions in the BSurvE model.

As the *Terrestrial Code* BSE appendix had been derived from the BSurvE model, the *ad hoc* Group considered that, where a country had sufficient data to be able to use the BSurvE model and the expertise to do so, the outcome would be equivalent to the results obtained from using the *Terrestrial Code* appendix. The *ad hoc* Group considered that Member Countries could apply this flexible alternative to incorporate defensible national values for the key parameters on which the model is structured. The *ad hoc* Group noted that selection of this option carries the responsibility of defending scientifically the parameters selected.

The *ad hoc* Group’s proposed revised texts are at Appendices III and IV.
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OIE Terrestrial Animal Health Standards Commission September 2005
SECOND MEETING OF THE OIE AD HOC GROUP ON BSE SURVEILLANCE

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Adopted Agenda

1) Update on BSE surveillance activities
   a) BsurvE peer review

2) Update on discussions at the General Session and the January meeting of the Terrestrial Code Commission

3) Review of the text of Appendix 3.8.4

4) Other issues

5) Further work programme
CHAPTER 2.3.13.

BOVINE SPONGIFORM ENCEPHALOPATHY

Article 2.3.13.1.

The recommendations in this Chapter are intended to manage the human and animal health risks associated with the presence of the bovine spongiform encephalopathy (BSE) agent in cattle (Bos taurus and B. indicus) only.

1) When authorising import or transit of the following commodities and any products made from these commodities and containing no other tissues from cattle, Veterinary Administrations should not require any BSE related conditions, regardless of the BSE risk status of the cattle population of the exporting country, zone or compartment:

   a) milk and milk products;
   b) semen and in vivo derived cattle embryos collected and handled in accordance with the recommendations of the International Embryo Transfer Society;
   c) hides and skins;
   d) gelatin and collagen prepared exclusively from hides and skins;
   e) protein-free tallow (maximum level of insoluble impurities of 0.15% in weight) and derivatives made from this tallow;
   f) dicalcium phosphate (with no trace of protein or fat);
   g) deboned skeletal muscle meat (excluding mechanically separated meat) from cattle 30 months of age or less, which were not subjected to a stunning process, prior to slaughter, with a device injecting compressed air or gas into the cranial cavity, or to a pithing process, and which were subject to ante-mortem and post-mortem inspections and were not suspect or confirmed BSE cases, and which has been prepared in a manner to avoid contamination with tissues listed in Article 2.3.13.13.;
   h) blood and blood by-products, from cattle which were not subjected to a stunning process, prior to slaughter, with a device injecting compressed air or gas into the cranial cavity, or to a pithing process.

2) When authorising import or transit of other commodities listed in this chapter, Veterinary Administrations should require the conditions prescribed in this Chapter relevant to the BSE risk status of the cattle population of the exporting country, zone or compartment.

Standards for diagnostic tests are described in the Terrestrial Manual.
Appendix XXXIII (contd)

Appendix III (contd)

Article 2.3.13.2.

The BSE risk status of the cattle population of a country, zone or compartment should be determined on the basis of the following criteria:

1) the outcome of a risk assessment (which is reviewed annually), based on Section 1.3., identifying all potential factors for BSE occurrence and their historic perspective:

   a) Release assessment

   Release assessment consists of assessing the likelihood that the BSE, a transmissible spongiform encephalopathy (TSE) agent has been introduced into the cattle population from a pre-existing TSE agent in the indigenous ruminant population or via commodities potentially contaminated with the BSE, a TSE agent, through a consideration of the following:

      i) the presence or absence of animal TSE agents the BSE agent in the country or zone or compartment and, if present, evidence regarding their prevalence based on the outcomes of surveillance;

      ii) meat-and-bone meal or greaves from the indigenous ruminant population;

      iii) imported meat-and-bone meal or greaves;

      iv) imported live ruminants animals;

      v) imported animal feed and feed ingredients;

      vi) imported products of ruminant origin for human consumption, which may have contained tissues listed in Article 2.3.13.13. and may have been fed to cattle;

      vii) imported products of ruminant origin for in vivo use in cattle.

   The results of any surveillance and other epidemiological investigations into the disposition of the commodities identified above (especially surveillance for BSE conducted on the cattle population) relevant to the above should be taken into account in carrying out the assessment.

   b) Exposure assessment

   If the release assessment identifies a risk factor, an exposure assessment should be conducted, consisting of assessing the likelihood of exposure of the BSE agent to cattle, through a consideration of the following:

      i) recycling and amplification of the BSE agent through consumption by cattle of meat-and-bone meal or greaves of ruminant origin, or other feed or feed ingredients contaminated with these;
Appendix XXXIII (contd)

Appendix III (contd)

ii) the use of ruminant carcasses (including from fallen stock), by-products and slaughterhouse waste, the parameters of the rendering processes and the methods of animal feed manufacture;

iii) the feeding or not of ruminants with meat-and-bone meal and greaves derived from ruminants, including measures to prevent cross-contamination of animal feed;

iv) the level of surveillance for BSE conducted on the cattle population to that time and the results of that surveillance;

2) on-going awareness programme for veterinarians, farmers, and workers involved in transportation, marketing and slaughter of cattle to encourage reporting of all cases showing clinical signs consistent with BSE in target sub-populations as defined in Appendix 3.8.4.;

3) the compulsory notification and investigation of all cattle showing clinical signs consistent with BSE;

4) the examination in an approved laboratory of brain or other tissues collected within the framework of the aforementioned surveillance and monitoring system.

When the risk assessment (which takes into account the surveillance referred to in the release and exposure assessments above) demonstrates negligible risk, the country should conduct Type B surveillance in accordance with Appendix 3.8.4.

When the risk assessment (which takes into account the surveillance referred to in the release and exposure assessments above) demonstrates non-negligible fails to demonstrate negligible risk, the country should conduct Type A surveillance in accordance with Appendix 3.8.4.

Article 2.3.13.3.

Negligible BSE risk

Commodities from the cattle population of a country, zone or compartment pose a negligible risk of transmitting the BSE agent, should the following conditions be met:

1) a risk assessment, as described in point 1) of Article 2.3.13.2., has been conducted in order to identify the historical and existing risk factors, and the country has demonstrated that appropriate generic measures have been taken for the relevant period of time defined below to manage all risks identified;

2) the country has demonstrated that Type B surveillance, in accordance with Appendix 3.8.4, is in place and the relevant points target, in accordance with Table 1, has been met;

3) EITHER:

   a) there has been no case of BSE, or any case of BSE has been demonstrated to have been imported and has been completely destroyed, and:

      i) the criteria in points 2) to 4) of Article 2.3.13.2. have been complied with for at least 7 years; and

      ii) it has been demonstrated, through an appropriate level of control and audit, that for at least 8 years meat-and-bone meal or greaves derived from ruminants has not been fed to ruminants;
Appendix XXXIII (contd)

Appendix III (contd)

OR

AND

b) the last indigenous case of BSE was reported more than 7 years ago and no indigenous case of BSE has been born within the past 8 years; and

i) the criteria in points 2) to 4) of Article 2.3.13.2. have been complied with for at least 7 years; and

ii) it has been demonstrated, thorough an appropriate level of control and audit, that for at least 8 years meat-and-bone meal and greaves derived from ruminants has not been fed to ruminants; and

iii) all BSE cases, as well as:

- all the progeny of female cases, born within 2 years prior to or after clinical onset of the disease, and

- all cattle which, during their first year of life, were reared with the BSE cases during their first year of life, and which investigation showed consumed the same potentially contaminated feed during that period, or

- if the results of the investigation are inconclusive, all cattle born in the same herd as, and within 12 months of the birth of, the BSE cases, if alive in the country, zone or compartment, are permanently identified, and their movements controlled, and, when slaughtered or at death, are completely destroyed.

Article 2.3.13.4.

Controlled BSE risk

Commodities from the cattle population of a country, zone or compartment pose a controlled risk of transmitting the BSE agent, should the following conditions be met:

1) a risk assessment, as described in point 1) of Article 2.3.13.2., has been conducted in order to identify the historical and existing risk factors, and the country has demonstrated that appropriate generic measures are being taken, but have not been taken for the relevant period of time to manage all risks identified the country has not demonstrated that appropriate generic measures have been taken for the relevant period of time defined below to manage all risks identified;

2) the country has demonstrated that Type A surveillance in accordance with Appendix 3.8.4. is in place; type B surveillance may replace type A surveillance once the relevant points target, in accordance with Table 1, is met;

3) EITHER

a) there has been no case of BSE or any case of BSE has been demonstrated to have been imported and has been completely destroyed, the criteria in points 2) to 4) of Article 2.3.13.2. are complied with, and it can be demonstrated, through an appropriate level of control and audit, that meat-and-bone meal and greaves derived from ruminants has not been fed to ruminants, but at least one of the following two conditions applies:
Appendix XXXIII (contd)

Appendix III (contd)

i) the criteria in points 2) to 4) of Article 2.3.13.2. have not been complied with for 7 years;

ii) it cannot be demonstrated that controls over the feeding of meat-and-bone meal or greaves derived from ruminants to ruminants have been in place for 8 years;

OR

b) there has been an indigenous case of BSE reported, the criteria in points 2) to 4) of Article 2.3.13.2. are complied with, and it can be demonstrated, through an appropriate level of control and audit that meat-and-bone meal and greaves derived from ruminants have not been fed to ruminants, but at least one of the following two conditions applies:

i) the criteria in points 2) to 4) of Article 2.3.13.2. have not been complied with for 7 years;

ii) it cannot be demonstrated that controls over the feeding of meat-and-bone meal and greaves derived from ruminants to ruminants have been in place for 8 years;

AND

iii) all BSE cases, as well as:

- all the progeny of female cases, born within 2 years prior to or after clinical onset of the disease, and

- all cattle which, during their first year of life, were reared with the BSE cases during their first year of life, and which investigation showed consumed the same potentially contaminated feed during that period, or

- if the results of the investigation are inconclusive, all cattle born in the same herd as, and within 12 months of the birth of, the BSE cases, if alive in the country, zone or compartment, are permanently identified, and their movements controlled, and, when slaughtered or at death, are completely destroyed.

Article 2.3.13.5.

Undetermined BSE risk

The cattle population of a country, zone or compartment poses an undetermined BSE risk if it cannot be demonstrated that it meets the requirements of another category.

Article 2.3.13.6.

When importing from a country, zone or compartment posing a negligible BSE risk, Veterinary Administrations should require:

for all commodities from cattle not listed in point 1) of Article 2.3.13.1,

the presentation of an international veterinary certificate attesting that the country, zone or compartment complies with the conditions in Article 2.3.13.3.
Appendix XXXIII (contd)

Appendix III (contd)

Article 2.3.13.7.

When importing from a country, zone or compartment posing a controlled BSE risk, Veterinary Administrations should require:

for cattle

the presentation of an international veterinary certificate attesting that:

1) the country, zone or compartment complies with the conditions in Article 2.3.13.4.;

2) cattle selected for export are identified by a permanent identification system enabling them to be traced back to the dam and herd of origin, and are not exposed cattle as described in point 3) b) iii) of Article 2.3.13.4.;

3) in the case of a country, zone or compartment with an indigenous case, cattle selected for export were born after the date from which the ban on the feeding of ruminants with meat-and-bone meal and greaves derived from ruminants had been effectively enforced.

Article 2.3.13.8.

When importing from a country, zone or compartment with an undetermined BSE risk, Veterinary Administrations should require:

for cattle

the presentation of an international veterinary certificate attesting that:

1) the feeding of ruminants with meat-and-bone meal and greaves derived from ruminants has been banned and the ban has been effectively enforced;

2) all BSE cases, as well as:

   a) all the progeny of female cases, born within 2 years prior to or after clinical onset of the disease, and

   b) all cattle which, during their first year of life, were reared with the BSE cases during their first year of life, and, which investigation showed consumed the same potentially contaminated feed during that period, or

   c) if the results of the investigation are inconclusive, all cattle born in the same herd as, and within 12 months of the birth of, the BSE cases,

   if alive in the country, zone or compartment, are permanently identified, and their movements controlled, and, when slaughtered or at death, are completely destroyed;
3) cattle selected for export:
   a) are identified by a permanent identification system enabling them to be traced back to the dam
      and herd of origin and are not the progeny of BSE suspect or confirmed females;
   b) were born at least 2 years after the date from which the ban on the feeding of ruminants with
      meat-and-bone meal and greaves derived from ruminants was effectively enforced.

Article 2.3.13.9.

When importing from a country, zone or compartment posing a negligible BSE risk, Veterinary
Administrations should require:

for fresh meat and meat products from cattle (other than those listed in point 1) of Article 2.3.13.1.)

the presentation of an international veterinary certificate attesting that:

1) the country, zone or compartment complies with the conditions in Article 2.3.13.3.;

2) ante-mortem and post-mortem inspections were carried out on all cattle from which the fresh meat or
   meat products originate.

Article 2.3.13.10.

When importing from a country, zone or compartment posing a controlled BSE risk, Veterinary
Administrations should require:

for fresh meat and meat products from cattle (other than those listed in point 1) of Article 2.3.13.1.)

the presentation of an international veterinary certificate attesting that:

1) the country, zone or compartment complies with the conditions in Article 2.3.13.4.;

2) ante-mortem and post-mortem inspections were carried out on all cattle from which the fresh meat
   and meat products originate;

3) cattle from which the fresh meat and meat products destined for export originate were not subjected to a
   stunning process, prior to slaughter, with a device injecting compressed air or gas into the cranial
   cavity, or to a pithing process;

4) the fresh meat and meat products do not contain:
   a) the tissues listed in Article 2.3.13.13.,
   b) mechanically separated meat from the skull and vertebral column from cattle over 30 months of
      age,

all of which have been completely removed in a manner to avoid contamination of the fresh meat and
meat products.
Appendix XXXIII (contd)

Appendix III (contd)

Article 2.3.13.11.

When importing from a country, zone or compartment with an undetermined BSE risk, Veterinary Administrations should require:

for fresh meat and meat products from cattle (other than those listed in point 1) of Article 2.3.13.1.

the presentation of an international veterinary certificate attesting that:

1) the cattle from which the fresh meat and meat products originate:
   a) are not suspect or confirmed BSE cases;
   b) have not been fed meat-and-bone meal or greaves;
   c) were subjected to ante-mortem and post-mortem inspections;
   d) were not subjected to a stunning process, prior to slaughter, with a device injecting compressed air or gas into the cranial cavity, or to a pithing process;

2) the fresh meat and meat products do not contain:
   a) the tissues listed in Article 2.3.13.13.,
   b) nervous and lymphatic tissues exposed during the deboning process,
   c) mechanically separated meat from the skull and vertebral column from cattle over 12 months of age,

   all of which have been completely removed in a manner to avoid contamination of the fresh meat and meat products.

Article 2.3.13.12.

Ruminant-derived meat-and-bone meal or greaves, or any commodities containing such products, which originate from a country, zone or compartment defined in Articles 2.3.13.4. and 2.3.13.5. should not be traded between countries.

Article 2.3.13.13.

1) From cattle of any age originating from a country, zone or compartment defined in Articles 2.3.13.4. and 2.3.13.5., the following commodities, and any commodity contaminated by them, should not be traded for the preparation of food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices: tonsils and distal ileum, and protein products derived thereof. Food, feed, fertilisers, cosmetics, pharmaceuticals or medical devices prepared using these commodities should also not be traded.
2) From cattle that were at the time of slaughter over 30 months of age originating from a country, zone or compartment defined in Article 2.3.13.4., the following commodities, and any commodity contaminated by them, should not be traded for the preparation of food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices: brains, eyes, spinal cord, skull, vertebral column and derived protein products. Food, feed, fertilisers, cosmetics, pharmaceuticals or medical devices prepared using these commodities should also not be traded.

3) From cattle that were at the time of slaughter over 12 months of age originating from a country, zone or compartment defined in Article 2.3.13.5., the following commodities, and any commodity contaminated by them, should not be traded for the preparation of food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices: brains, eyes, spinal cord, skull, vertebral column and derived protein products. Food, feed, fertilisers, cosmetics, pharmaceuticals or medical devices prepared using these commodities should also not be traded.

**Article 2.3.13.14.**

*Veterinary Administrations of importing countries* should require:

for gelatin and collagen prepared from bones and intended for food or feed, cosmetics, pharmaceuticals including biologicals, or medical devices

the presentation of an *international veterinary certificate* attesting that the commodities came from:

1) a country, zone or compartment posing a negligible BSE risk; or

2) a country, zone or compartment posing a controlled BSE risk; and

   a) skulls and vertebrae (except tail vertebrae) have been excluded;

   b) the bones have been subjected to a process which includes all the following steps:

      i) pressure washing (degreasing),

      ii) acid demineralisation,

      iii) prolonged alkaline treatment,

      iv) filtration,

      v) sterilisation at $\geq 138^\circ C$ for a minimum of 4 seconds,

   or to an equivalent process in terms of infectivity reduction.

**Article 2.3.13.15.**

*Veterinary Administrations of importing countries* should require:

for tallow and dicalcium phosphate (other than protein-free tallow as defined in Article 2.3.13.1.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices
the presentation of an international veterinary certificate attesting that it originates from:

1) a country, zone or compartment posing a negligible BSE risk; or

2) a country, zone or compartment posing a controlled BSE risk, and it originates from cattle which have been subjected to ante-mortem and post-mortem inspection and has not been prepared using the tissues listed in point 2 of Article 2.3.13.13.

Article 2.3.13.16.

Veterinary Administrations of importing countries should require:

for tallow derivatives (other than those made from protein-free tallow as defined in Article 2.3.13.1.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologica ls, or medical devices

the presentation of an international veterinary certificate attesting that:

1) they originate from a country, zone or compartment posing a negligible BSE risk; or

2) they have been produced by hydrolysis, saponification or transesterification using high temperature and pressure.

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OIE Terrestrial Animal Health Standards Commission September 2005
Appendix XXXIII (contd)

Appendix IV

APPENDIX 3.8.4.
SURVEILLANCE FOR BOVINE SPONGIFORM ENCEPHALOPATHY

Article 3.8.4.1.

Introduction

1) Depending on the risk category of a country, zone or compartment with regard to bovine spongiform encephalopathy (BSE), surveillance for BSE may have one or more goals:
   a) detecting BSE, to a pre-determined design prevalence, in a country, zone or compartment;
   b) monitoring the evolution of BSE in a country, zone or compartment;
   c) monitoring the effectiveness of a feed ban and/or other risk mitigation measures, in conjunction with auditing;
   d) supporting a claimed BSE status;
   e) gaining or regaining a higher BSE status.

2) When the BSE agent is present in a country or zone, the cattle population will comprise the following sectors, in order of decreasing size:
   a) cattle not exposed to the infective agent;
   b) cattle exposed but not infected;
   c) infected cattle, which may lie within one of three stages in the progress of BSE:
      i) the majority will die or be killed before reaching a stage at which BSE is detectable by current methods;
      ii) some will progress to a stage at which BSE is detectable by testing before clinical signs appear;
      iii) the smallest number will show clinical signs.

3) The BSE status of a country, zone or compartment cannot be determined only on the basis of a surveillance programme but should be determined in accordance with all the factors listed in Article 2.3.13.2. The surveillance programme should take into account the diagnostic limitations associated with the above sectors and the relative distributions of infected cattle among them.

4) With respect to the distribution and expression of the BSE agent within the sectors described above, the following four subpopulations of cattle have been identified for surveillance purposes:
Appendix XXXIII (contd)

Appendix IV (contd)

a) cattle over 30 months of age displaying behavioural or clinical signs consistent with BSE;

b) cattle over 30 months of age that are non-ambulatory, recumbent, unable to rise or to walk without assistance; cattle over 30 months of age sent for emergency slaughter or condemned at ante-mortem inspection (casualty, emergency slaughter or downer cattle);

c) cattle over 30 months of age which are found dead on farm, during transport or at an abattoir (fallen stock);

d) cattle over 36 months of age at routine slaughter.

5) A gradient is used to describe the relative value of surveillance applied to each subpopulation. Surveillance should focus on the first subpopulation, but investigation of other subpopulations will help to provide an accurate assessment of the BSE situation in the country, zone or compartment. All countries should sample at least three of the four subpopulations. This approach is consistent with Appendix 3.8.1. on general guidelines for animal health surveillance.

6) When establishing a surveillance strategy, authorities must take into account inherent difficulties of obtaining samples on farm. These difficulties include higher cost, necessity for education and motivation of owners, counteracting potentially negative socio-economic implications. Authorities must find ways to overcome these difficulties.

Article 3.8.4.2.

Description of cattle subpopulations

1) Cattle over 30 months of age displaying behavioural or clinical signs consistent with BSE (clinical suspects)

Cattle affected by illnesses that are refractory to treatment, and displaying progressive behavioural changes such as excitability, persistent kicking when milked, changes in herd hierarchical status, hesitation at doors, gates and barriers, as well as those displaying progressive neurological signs without signs of infectious illness are candidates for examination. These behavioural changes, being very subtle, are best identified by those who handle animals on a daily basis. Since BSE causes no pathognomonic clinical signs, all countries with cattle populations will observe individual animals displaying clinical signs consistent with BSE. It should be recognised that cases may display only some of these signs, which may also vary in severity, and such animals should still be investigated as potential BSE affected animals. The rate at which such suspicious cases are likely to occur will differ among epidemiological situations and cannot therefore be predicted reliably.

This subpopulation, particularly cattle over 30 months of age, is the one exhibiting the highest prevalence. The recognition greatly depends on the owner's awareness and observation of suspect animals. The reporting of these suspect animals when at the farm will depend on the owner's motivation based on cost and socio-economic repercussions. The accurate recognition, reporting and classification of such animals will depend on the ongoing owner/veterinarian awareness programme. This and the quality of the investigation and laboratory examination systems (Article 2.3.13.2), implemented by the Veterinary Services, are essential for the credibility of the surveillance system.
2) Cattle over 30 months of age that are non-ambulatory, recumbent, unable to rise or to walk without assistance; cattle over 30 months of age sent for emergency slaughter or condemned at ante-mortem inspection (casualty or emergency slaughter, or downer cattle)

These cattle may have exhibited some of the clinical signs listed above which were not recognised as being consistent with BSE. Experience in countries where BSE has been identified indicates that this subpopulation is the one demonstrating the second highest prevalence. For that reason, it is the second most appropriate population to target in order to detect BSE.

3) Cattle over 30 months of age which are found dead on farm, during transport or at an abattoir (fallen stock)

These cattle may have exhibited some of the clinical signs listed above prior to death, but were not recognised as being consistent with BSE. Experience in countries where BSE has been identified indicates that this subpopulation is the one demonstrating the third highest prevalence.

4) Cattle over 36 months of age at routine slaughter

Experience in countries where BSE has been identified indicates that this subpopulation is the one demonstrating the lowest prevalence. For that reason, it is the least appropriate population to target in order to detect BSE. However, sampling in this subpopulation may be an aide in monitoring the progress of the epizootic and the efficacy of control measures applied, because it offers continuous access to a cattle population of known class, age structure and geographical origin. Testing of routine slaughter cattle 36 months of age or less is of relatively very little value (Table 2).

Within each of the above subpopulations, countries may wish to target cattle identifiable as imported from countries or zones not free from BSE, cattle which have consumed potentially contaminated feedstuffs from countries or zones not free from BSE, offspring of BSE affected cows and cattle which have consumed feedstuffs potentially contaminated with other TSE agents.

When establishing a surveillance strategy, authorities must take into account inherent difficulties of obtaining samples on farm. These difficulties include higher cost, necessity for education and motivation of owners, counteracting potentially negative socio-economic implication. Authorities must find ways to overcome these difficulties.

Article 3.8.4.3.

4) Implementation of Type A surveillance

In order to implement efficiently a surveillance strategy for BSE, a country must use good quality data (or reliable estimates) documented records or reliable estimates of concerning the age distribution of its adult cattle population and the number of cattle tested for BSE stratified by age and by subpopulation. The application of the following procedure will allow the detection of BSE at a prevalence of at least one case per 100,000 in the adult cattle population, at a confidence level of 95% in the country, zone or compartment of concern.

The approach assigns ‘point values’ to each sample, based on the subpopulation from which it was collected and the likelihood of detecting infected cattle in that subpopulation. The number of points a sample is assigned is determined by the subpopulation from which the sample is collected and the age of the animal sampled. The total points accumulation is then periodically compared to the target number of points for a country, zone or compartment.
Appendix XXXIII (contd)

Appendix IV (contd)

A country should design its surveillance strategy to ensure that samples are representative of the herd of the country, zone or compartment, and include consideration of demographic factors such as production type and geographic location, and the potential influence of culturally unique husbandry practices. The approach used and the assumptions made should be fully documented, and the documentation retained for 7 years.

The points targets and surveillance point values in this appendix were obtained by applying the following factors to a statistical model:

a) a design prevalence for Type A or Type B surveillance of one case per 100,000 of the adult cattle population;

b) a confidence level of 95%;

c) the pathogenesis, and pathological and clinical expression of BSE:
   i) sensitivity of diagnostic methods used;
   ii) relative frequency of expression by age;
   iii) relative frequency of expression within each subpopulation;
   iv) interval between clinical pathological change and clinical expression;

d) demographics of the cattle population, including age distribution;

e) influence of BSE on culling or attrition of animals from the cattle population via the four subpopulations;

f) percentage of infected animals in the cattle population which are not detected.

Although the procedure accepts very basic information about a cattle population, and can be used with estimates and less precise data, careful collection and documentation of the data significantly enhance their value. Since samples from clinical suspect animals provide many times more information than samples from healthy or dead-of-unknown-cause animals, careful attention to the input data can substantially decrease the procedure’s cost and the number of samples needed. The essential input data are:

a) cattle population numbers stratified by age;

b) the number of cattle tested for BSE stratified by age and by subpopulation.

This Appendix utilises Tables 1 and 2 to determine a desired surveillance points target and the point values of surveillance samples collected.

Within each of the subpopulations above, countries may wish to target cattle identifiable as imported from countries or zones not free from BSE, cattle which have consumed potentially contaminated feedstuffs from countries or zones not free from BSE, and offspring of BSE affected cows.

All clinical suspects should be investigated, regardless of the number of points accumulated. In addition, animals from the other subpopulations should be tested.
1) **Type A surveillance**

The application of Type A surveillance will allow the detection of BSE around a design prevalence of at least one case per 100,000 in the adult cattle population, at a confidence level of 95% in the country, zone or compartment of concern.

2) **Maintenance (Type B) surveillance**

The application of Type B surveillance will allow the detection of BSE around a design prevalence of at least one case per 50,000 in the adult cattle population, at a confidence level of 95% in the country, zone or compartment of concern.

Type B surveillance may be carried out by Member Countries of negligible BSE risk status (Article 2.3.13.3) to confirm the conclusions of the risk assessment, for example by demonstrating the effectiveness of the measures mitigating any risk factors identified, through surveillance targeted to maximise the likelihood of identifying failures of such measures.

Type B surveillance may also be carried out by Member Countries of controlled BSE risk status (Article 2.3.13.4), following the achievement of the relevant points target using Type A surveillance, to maintain confidence in the knowledge gained through Type A surveillance.

For countries which have demonstrated through risk assessment (including surveillance) that they meet the requirements for ‘negligible risk’, should continue at a reduced maintenance level.

In order to implement efficiently a maintenance surveillance strategy for BSE, a country must use good quality data (or reliable estimates) concerning the age distribution of its adult cattle population and the number of cattle tested for BSE stratified by age and by subpopulation. The application of the following procedure will allow the detection of BSE prevalence of at least one case per 50,000 in the adult cattle population, at a confidence level of 95% in the country, zone or compartment of concern. This Appendix utilises Tables 1 and 2 to determine a desired surveillance point target and the point values of surveillance samples collected.

Maintenance surveillance should focus on the higher prevalence subpopulations (especially clinical suspects). The number of clinical suspect samples taken annually should approximate the number of samples taken annually from clinical suspect cases during the time taken to reach the country, zone or compartment’s BSE status (to a maximum of 7 years).

Article 3.8.4.4.

1) **Selecting the points target**

The desired surveillance points target is selected from Table 1, which shows target points for adult cattle populations of different sizes. A country’s adult cattle population size may be estimated or may be set at one million because, for statistical reasons, one million is the point beyond which sample size does not further increase with population size. The target depends on the design prevalence chosen by the country.

\[ \text{DP (design prevalence)} \]

If the actual prevalence is greater than the selected design prevalence, the survey is highly likely to detect disease.

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OIE Terrestrial Animal Health Standards Commission September 2005
Table 1  
Points targets for different adult cattle population sizes in a country, zone or compartment which has not identified any BSE cases.

<table>
<thead>
<tr>
<th>Adult Cattle Population Size (24 months and older)</th>
<th>Type A surveillance</th>
<th>Type B surveillance</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1,000,000</td>
<td>300,000</td>
<td>150,000</td>
</tr>
<tr>
<td>800,000 – 1,000,000</td>
<td>240,000</td>
<td>120,000</td>
</tr>
<tr>
<td>600,000 – 800,000</td>
<td>180,000</td>
<td>90,000</td>
</tr>
<tr>
<td>400,000 – 600,000</td>
<td>120,000</td>
<td>60,000</td>
</tr>
<tr>
<td>200,000 – 400,000</td>
<td>60,000</td>
<td>30,000</td>
</tr>
<tr>
<td>100,000 – 200,000</td>
<td>30,000</td>
<td>15,000</td>
</tr>
<tr>
<td>50,000 – 100,000</td>
<td>15,000</td>
<td>7,500</td>
</tr>
</tbody>
</table>

DP is the maximum possible prevalence or “design prevalence”.

2) Determining the point values of samples collected

Table 2 can be used to determine the point values of the surveillance samples collected. The approach assigns point values to each sample according to the likelihood of detecting infection based on the subpopulation from which the sample was collected and the age of the animal sampled. This approach takes into account the general principles of surveillance described in Appendix 3.8.1. and the epidemiology of BSE.

Because precise aging of the animals that are sampled may not be possible, Table 2 combines point values into five age categories. The point estimates for each category were determined as an average for the age range comprising the group. The age groups were selected on their relative likelihoods of expressing BSE according to scientific knowledge of the incubation of the disease and the world BSE experience. Samples may be collected from any combination of subpopulations and ages but should reflect the demographics of the cattle herd of the country, zone or compartment.

If a Member Country determines, based on the demographics and epidemiological characteristics of its cattle population, that precise classification of the subpopulations ‘casualty or emergency slaughter or downer cattle’ and ‘fallen stock’ is not possible, these subpopulations may be combined. In such a case, the surveillance point values accorded to the combined subpopulation would be that of ‘fallen stock’.
In addition, Countries should sample at least three of the four subpopulations.

The total points for samples collected may be accumulated over a period of a maximum of 7 consecutive years to achieve the target number of points determined in Table 1.

### Table 2  
Surveillance point values for samples collected from animals in the given subpopulation and age category

<table>
<thead>
<tr>
<th>Surveillance subpopulation</th>
<th>Routine slaughter(^1)</th>
<th>Fallen stock(^2)</th>
<th>Casualty slaughter(^3)</th>
<th>Clinical suspect(^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 1 year and &lt; 2 years</td>
<td>0.01</td>
<td>0.2</td>
<td>0.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Age ≥ 2 years and &lt; 4 years (young adult)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
<td>260</td>
</tr>
<tr>
<td>Age ≥ 4 years and &lt; 7 years (middle adult)</td>
<td>0.2</td>
<td>0.9</td>
<td>1.6</td>
<td>750</td>
</tr>
<tr>
<td>Age ≥ 7 years and &lt; 9 years (older adult)</td>
<td>0.1</td>
<td>0.4</td>
<td>0.7</td>
<td>220</td>
</tr>
<tr>
<td>Age ≥ 9 years (aged)</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>45</td>
</tr>
</tbody>
</table>

\(^1\) See point 4) of Article 3.8.4.2.  
\(^2\) See point 3) of Article 3.8.4.2.  
\(^3\) See point 2) of Article 3.8.4.2.  
\(^4\) See point 1) of Article 3.8.4.2.

Surveillance points remain valid for 7 years (the 95th percentile of the incubation period).

### Article 3.8.4.S.

**To monitor the evolution of BSE in a country, zone or compartment once it is detected**

To monitor the evolution of BSE in a country, zone or compartment once it is detected, a more intensive sampling method needs to be used to determine disease prevalence. For countries that have determined that BSE exists within their cattle population, the goal of surveillance shifts from one of detection to one of monitoring the extent and evolution of the disease, and monitoring the effectiveness of control measures such as feed bans and policies for the removal of specified risk materials.
Appendix XXXIV

MEETING OF THE OIE AD HOC GROUP ON IDENTIFICATION AND TRACEABILITY OF LIVE ANIMALS

Paris, 14-16 June 2005

The OIE ad hoc Group on Identification and Traceability of Live Animals (hereinafter referred as the ad hoc Group) met at the OIE Headquarters from 14 to 16 June 2005.

The members of the ad hoc Group and other participants are listed at Appendix I. The Agenda adopted is given at Appendix II.

The Director General of the OIE, Dr B. Vallat, welcomed all members and indicated that on request of OIE Member Countries the OIE is currently developing several new tools for the management of animal diseases including zoonoses. Traceability and compartmentalisation are among those tools. He recalled the good cooperation between the Codex Alimentarius Commission (CAC) and the OIE, and underlined the importance of this ad hoc Group taking into account the CAC’s work on traceability in order to bridge live animals and products; its broad membership will assist this. He stressed the heterogeneity of OIE Member Countries and asked the ad hoc Group to keep in mind the needs of developing countries. He considered that traceability would ultimately need to cover all of the commonly farmed terrestrial and aquatic animal species but recognised that it was appropriate to start by addressing cattle. He introduced Dr L. Barcos, the rapporteur for the 2004 OIE technical item on animal identification and traceability, and proposed him as Chair of the ad hoc Group. Dr F. Berlingieri was nominated as rapporteur. This was agreed.

The Chair started by highlighting the need to proceed gradually in this work. He invited the participants to keep in mind that work on animal identification and traceability would need to address the traceability of live animals, of their products and also products for animals (such as feed and veterinary drugs). These are linked to animal health, including zoonoses, and public health.

In its discussions the ad hoc Group took into account the Codex document summarising its activities in this field (the document is attached at Appendix III), the definitions present in the OIE Terrestrial Animal Health Code (2005), the analysis of the answers to the OIE questionnaire on animal identification and traceability and a paper on the Australian standards for identifying and tracking livestock.

On the first item of the Agenda, Dr D. Wilson, Head of the International Trade Department, introduced the work done by the Animal Production Food Safety Working Group and the terms of reference for the ad hoc Group. The ad hoc Group took note and proceeded in line with the terms of reference (attached at Appendix IV).
The Chair opened the discussion on the second Agenda item. The *ad hoc* Group reviewed the relevant definitions already present in the *Terrestrial Code*. New terms were discussed and the proposed definitions are shown in Appendix V. In relation to the definition of “animal identification”, the *ad hoc* Group included the term “group” to allow a division of an epidemiological unit according to the needs of the Member Country (for example, based on animal ownership). For more clarity, “animal identification system” was added to the definition of “animal identification” to ensure differentiation and in the same time show the necessary link between the animal and the other components of the system. Possible definitions for animal handler, owner, slaughterhouse, trader, transporters, rendering plant and keeper were discussed, but the *ad hoc* Group felt that the common meaning of these terms would be sufficient for the purposes of this work. A definition of “animal traceability” was drafted with the CAC approach in mind so to facilitate coordination and ensure consistency. With this definition, the *ad hoc* Group chose to leave some aspects unresolved (e.g. should it cover a part of the life of the animal or the entire life) according to the Member Country’s objectives. The *ad hoc* Group also felt that the current definition in the *Terrestrial Code* of “subpopulation” might be broadened to address food safety issues related to contaminants and residues.

The Chair then started the discussion on the elaboration of a set of general principles for animal identification and animal traceability. The *ad hoc* Group considered that these principles were broadly applicable in all situations and used them to start work on listing the essential elements for an animal identification system and animal traceability.

The *ad hoc* Group noted the responses to the 2004 OIE Questionnaire on Animal Identification and Traceability, which had indicated that Veterinary Services were the usual Competent Authority for animal identification system and animal traceability in Member Countries.

During the discussion, it was acknowledged that there was a variety of animal identification and traceability systems among OIE Member Countries but the *ad hoc* Group emphasised the importance of the efficient exchange of information among them. The important link between animal health, zoonoses, trade and the movement of animals was pointed out. The *ad hoc* Group highlighted the importance of a Member Country defining, as a first step, the objectives and the scope of an animal identification and animal traceability system to meet its needs. The proposed set of general principles (attached at Appendix VI) would assist.

The *ad hoc* Group recommended that general principles form a part of a horizontal chapter on animal identification and traceability, in conjunction with more detailed articles on essential elements. The *ad hoc* Group proposed that elements specific to individual diseases be added to the relevant disease chapters. Further work on these issues will be required with input from other experts.

The *ad hoc* Group started discussions on the point three of the terms of reference, but these were of such a preliminary nature that they have not been included in the report. The *ad hoc* Group proposed that they continue to analyse the necessary requirements for animal identification and animal traceability systems, taking into account the essential differences between animal identification used for traceability and for other purposes. The *ad hoc* Group will continue to prepare the work for the next meeting electronically.

The *ad hoc* Group requested to be kept informed on the CAC work on traceability/product tracing in order to ensure consistency.

The *ad hoc* Group addressed the third Agenda item and produced a work programme for the future. The document is attached at Appendix VI.

The *ad hoc* Group requests comments from Member Countries on its work to date.

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.../Appendices
# MEETING OF THE OIE AD HOC GROUP ON IDENTIFICATION AND TRACEABILITY OF LIVE ANIMALS

**Paris, 14-16 June 2005**

## List of participants

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</tbody>
</table>
Appendix XXXIV (contd)

Appendix I (contd)

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MEETING OF THE OIE AD HOC GROUP ON
IDENTIFICATION AND TRACEABILITY OF LIVE ANIMALS

Paris, 14-16 June 2005

Adopted Agenda

1) Introduction
   a) Discussion on the report of the most recent meeting of the OIE Working Group on Animal Production Food Safety
   b) Terms of reference of the ad hoc Group

2) Development of specific guiding principles and standards
   a) Definitions
   b) Set of principles

3) Work programme
Appendix XXXIV (contd)

Appendix III

DOCUMENT RECEIVED FROM THE CODEX SECRETARIAT

TRACEABILITY/PRODUCT TRACING IN CODEX

Prepared by the Codex Secretariat for the meeting of the OIE Ad hoc Group on Identification and Traceability of Live Animals (Paris, 14 - 16 June 2005)

BACKGROUND

The 49th (Extraordinary) Session of the Executive Committee (October 2001) discussed how to address the general issue of traceability in the framework of Codex and recommended that the Committee on General Principles consider the following aspects of traceability: as a food safety objective (i.e., as an SPS measure); and as a legitimate objective as a TBT measure. The Executive Committee agreed that the Committees concerned (including the Committees on General Principles, Food Import and Export Inspection and Certification Systems, Food Hygiene and Labelling) should undertake work as they deemed appropriate, within their respective mandates.

CURRENT SITUATION

The 27th Session of the Codex Alimentarius Commission (July 2004) adopted the definition for Traceability/Product tracing as proposed by the Committee on General Principles (see below) and requested the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS) to present a proposal for new work on principles for the application of traceability/product tracing as a matter of priority.

Traceability/Product tracing: the ability to follow the movement of a food through specified stage(s) of production, processing and distribution.

The 13th Session of the CCFICS (December 2004) discussed the scope of the application of traceability/product tracing and noted that there was divergence of views on the scope of the application of traceability/product tracing. In this regard, the Committee recognized the broad application of traceability/product tracing covering food safety and non-food safety matters and the dual mandate of Codex to protect consumers’ health and ensure fair practices in food trade.

The Committee, in considering the request of the 27th Session of the Codex Alimentarius Commission, agreed on the need to develop principles for the application of traceability/product tracing in the context of food import and export inspection and certification systems.

The Committee prepared a project document to be submitted for approval as new work to the 28th Session of the Codex Alimentarius Commission (July 2005). In view of the divergence of opinion on the scope of the application of traceability/product tracing, the Committee agreed to keep the document simple and broad and to further discuss the extent of the scope of the principles in a physical meeting of a Working Group (Brussels, Belgium, 12-14 September 2005) after the approval of the new work by the 28th Session of the Commission.

In order to facilitate the development of the Principles, the Committee agreed that the Chairperson of the Working Group (Australia), in cooperation with the Vice-chairpersons (Argentina and Norway) would prepare a revised set of Principles for the Application of Traceability/Product Tracing in the context of Food Import and Export and Inspection and Certification Systems that would take into account relevant documents and the discussion held at the Session for circulation, comments by governments and observer organizations, and further consideration by the Working Group.

Appendix XXXIV (contd)

Appendix III (contd)

CONSIDERATION OF TRACEABILITY/PRODUCT TRACING IN OTHER CODEX COMMITTEES/TASK FORCES

AD HOC INTERGOVERNMENTAL TASK FORCE ON FOODS DERIVED FROM BIOTECHNOLOGY

The Third Session of the Task Force (March 2002) considered the issue of traceability in the framework of the Draft Principles for the Risk Analysis of Foods Derived from Modern Biotechnology (Section III - Principles - Risk Management).

The Task Force was of the opinion that the resolution of this issue was important in order to reach a final conclusion on the text of the draft Principles. It noted that the addition of a new paragraph after paragraph concerning tools for the implementation and enforcement of risk management measures made it possible to place the question of traceability into context as a one of these tools, leaving aside its use for other purposes. The Task Force recognized that there were applications of product tracing (traceability) other than the risk management of foods derived from biotechnology, and that these applications be consistent with the provisions of the SPS and TBT Agreements.

The following paragraphs were therefore included in the Draft Principles for the Risk Analysis of Foods Derived from Modern Biotechnology:

20. Post-market monitoring may be an appropriate risk management measure in specific circumstances. Its need and utility should be considered, on a case-by-case basis, during risk assessment and its practicability should be considered during risk management. Post-market monitoring may be undertaken for the purpose of:

a) verifying conclusions about the absence or the possible occurrence, impact and significance of potential consumer health effects; and

b) monitoring changes in nutrient intake levels, associated with the introduction of foods likely to significantly alter nutritional status, to determine their human health impact.

21. Specific tools may be needed to facilitate the implementation and enforcement of risk management measures. These may include appropriate analytical methods; reference materials; and, the tracing of product for the purpose of facilitating withdrawal from the market when a risk to human health has been identified or to support post-market monitoring in circumstances as indicated in paragraph 20.

The Principles for the Risk Analysis of Foods Derived from Modern Biotechnology and the Guideline for the Conduct of Food Safety Risk Assessment of Foods Derived from Recombinant-DNA Plants were adopted as Codex texts by the 26th Session of the Codex Alimentarius Commission (July 2003).

COMMITTEE ON FOOD HYGIENE

The Codex Committee on Food Hygiene agreed that traceability would be considered in the context of its work on the proposed draft Principles and Guidelines for the Conduct of Microbiological Risk Management and that specific work on traceability as related to food hygiene was premature.

3 It is recognised that there are other applications of product tracing. These applications should be consistent with the provisions of the SPS and TBT Agreements. The application of product tracing to the areas covered by both Agreements is under consideration within Codex on the basis of the decisions of 49th Session of the Executive Committee.

4 The proposed draft Principles and Guidelines for the Conduct of Microbiological Risk Management have been forwarded to the 28th Session of the Codex Alimentarius Commission for adoption at Step 5 (ALINORM 05/28/13, para. 132 and Appendix III).
In this text (forwarded to the 28th Session of the Commission for adoption at step 5) “traceability/product tracing” is listed among the examples of microbiological risk management options that risk managers should identify and select for subsequent implementation by relevant parties. In this, risk managers need to consider the suitability of MRM options to reduce the risk posed by a food safety issue to an acceptable level and any practical issues regarding the implementation of the selected MRM options that need to be managed. However, the Committee in recognising the work to be developed by CCFICS on principles for the application of traceability/products tracing agreed to put the term in square brackets (ALINORM 05/28/13, paras 120-125 and Appendix III).

**CODEX COMMITTEE ON FOOD LABELLING**

At its Thirty-second Session, the Committee (May 2004) agreed that work on food labelling and traceability/product tracing would be removed from its agenda and that it might be reconsidered after the work of other relevant Committees is completed.

**AD HOC INTERGOVERNMENTAL TASK FORCE ON ANIMAL FEEDING**

At its Fifth (additional) Session, the Task Force on Animal Feeding (May 2004) agreed to add a footnote to the title of Section 4.3 “Traceability/Product Tracing and Record Keeping of Feed and Feed Ingredients” to indicate that the definition developed by the Codex Committee on General Principles applied to the Code as appropriate.

The Task Force also agreed that traceability/product tracing of feed and feed ingredients, including additives, should be enabled by proper record keeping; it deleted the reference to labelling in recognising that labelling was already dealt in Section 4.2 of the Code and that feed is also traded in bulk. In noting the difficulties in certain production systems to trace back and forward throughout the entire feed chain, the Task Force specified the paragraph to read that “the prompt trace-back of feed and feed ingredients should be to the immediate previous source and trace-forward should be to the next subsequent recipients”. The Task Force agreed to the following revised paragraph and footnotes:

> Traceability/product tracing of feed and feed ingredients, including additives, should be enabled by proper record keeping for timely and effective withdrawal or recall of products if known or probable adverse effects on consumer health are identified. Records should be maintained and readily available regarding the production, distribution and use of feed and feed ingredients to facilitate the prompt trace-back of feed and feed ingredients to the immediate previous source and trace-forward to the next subsequent recipients if known or probable adverse effects on consumers health are identified (2).

1. As appropriate, the definition of Traceability/Product Tracing developed by the Codex Committee on General Principles (CCGP) applies.

2. Development of detailed measures on traceability/product tracing should await the conclusion of discussions on traceability/products tracing in the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS).

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5 The 26th Session of the Codex Alimentarius Commission (July 2003) adopted the proposed draft Code on Good Animal Feeding at Step 5 and advanced the text to Step 8 (with the omission of Steps 6 and 7), with the exception of the definition of “feed additive” and paragraphs 11 (labelling of feed derived from modern biotechnology), 12 and 13 (Traceability/products tracing and record keeping of feed and feed ingredients) that were advanced to Step 6 only for further consideration by an additional session of the ad hoc Task Force on Animal Feeding (ALINORM 03/41, para. 41 and Appendix VI).
Appendix XXXIV (contd)

Appendix III (contd)

TRACEABILITY/PRODUCT TRACING IN OTHER CODEX TEXTS

The concept of traceability/products tracing is included in a number of adopted Codex texts and texts under elaboration, even if the term “traceability/product tracing” has not been used. In most cases it is linked to product identification and recall procedures.

Traceability related to 
product processing history is covered partially by the General Principles of Food Hygiene and in particular the Annex: Hazard Analysis and Critical Control Point System and Guidelines for its Application. The Code of Practice for Low-Acid and Acidified Low-Acid Canned Foods also contains extensive requirements relating to traceability in product processing, as do the Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods.

Within established Codex texts, traceability as it relates to the distribution and location of the product after delivery has been expressed partially in the General Principles of Food Hygiene and the General Standard for the Labelling of Pre-packaged Foods, with references to Lot Identification and the ability to recall product if necessary. At the moment, Codex texts do not require manufacturers or distributors to maintain records of onward distribution, with the exception of the Code of Practice for Low-Acid and Acidified Low-Acid Canned Food.

_________________________________
Traceability:

Considering the requests of:

the OIE International Committee,

the OIE Regional Commissions for Africa and Middle-East, and

the WTO SPS Committee,

the Animal Production Food Safety Working Group (APFSWG) recommends that the OIE produces International Standards for the identification and traceability of live animals.

Such a standard would provide an instrument for OIE Member Countries to promote animal health, public health, and to ensure better management of health crises of national and international levels.

The APFSWG recommends the Director General form an OIE *ad hoc* Group on identification and traceability of live animals to be guided by the following terms of reference.

Such *ad hoc* Group should take into account the current activities of the Codex Alimentarius Commission related to traceability in order to ensure a *continuum* between animals and products traceability.

**Terms of reference for an OIE *ad hoc* Group on identification and traceability of live animals**

1. Agree on key **definitions**.

2. Enumerate a **set of principles** for good live animal identification and traceability. The principles should be broad, be valid for all the relevant animal species and take into account the differences among OIE Member Countries.
   a) Compatibility among systems;
   b) ability to transfer information;
   c) cost benefit regarding all OIE Member Countries.

3. Based on these principles, lay out the **main points that constitute a good system for identification and traceability of live animals and the outcomes required**. Those points should include:
   a) the minimum requirements for good animal identification;
   b) the options available;
   c) the advantages and the disadvantages of the various options.
Appendix XXXIV (contd)

Appendix IV (contd)

4. Develop a set of recommendations for a practical implementation of the system. For practical reasons, this system should apply to bovine species first, others species addressed subsequently.
DEFINITIONS

Animal identification is the identification and registration of an animal individually or collectively by its epidemiological unit or group.

Animal identification system includes and links components such as identification of establishments/owners, the person(s) responsible for the animal(s) and records with animal identification.

Animal traceability is the ability to follow an animal during specified stage(s) of its life.

Individual identification is the identification of each animal using a unique identifier.

Identification of establishments/owners records geographical location and contact details.

Group identification is the identification of a group of animals using a unique group identifier.

Means of animal identification include tag, brand, tattoo, transponder (microchip), collar, ring, and mark.

Register means the system by which animal identification and traceability information is securely stored and appropriately accessed by the Competent Authority.
GENERAL PRINCIPLES FOR ANIMAL IDENTIFICATION AND ANIMAL TRACEABILITY

1. There is a critical relationship between animal identification and the traceability of animals and animal products.

2. Animal traceability and food product traceability should have the capacity to be linked in order to maintain traceability throughout the food chain continuum.

3. Animal identification and animal traceability are key tools for animal health, including zoonoses, and food safety, and may significantly improve the effectiveness of the management of disease outbreaks and food safety incidents, vaccination programmes, herd/flock management, zoning/compartmentalisation, surveillance, early response and notification systems, animal movement controls and health measures to facilitate trade.

4. The objective(s) of animal identification and animal traceability for a particular country, compartment or zone, and the approach used, should be clearly defined, following an assessment of the risks to be addressed, and a consideration of the factors listed below. They should be defined in partnership between the Competent Authority and relevant sector(s)/stakeholders prior to implementation, and periodically reviewed.

5. There are various factors which may determine the chosen approach. Factors such as the outcomes of the risk assessment, the animal health situation (including zoonoses), animal population parameters (such as species and breeds, numbers and distribution), types of production, animal movement patterns, available technologies, trade in animals and animal products, cost/benefit analysis and other economic considerations, and cultural aspects, should be taken into account when designing the approach. Whatever approach is used, it should comply with relevant OIE standards to ensure that the defined objectives are able to be achieved.

6. Animal identification and animal traceability should be under the responsibility of the Competent Authority.

7. The Competent Authority in partnership with relevant governmental agencies and private the sector should establish a legal framework for the implementation and enforcement of animal identification and animal traceability in the country. In order to facilitate compatibility and consistency, relevant international standards and obligations should be taken into account. This legal framework should include elements such as the objectives, scope, organisational arrangements including the choice of technologies used for identification and registration, obligation of the parties, confidentiality, accessibility issues and the efficient exchange of information.
WORK PROGRAMME

1) Analyse Member Countries Comments on Proposed Definitions and General Principles
2) Provide Comments on the Codex Draft Work From Codex Committee on Food Import and Export Inspection and Certification Systems
3) Address points 3 and 4 of the Terms of Reference
4) Traceability Systems in Different OIE Member Countries
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 73rd 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\textsubscript{2}/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 (AATA), 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 I). 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.
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)

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FOURTH MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE

Teramo (Italy), 7-9 September 2005

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)
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 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 proficient 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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6 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.
Appendix XXXV (contd)

Appendix C (contd)

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 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.
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) implementing 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.
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. 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 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;
   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;
Appendix XXXV (contd)

Appendix C (contd)

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 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.
Appendix XXXV (contd)

Appendix C (contd)

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.

d) 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.
Appendix XXXV (contd)

Appendix C (contd)

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 airflow 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;
Appendix XXXV (contd)

Appendix C (contd)

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.
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 be 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.

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.
Appendix XXXV (contd)

Appendix C (contd)

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.
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 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.
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.

   c) 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.
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.

c) 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 24-48 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 injured animals should be segregated/isolated if possible.

   b) Sick or 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.

   c) Where cleaning or disinfection 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.
Appendix XXXV (contd)

Appendix C (contd)

c) Unloading should be supervised by the Competent Authority and 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 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.
Appendix XXXV (contd)

Appendix C (contd)

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 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.
Appendix XXXV (contd)

Appendix C (contd)

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.
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.
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 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\(^7\) 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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\(^7\) 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.
Appendix XXXV (contd)

Appendix D (contd)

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;

OIE Terrestrial Animal Health Standards Commission September 2005
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;
   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.
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.
Appendix XXXV (contd)

Appendix D (contd)

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 effectively when the vehicles is stationary and the air flow should be adjustable.
Appendix XXXV (contd)

Appendix D (contd)

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.

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.
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:
Appendix XXXV (contd)

Appendix D (contd)

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;
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. 
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 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 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 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 3.7.3.10.). 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;
Appendix XXXV (contd)

Appendix D (contd)

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;
vii) 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.
Appendix XXXV (contd)

Appendix D (contd)

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.
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 levels directly over approaches to sorting pens, chutes, loading ramps, with brighter lighting levels inside vehicles / containers, in order to minimise baulking. Dim lighting 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.
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.
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.
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;
Appendix XXXV (contd)

Appendix D (contd)

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.

c) 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 disinestation 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.
Appendix XXXV (contd)

Appendix D (contd)

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 reprovisionsing 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)
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 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.
Appendix XXXV (contd)

Appendix E (contd)

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 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)
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;
Appendix XXXV (contd)

Appendix E (contd)

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.
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 animal 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.
Appendix XXXV (contd)

Appendix E (contd)

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;

OIE Terrestrial Animal Health Standards Commission September 2005
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.
Appendix XXXV (contd)

Appendix E (contd)

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.

b) 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. The 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.

OIE Terrestrial Animal Health Standards Commission September 2005
Appendix XXXV (contd)

Appendix E (contd)

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.
Appendix XXXV (contd)

Appendix E (contd)

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

<table>
<thead>
<tr>
<th>Presentation of animals</th>
<th>Specific procedure</th>
<th>Specific purpose</th>
<th>AW concerns/implications</th>
<th>Key AW requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>No restraint</td>
<td>Animals are grouped</td>
<td>Group container</td>
<td>Gas stunning</td>
<td>Specific procedure is suitable only for gas stunning</td>
<td>Pigs, poultry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In the field</td>
<td>Free bullet</td>
<td>Uncontrolled movement of animals impedes use of hand operated electrical and mechanical stunning methods</td>
<td>Competent animal handlers in lairage and at stunning point</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group stunning pen</td>
<td>Head-only electrical Captive bolt</td>
<td>Loading of animal; accuracy of stunning method, slippery floor and animal falling down</td>
<td>Competent animal handlers</td>
</tr>
<tr>
<td>Individual animal</td>
<td>Stunning pen/box</td>
<td>Electrical head-only</td>
<td>Free bullet</td>
<td>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</td>
<td>Competent animal handlers</td>
</tr>
<tr>
<td>Restraining methods</td>
<td>Head restraint,</td>
<td>Halter/ head collar/bridle</td>
<td>Captive bolt Free bullet</td>
<td>Suitable for halter-trained animals; stress in untrained animals</td>
<td>Competent animal handlers</td>
</tr>
<tr>
<td></td>
<td>upright</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head restraint,</td>
<td>Neck yoke</td>
<td>Captive bolt Electrical-head-only Free bullet Slaughter without stunning</td>
<td></td>
<td>Equipment; competent animal handlers, prompt stunning or slaughter</td>
</tr>
<tr>
<td></td>
<td>upright</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leg restraint</td>
<td>Single leg tied in</td>
<td>Captive bolt Free bullet</td>
<td>Ineffective control of animal movement, misdirected shots</td>
<td>Competent animal handler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flexion (animal standing on 3 legs)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary of acceptable handling and restraining methods and the associated animal welfare issues (contd)

<table>
<thead>
<tr>
<th>Restraining methods</th>
<th>Presentation of animals</th>
<th>Specific procedure</th>
<th>Specific purpose</th>
<th>AW concerns/implications</th>
<th>Key AW requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upright restraint</td>
<td>Beak holding</td>
<td>Captive bolt</td>
<td>Stress of capture</td>
<td>Sufficient competent animal handlers</td>
<td>Ostriches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head restraint in electrical stunning box</td>
<td>Electrical-head-only</td>
<td>Stress of capture and positioning</td>
<td>Competent animal handler</td>
<td>Ostriches</td>
<td></td>
</tr>
<tr>
<td>Holding body upright - manual</td>
<td>Manual restraint</td>
<td>Captive bolt Electrical-head-only Slaughter without stunning</td>
<td>Stress of capture and restraint; accuracy of stunning/slaughter</td>
<td>Competent animal handlers</td>
<td>Sheep, goats, calves, ratites, small camelids, poultry</td>
<td></td>
</tr>
<tr>
<td>Holding body upright - mechanical</td>
<td>Mechanical clamp / crush / squeeze / V-restrainer (static)</td>
<td>Captive bolt Electrical methods Slaughter without stunning</td>
<td>Loading of animal and overriding; excessive pressure</td>
<td>Proper design and operation of equipment</td>
<td>Cattle, buffalo, sheep, goats, deer, pigs, ostriches</td>
<td></td>
</tr>
<tr>
<td>Lateral restraint – manual or mechanical</td>
<td>Restrainer/cradle/crush</td>
<td>Slaughter without stunning</td>
<td>Stress of restraint</td>
<td>Competent animal handlers</td>
<td>Sheep, goats, calves, camelids, cattle</td>
<td></td>
</tr>
<tr>
<td>Upright restraint mechanical</td>
<td>Mechanical straddle (static)</td>
<td>Slaughter without stunning Electrical methods Captive bolt</td>
<td>Loading of animal and overriding</td>
<td>Competent animal handlers</td>
<td>Cattle, sheep, goats, pigs</td>
<td></td>
</tr>
<tr>
<td>Upright restraint – manual or mechanical</td>
<td>Wing shackling</td>
<td>Electrical</td>
<td>Excessive tension applied prior to stunning</td>
<td>Competent animal handlers</td>
<td>Ostriches</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
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<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restraining and/or conveying methods</td>
<td>Mechanical - upright</td>
<td>V-restrainer</td>
<td>Electrical methods Captive bolt Slaughter without stunning</td>
<td>Loading of animal and overriding; excessive pressure, size mismatch between restrainer and animal</td>
<td>Proper design and operation of equipment</td>
</tr>
<tr>
<td>Mechanical-upright</td>
<td>Mechanical straddle – band restrainer (moving)</td>
<td>Electrical methods Captive bolt Slaughter without stunning</td>
<td>Loading of animal and overriding, size mismatch between restrainer and animal</td>
<td>Competent animal handlers, proper design and layout of restraint</td>
<td>Cattle, calves, sheep, goats, pigs</td>
</tr>
<tr>
<td>Mechanical-upright</td>
<td>Flat bed/deck Tipped out of containers on to conveyors</td>
<td>Presentation of birds for shackling prior to electrical stunning Gas stunning</td>
<td>Stress and injury due to tipping in dump-module systems height of tipping conscious poultry broken bones and dislocations</td>
<td>Proper design and operation of equipment</td>
<td>Poultry</td>
</tr>
<tr>
<td>Suspension and/or inversion</td>
<td>Poultry shackle</td>
<td>Electrical stunning Slaughter without stunning</td>
<td>Inversion stress; pain from compression on leg bones</td>
<td>Competent animal handlers; proper design and operation of equipment</td>
<td>Poultry</td>
</tr>
<tr>
<td>Suspension and/or inversion</td>
<td>Cone</td>
<td>Electrical – head-only Captive bolt Slaughter without stunning</td>
<td>Inversion stress</td>
<td>Competent animal handlers; proper design and operation of equipment</td>
<td>Poultry</td>
</tr>
<tr>
<td>Upright restraint</td>
<td>Mechanical leg clamping</td>
<td>Electrical – head-only</td>
<td>Stress of resisting restraint in ostriches</td>
<td>Competent animal handlers; proper equipment design and operation</td>
<td>Ostriches</td>
</tr>
</tbody>
</table>
## Summary of acceptable handling and restraining methods and the associated animal welfare issues (contd)

<table>
<thead>
<tr>
<th>Restraining by inversion</th>
<th>Presentation of animals</th>
<th>Specific procedure</th>
<th>Specific purpose</th>
<th>AW concerns/implications</th>
<th>Key AW requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotating box</td>
<td>Fixed side(s) (e.g. Weinberg pen)</td>
<td>Slaughter without stunning</td>
<td>Inversion stress; stress of resisting restraint, prolonged restraint, inhalation of blood and ingesta. Keep restraint as brief as possible</td>
<td>Proper design and operation of equipment</td>
<td>Cattle</td>
<td></td>
</tr>
<tr>
<td>Compressible side(s)</td>
<td>Slaughter without stunning</td>
<td>Inversion stress, stress of resisting restraint, prolonged restraint Preferable to rotating box with fixed sides Keep restraint as brief as possible</td>
<td>Proper design and operation of equipment</td>
<td>Cattle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Body restraint

<table>
<thead>
<tr>
<th>Body restraint</th>
<th>Presentation of animals</th>
<th>Specific procedure</th>
<th>Specific purpose</th>
<th>AW concerns/implications</th>
<th>Key AW requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casting/ hobbling</td>
<td>Manual</td>
<td>Mechanical stunning methods Slaughter without stunning</td>
<td>Stress of resisting restraint; animal temperament; bruising. Keep restraint as short as possible</td>
<td>Competent animal handlers</td>
<td>Sheep, goats, calves, small camelids, pigs</td>
<td></td>
</tr>
</tbody>
</table>

## Leg restraints

<table>
<thead>
<tr>
<th>Leg restraints</th>
<th>Presentation of animals</th>
<th>Specific procedure</th>
<th>Specific purpose</th>
<th>AW concerns/implications</th>
<th>Key AW requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rope casting</td>
<td>Mechanical stunning methods Slaughter without stunning</td>
<td>Stress of resisting restraint; prolonged restraint, animal temperament; bruising. Keep restraint as short as possible</td>
<td>Competent animal handlers</td>
<td>Cattle, camelids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tying of 3 or 4 legs</td>
<td>Mechanical stunning methods Slaughter without stunning</td>
<td>Stress of resisting restraint; prolonged restraint, animal temperament; bruising. Keep restraint as short as possible</td>
<td>Competent animal handlers</td>
<td>Sheep, goats, small camelids, pigs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

Cattle

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.
The optimum position for pigs is on the midline just above the eye level, with 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 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.
Appendix XXXV (contd)

Appendix E (contd)

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:

<table>
<thead>
<tr>
<th>Species</th>
<th>Minimum current levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>1.5 amps</td>
</tr>
<tr>
<td>Calves</td>
<td>1.0 amps</td>
</tr>
<tr>
<td>Pigs</td>
<td>1.25 amps</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>1.0 amps</td>
</tr>
<tr>
<td>Lambs</td>
<td>0.7 amps</td>
</tr>
<tr>
<td>Ostriches</td>
<td>0.4 amps</td>
</tr>
</tbody>
</table>

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 shackles-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.
Appendix XXXV (contd)

Appendix E (contd)

Birds should receive the current for at least 4 seconds.

<table>
<thead>
<tr>
<th>Species</th>
<th>Current (milliamperes per bird)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broilers</td>
<td>120</td>
</tr>
<tr>
<td>Layers (spent hens)</td>
<td>120</td>
</tr>
<tr>
<td>Turkeys</td>
<td>150</td>
</tr>
<tr>
<td>Ducks and Geese</td>
<td>130</td>
</tr>
</tbody>
</table>

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\(_2\))

The concentration of CO\(_2\) 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\(_2\) 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\(_2\) 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\(_2\) chamber whilst it is in use, and to have access to the animals in emergency cases.

OIE Terrestrial Animal Health Standards Commission September 2005
Appendix XXXV (contd)

Appendix E (contd)

The chamber shall be equipped to continuously measure and display register at the point of stunning the CO$_2$ concentration and the time of exposure, and to give a clearly visible and audible warning if the concentration of CO$_2$ 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.
Appendix XXXV (contd)

Appendix E (contd)

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:

<table>
<thead>
<tr>
<th>Stunning method</th>
<th>Maximum delay for bleeding to be started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical methods and non penetrating captive bolt</td>
<td>20 seconds</td>
</tr>
<tr>
<td>CO₂</td>
<td>60 seconds (after leaving the chamber)</td>
</tr>
</tbody>
</table>

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.
Article 3.7.5.8.

Summary of acceptable stunning methods and the associated animal welfare issues

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

<table>
<thead>
<tr>
<th>Method</th>
<th>Specific method</th>
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<th>Key AW requirements applicable</th>
<th>Species</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical</td>
<td>Single application:</td>
<td>Accidental pre-stun electric shocks; inadequate current and</td>
<td>Competent operation and maintenance of equipment;</td>
<td>Cattle, calves,</td>
<td>Where cardiac arrest occurs, the carcass may not be suitable for Halal</td>
</tr>
<tr>
<td></td>
<td>1. head only;</td>
<td>voltage; wrong electrode positioning; recovery of</td>
<td>restraint; accuracy</td>
<td>sheep, goats, pigs,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. head to body;</td>
<td>consciousness</td>
<td></td>
<td>ratites, poultry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. head to leg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterbath</td>
<td>Restraint, accidental pre-stun electric</td>
<td></td>
<td>Competent operation and maintenance of equipment</td>
<td>Poultry only</td>
<td>Where cardiac arrest occurs, the carcass may not be suitable for Halal</td>
</tr>
<tr>
<td>Gaseous</td>
<td>CO₂ air/O₂ mixture; CO₂ inert gas</td>
<td>Aversiveness of high CO₂ concentrations, respiratory</td>
<td>Concentration; duration of exposure; design,</td>
<td>Pigs, poultry</td>
<td>Gaseous methods may not be suitable for Halal</td>
</tr>
<tr>
<td></td>
<td>mixture</td>
<td>distress; inadequate exposure</td>
<td>maintenance and operation of equipment; stocking</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>density management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inert gases</td>
<td>Recovery of consciousness</td>
<td></td>
<td>Concentration; duration of exposure; design,</td>
<td>Pigs, poultry</td>
<td>Gaseous methods may not be suitable for Halal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>maintenance and operation of equipment; stocking</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>density management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Summary of acceptable slaughter methods and the associated animal welfare issues

<table>
<thead>
<tr>
<th>Slaughter methods</th>
<th>Specific method</th>
<th>AW concerns / implications</th>
<th>Key requirements</th>
<th>Species</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding out by severance of blood vessels in the neck without stunning</td>
<td>Full frontal cutting across the throat</td>
<td>Failure to cut both common carotid arteries; occlusion of cut arteries.</td>
<td>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.</td>
<td>Cattle, buffalo, horses, camelids, sheep, goats, poultry, ratites</td>
<td>This method is applicable to Halal and Kosher slaughter for relevant species</td>
</tr>
<tr>
<td>Bleeding with prior stunning</td>
<td>Full frontal cutting across the throat</td>
<td>Failure to cut both common carotid arteries; occlusion of cut arteries; pain during and after the cut.</td>
<td>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.</td>
<td>Cattle, buffalo, horses, camelids, sheep, goats, poultry, ratites</td>
<td></td>
</tr>
<tr>
<td>Neck stab followed by forward cut</td>
<td>Ineffective stunning; failure to cut both common carotid arteries; impaired blood flow; delay in cutting after reversible stunning</td>
<td>Prompt and accurate cutting</td>
<td></td>
<td>Camelids, sheep, goats, poultry, ratites</td>
<td></td>
</tr>
<tr>
<td>Neck stab alone</td>
<td>Ineffective stunning; failure to cut both common carotid arteries; impaired blood flow; delay in cutting after reversible stunning</td>
<td>Prompt and accurate cutting</td>
<td></td>
<td>Camelids, sheep, goats, poultry, ratites</td>
<td></td>
</tr>
</tbody>
</table>
## Summary of acceptable slaughter methods and the associated animal welfare issues (contd)

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

Appendix E (contd)

<table>
<thead>
<tr>
<th>Slaughter methods</th>
<th>Specific method</th>
<th>AW concerns / implications</th>
<th>Key requirements</th>
<th>Species</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac arrest in a waterbath electric stunner</td>
<td>Bleeding by evisceration</td>
<td>Induction of cardiac arrest</td>
<td>Quail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bleeding by neck cutting</td>
<td></td>
<td></td>
<td>Poultry</td>
<td></td>
</tr>
</tbody>
</table>

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 ‘puntilla’, 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.
APPENDIX 3.7.6.

GUIDELINES FOR THE KILLING OF ANIMALS FOR DISEASE CONTROL PURPOSES

Article 3.7.6.1.

General principles

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.
Appendix XXXV (contd)

Appendix F (contd)

10. To the extent possible to minimise public distress, killing of animals and carcass disposal should be carried out away from public view.

11. 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;
Appendix XXXV (contd)

Appendix F (contd)

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.
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;

iii) 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.
### Article 3.7.6.5.

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Age range</th>
<th>Procedure</th>
<th>Restraint necessary</th>
<th>Animal welfare concerns with inappropriate application</th>
<th>Article reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>all</td>
<td>free bullet</td>
<td>no</td>
<td>non-lethal wounding</td>
<td>3.7.6.6.</td>
</tr>
<tr>
<td></td>
<td>all except</td>
<td>captive bolt - penetrating, followed by pithing or bleeding</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.7.</td>
</tr>
<tr>
<td></td>
<td>neonates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>adults only</td>
<td>captive bolt - non-penetrating, followed by bleeding</td>
<td>yes</td>
<td>ineffective stunning, regaining of consciousness before killing</td>
<td>3.7.6.8.</td>
</tr>
<tr>
<td></td>
<td>calves only</td>
<td>electrical, two stage application</td>
<td>yes</td>
<td>pain associated with cardiac arrest after ineffective stunning</td>
<td>3.7.6.10.</td>
</tr>
<tr>
<td></td>
<td>calves only</td>
<td>electrical, single application (method 1)</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.11.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>injection with barbiturates and other drugs</td>
<td>yes</td>
<td>non-lethal dose, pain associated with injection site</td>
<td>3.7.6.15.</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>all</td>
<td>free bullet</td>
<td>no</td>
<td>non-lethal wounding</td>
<td>3.7.6.6.</td>
</tr>
<tr>
<td></td>
<td>all except</td>
<td>captive bolt - penetrating, followed by pithing or bleeding</td>
<td>yes</td>
<td>ineffective stunning, regaining of consciousness before killing</td>
<td>3.7.6.7.</td>
</tr>
<tr>
<td></td>
<td>neonates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all except</td>
<td>captive bolt - non-penetrating, followed by bleeding</td>
<td>yes</td>
<td>ineffective stunning, regaining of consciousness before killing</td>
<td>3.7.6.8.</td>
</tr>
<tr>
<td></td>
<td>neonates</td>
<td>captive bolt - non-penetrating</td>
<td>yes</td>
<td>non-lethal wounding</td>
<td>3.7.6.8.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>electrical, two stage application</td>
<td>yes</td>
<td>pain associated with cardiac arrest after ineffective stunning</td>
<td>3.7.6.10.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>electrical, single application (Method 1)</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.11.</td>
</tr>
</tbody>
</table>
Table summarising killing methods described in Articles 3.7.6.6.-3.7.6.17. (contd)

<table>
<thead>
<tr>
<th>Species</th>
<th>Age range</th>
<th>Procedure</th>
<th>Restraint necessary</th>
<th>Animal welfare concerns with inappropriate application</th>
<th>Article reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>neonates only</td>
<td>CO₂ / air mixture</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.12.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>nitrogen and/or inert gas mixed with CO₂</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.13.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>nitrogen and/or inert gases</td>
<td>yes</td>
<td>slow induction of unconsciousness,</td>
<td>3.7.6.14.</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>injection of barbiturates and other drugs</td>
<td>yes</td>
<td>non-lethal dose, pain associated with injection site</td>
<td>3.7.6.15.</td>
<td></td>
</tr>
<tr>
<td>Pigs</td>
<td>all</td>
<td>free bullet</td>
<td>no</td>
<td>non-lethal wounding</td>
<td>3.7.6.6.</td>
</tr>
<tr>
<td>all except neonates</td>
<td>captive bolt - penetrating, followed by pithing or bleeding</td>
<td>yes</td>
<td>ineffective stunning, regaining of consciousness before death</td>
<td>3.7.6.7.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>captive bolt - non-penetrating</td>
<td>yes</td>
<td>non-lethal wounding</td>
<td>3.7.6.8.</td>
<td></td>
</tr>
<tr>
<td>all §</td>
<td>electrical, two stage application</td>
<td>yes</td>
<td>pain associated with cardiac arrest after ineffective stunning</td>
<td>3.7.6.10.</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>electrical, single application (Method 1)</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.11.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>CO₂ / air mixture</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.12.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>nitrogen and/or inert gas mixed with CO₂</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.13.</td>
<td></td>
</tr>
<tr>
<td>neonates only</td>
<td>nitrogen and/or inert gases</td>
<td>yes</td>
<td>slow induction of unconsciousness,</td>
<td>3.7.6.14.</td>
<td></td>
</tr>
</tbody>
</table>
Table summarising killing methods described in Articles 3.7.6.6.-3.7.6.17. (contd)

<table>
<thead>
<tr>
<th>Species</th>
<th>Age range</th>
<th>Procedure</th>
<th>Restraint necessary</th>
<th>Animal welfare concerns with inappropriate application</th>
<th>Article reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigs</td>
<td>all</td>
<td>injection with barbiturates and other drugs</td>
<td>yes</td>
<td>non-lethal dose, pain associated with injection site</td>
<td>3.7.6.15.</td>
</tr>
<tr>
<td>Poultry</td>
<td>adults only</td>
<td>captive bolt - non-penetrating</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.8.</td>
</tr>
<tr>
<td></td>
<td>day-olds and eggs only</td>
<td>maceration</td>
<td>no</td>
<td>non-lethal wounding, non-immediacy;</td>
<td>3.7.6.9.</td>
</tr>
<tr>
<td></td>
<td>adults only</td>
<td>electrical single application (Method 2)</td>
<td>yes</td>
<td>ineffective stunning</td>
<td>3.7.6.11.</td>
</tr>
<tr>
<td></td>
<td>adults only</td>
<td>electrical single application, followed by killing (Method 3)</td>
<td>yes</td>
<td>ineffective stunning; regaining of consciousness before killing death</td>
<td>3.7.6.11.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>CO₂ / air mixture Method 1 Method 2</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.12.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>nitrogen and/or inert gas mixed with CO₂</td>
<td>yes</td>
<td>slow induction of unconsciousness, aversiveness of induction</td>
<td>3.7.6.13.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>nitrogen and/or inert gases</td>
<td>yes</td>
<td>slow induction of unconsciousness</td>
<td>3.7.6.14.</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>injection of barbiturates and other drugs</td>
<td>yes</td>
<td>non-lethal dose, pain associated with injection site</td>
<td>3.7.6.15.</td>
</tr>
<tr>
<td></td>
<td>adults only</td>
<td>addition of anaesthetics to feed or water, followed by an appropriate killing method</td>
<td>no</td>
<td>ineffective or slow induction of unconsciousness</td>
<td>3.7.6.16.</td>
</tr>
</tbody>
</table>

* 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.
Appendix XXXV (contd)

Appendix F (contd)

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.
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 use 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.
Appendix XXXV (contd)

Appendix F (contd)

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.
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.
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)

**CO₂ / 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 (CO₂) 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 CO₂ 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) CO₂ 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
   ii) The aversive nature of high CO\textsubscript{2} 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 2

   The gas is introduced into a poultry house.

   a) Requirements for effective use in a poultry house
      i) Prior to introduction of the CO\textsubscript{2}, the poultry house should be appropriately sealed to allow control over the gas concentration.
      ii) The house should be gradually filled with CO\textsubscript{2} 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 maximum height accommodation of birds.

   b) Advantages
      i) Applying gas to birds in situ eliminates the need to manually remove live birds.
      ii) CO\textsubscript{2} is readily available.
      iii) Gradual raising of CO\textsubscript{2} 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\textsubscript{2} 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\textsubscript{2}**

1. **Introduction**

CO\textsubscript{2} 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 ≤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\textsubscript{2} 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\textsubscript{2} strongly aversive, and a mixture of nitrogen or argon with ≤30% CO\textsubscript{2} by volume and ≤2% O\textsubscript{2} 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\textsubscript{2} and CO\textsubscript{2} 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 ≤2% O\textsubscript{2}), 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\textsubscript{2} 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 $O_2$ 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 $\leq 2\% O_2$), 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.
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.

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.
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.
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
  - Allowing owned animals to roam unsupervised
  - Abandonment of unwanted animals

- Uncontrolled breeding within…
  - Owned population and subsequent abandonment of offspring.
  - Stray population.
  - Commercial breeders producing an excess of animals, poor conditions leading to the production of unsuitable pet animals

- Carrying capacity of environment
  - Identification of essential resources and which resource is the most limiting factor (often food)
  - Reduction of carrying capacity (e.g. via improved solid waste management)
  - 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

- 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.


- Education. Responsible animal ownership and public awareness of urban animal control programmes.

- Neutering/sterilisation of owned animals. Provision of neutering services and incentives for animal owners.

Current stray population

- Estimating the existing numbers and distribution of strays.

- 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 produce by WHO and WSPA entitled “Guidelines for Dog Population Management” which could be a valuable reference for the ad hoc group’s work.
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)
Appendix XXXV (contd)

Appendix H (contd)

- 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 viewpoints 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
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.

29 August 2005
## Animal Welfare Working Group 2005 work programme

<table>
<thead>
<tr>
<th>Priorities of Working Group</th>
<th>Implementation</th>
<th>Status at September 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further work on adopted standards</td>
<td>land transport</td>
<td>Revised standards, pending advice from ad hoc groups</td>
</tr>
<tr>
<td></td>
<td>sea transport</td>
<td>Continuing</td>
</tr>
<tr>
<td></td>
<td>slaughter for human consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>killing for disease control purposes</td>
<td></td>
</tr>
<tr>
<td>Aquatic animal welfare standards</td>
<td>Proceed initially on development of standards for transportation and killing/slaughter, to be followed by production standards</td>
<td>AHGs met, AAC to review outputs in March 2006</td>
</tr>
<tr>
<td>Expertise database</td>
<td>Identification of possible expertise (centres of expertise and individual experts)</td>
<td>To be given enhanced priority – on OIE Web site by Sept 2006</td>
</tr>
<tr>
<td>Presentation at OIE General Session</td>
<td>Chair of Working Group to present paper and respond to questions from Member Country delegates</td>
<td>Completed, with feedback to WG members</td>
</tr>
<tr>
<td>Improved animal welfare awareness within veterinary profession</td>
<td>Coordinate with WVA / CVA activities</td>
<td>Continuing</td>
</tr>
<tr>
<td></td>
<td>OIE Collaborating Centre at Teramo</td>
<td></td>
</tr>
<tr>
<td>Inclusion of animal welfare in veterinary curricula and CPD</td>
<td>Encourage uptake of WSPA Concepts programme</td>
<td>Continuing</td>
</tr>
<tr>
<td>Communications plan</td>
<td>Working Group members to take up opportunities for publishing information articles in appropriate journals, Web pages and newsletters</td>
<td>Continuing (All)</td>
</tr>
<tr>
<td></td>
<td>Working Group members to utilise OIE Regional conferences, and other relevant conferences</td>
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<td></td>
<td>OIE and the WTO to draft a document clarifying the international legal issues associated with animal welfare and international trade</td>
<td>Continuing (All)</td>
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</tbody>
</table>

**Thiermann**

**Aidaros**

**Bayvel**

**Rahman**

**Wilson**

**Gavinelli**

**Masiga**

**Wilkins**

**Bayvel**

**CVA Journal Paper**

**OIE Bulletin Update**

**Regional Conference (Aidaros)**

**Completed (SATRS 24 (2) and WVA/AVMA conference)**
## Animal Welfare Working Group 2005 work programme (contd)

<table>
<thead>
<tr>
<th>Priorities of Working Group</th>
<th>Implementation</th>
<th>Status at September 2005</th>
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<tbody>
<tr>
<td>Communications plan (contd)</td>
<td>To liaise with governments and international organisations re animal welfare topics at upcoming conferences</td>
<td>Continuing (All)</td>
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<tr>
<td>OIE Revue Scientifique et Technique</td>
<td>Request to coordinate mid-2005 edition on animal welfare</td>
<td>(Bayvel, Rahman, Gavinelli)</td>
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<td>Membership</td>
<td>Member drawn from animal industries with an interest in animal transport, production and slaughter.</td>
<td>Meeting with OIE Director-General resulted in agreement that 3 industry organisations (IDF, IMS, IFAP) send experts to next meeting of Working Group</td>
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<td>Coordination with other international organisations</td>
<td>IDF/IMS IFAP FAO AATA/IATA/WAZA</td>
<td>Director General to discuss continuing collaboration with FAO Coordination on transport standards</td>
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<td>Education</td>
<td>Animal welfare in the veterinary curriculum content/facilities personnel capacity building</td>
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<td>Development of new standards</td>
<td>Companion animal welfare - urban animal control</td>
<td>Collaborating Centre to review existing information (Rahman/Aidaros/Wilkins)</td>
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<td></td>
<td>Wildlife and zoo animal welfare harvesting/culling</td>
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### Priorities of Working Group

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<tr>
<th>Development of new standards (contd)</th>
<th>Laboratory animal welfare housing animals used in regulation and diagnostic testing (including on vaccines) alternatives to animal use</th>
<th>Collaborating Centre to review existing information (Bayvel)</th>
<th>Discussion paper on lab animal welfare to be further developed following discussion at meeting</th>
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<tbody>
<tr>
<td>Terrestrial animal welfare – housing/production generic housing systems</td>
<td></td>
<td>Fraser/Aidaros to develop scoping paper for next meeting of WG</td>
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The OIE Working Group on Animal Production Food Safety (hereinafter referred as the Working Group) met for the fourth time at the OIE Headquarters on 21-23 March 2005.

The members of the Working Group and other participants are listed at Appendix A; apologies were received from Dr H. Coulibaly and Dr K. Dodds. The Agenda adopted is given at Appendix B. The report of the previous meeting of the Working Group was adopted unchanged.

The Director General of the OIE, Dr B. Vallat, welcomed all members and indicated that he considered that the meeting was an important opportunity for the Working Group to note its accomplishments, to review its terms of reference and \textit{modus operandi}, and to prioritise its future activities. Dr Vallat recalled the OIE’s mandate on animal production food safety under the OIE’s Third Strategic Plan. An important part of this mandate was involvement in the work of various committees of the \textit{Codex Alimentarius} Commission (hereinafter referred as Codex) which had resulted in OIE input into the Codex Committee on General Principles (CCGP) and the Codex Committee on Residues of Veterinary Drugs in Foods (CCRVDF). Dr Vallat also noted the very good outcomes of the Codex Committee on Meat Hygiene (CCMH) as a result of collaboration between the OIE and Codex.

Dr Vallat advised the Working Group that Dr A. McKenzie had offered to step down as chair and that Dr S. Slorach had accepted his request to chair this meeting. Drs Vallat and Slorach noted the excellent work of Dr McKenzie in putting the work programme of the Working Group on a firm footing.

Dr Vallat explained the OIE's policies regarding the participation of the private sector in the work of the OIE in that the Working Group is able to invite an expert from any international organisation to discuss a particular issue on the Working Group’s agenda. For this meeting, he advised that he had approved a request from the IDF that one of its experts discuss its work on good dairy farming practices.
Appendix XXXVI (contd)

Update on OIE and Codex activities

Dr A. Thiermann, the President of the Terrestrial Animals Health Standards Commission, reported on OIE activities in various Codex committees (including the CCGP) and noted the excellent outcomes of the final meeting of the CCMH.

Regarding the CCMH, Dr McKenzie reported that the mandate of the committee had been completed by forwarding (at step 8 of the Codex procedure) a draft Code of Hygienic Practice for Meat, and that the Committee was now in abeyance. He noted that the draft Code has consolidated several existing documents into a single Code, following a similar approach as had been taken for the draft Code of Practice for Fish and Fishery Products. Dr Randell noted how the final CCMH documents showed how cooperation between the two organisations could result in excellent outcomes. He emphasised the need for close coordination in the transition from production to processing.

The Chair reported on the work of various Codex committees, including discussions on the relationship between Codex and other international organisations. Regarding animal feeding, a Code of Practice had been adopted, but Codex Member Countries had been asked for their opinion as to whether further work by Codex was required and, if so, how that work should be carried out; the OIE had provided comments on the issue.

The Chair noted that the Codex Alimentarius Commission had reiterated its interest in continuing cooperation with the OIE at both headquarters and national levels, but that there was still no formal agreement between the two organisations. He indicated that the thinking in Codex was that cooperation with the OIE should be done throughout the standard development process, including the initial phase of the drafting of texts, as well as enhanced mutual information exchange.

Dr K. Miyagishima reported on the meeting of the Codex Committee on Food Hygiene (CCFH) held the previous week. The meeting’s agenda included the continuation of work on the draft revision of the Recommended International Code of Hygienic Practice for Foods for Infants and Children and on the Draft Principles and Guidelines for the Conduct of Microbiological Risk Management, progressing work on the draft Guidelines on the Application of General Principles of Food Hygiene to the Control of Listeria monocytogenes in Ready-to-eat Foods, the draft revision of the Code of Hygienic Practice for Egg and Egg Products and the discussion paper on the Guidelines for the Application of the General Principles of Food Hygiene to the Risk-Based Control of Salmonella spp. in Poultry.

He also informed the Working Group on the activities of other Codex Committees:

1. the Codex Committee on Fish and Fishery Products (CCFFP) had finalised the draft Code of Practice for Fish and Fishery Products (Aquaculture and other sections);

2. the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS) had advanced the draft Principles for Electronic Certification to Step 8 and agreed on the need to develop Principles for the Application of Traceability/Product Tracing through a Working Group.

Dr Miyagishima also updated the Working Group on the revised Codex procedure for the consideration of new work. Any proposal for new work needed to be presented in the form of a proposal document, with priority criteria so to ensure that the work programme was well planned. The Codex committee structure was also being examined by the Commission.

Dr Economides reported on a food safety meeting held in Amman and noted the evident lack of cooperation between the veterinary services and the other competent authorities. He was concerned to ensure that standards being developed for hazards relevant for public health but not causing disease in animals, and for traceability systems involved all the relevant authorities.
Modus operandi of the Working Group

Dr McKenzie spoke to his paper on the outputs to date of the OIE Animal Production Food Safety Working Group. He recalled the history of the Working Group and noted its perceived lack of progress. He considered that there needed to be a better understanding within the Working Group of the mandate and role of the Working Group and of its priorities. He thought that Codex members would see the work of the OIE on pathogens of interest to food safety as being the work of Codex e.g. on BSE. He also discussed the OIE advocacy of the veterinary profession as being different from the Codex approach which was not generally to nominate specific professions. He considered that the Working Group needed to be at the policy end of the spectrum and advisory regarding OIE input into the work of Codex committees.

Issues discussed by the Working Group included:

1. the Working Group’s advisory role to the OIE Director-General on various levels:
   a) as a policy group on strategy;
   b) as a priority-setting group for technical work,
   c) overseeing the work of ad hoc groups convened to examine specific technical issues, and making recommendations to the Terrestrial Code Commission or other relevant Commission;

2. members’ participation in Working Group meetings in their personal capacity as experts, not as representatives of any group or organisation; in this regard, the Working Group noted that formal comments from Codex would need to come from the Codex Secretariat;

3. the need to clarify the roles of OIE and Codex, and to integrate the goals of the two organisations;

4. transparency;

5. membership – the Working Group noted the need for it to remain small to maximise efficiency but recognised that the breadth of its mandate meant that the interest of a broad range of organisations in its deliberations may need to be addressed; Dr Vallat raised the desirability of including in the membership organisations with which the OIE has an agreement and a broad regional representation;

6. the desirability of technical experts participating in its meetings, with their attendance being on the basis of an identified need by the Working Group for a specific issue.

Dr Schlundt welcomed the important step that the OIE had taken regarding this mandate but he considered that, to assist cooperation and coordination with Codex, the Working Group had to emphasise the importance of integrating the goals of each organisation, using common terms and coordinating priorities and standards development timetables. This was particularly the case as veterinary services were increasingly being integrated into food safety authorities.

The Working Group agreed a revised *modus operandi* based on the original terms of reference (attached at Appendix C).

Anti-microbial resistance

The Working Group noted that two OIE/FAO/WHO expert meetings held in Geneva and Oslo had recommended the creation of a Codex/OIE joint task force on antimicrobial resistance. While there had been no consensus in the Codex Committee on General Principles for developing procedures necessary for establishing such a joint Task Force, possibilities still existed for creating a Codex Task Force that could benefit from OIE expertise. However, the Codex Executive Committee had not yet decided on its approach to the issue. Dr Vallat stressed the importance of the two organisations working towards a common scientific position.
Appendix XXXVI (contd)

The Working Group noted the importance of the issue for trade in animal products due to the risks to public health, and encouraged Member Countries and relevant organisations to provide comments to the OIE on the proposed revisions to the Code Appendixes on ‘Guidelines for the Responsible and Prudent Use of Antimicrobial Agents in Veterinary Medicine’ and ‘Risk Assessment for Antimicrobial Resistance Arising from the Use of Antimicrobials in Animals’.

The Working Group encouraged the OIE Aquatic Animal Health Standards Commission to consider the inclusion of antimicrobial resistance in its work programme.

The Working Group encouraged the FAO and WHO to take into account the OIE work when developing guidelines on risk assessment for antimicrobial resistance. The Working Group concurred with the proposed OIE definition for antimicrobials and noted the benefits of a harmonised definition.

The Working Group noted the work on critically important antimicrobials underway in the OIE and WHO, and recommended that the organisations work together to ensure a coordinated list.

Good farming practices

An expert from the International Dairy Federation (IDF) addressed the Working Group on the IDF’s views on the Working Group paper on good farming practices. The IDF comments, as well as those from the European Union and the Codex Secretariat, had been incorporated into the text for examination by the Working Group. The IDF considered that the guidelines were very generic and that it may be useful to break the guidelines into more specific sections.

The Working Group requested the OIE Headquarters to redraft the document in line with the comments received, and taking into account the draft FAO paper on Good Agricultural Practices, the Codex Recommended Code of Practice on Good Animal Feeding, the Codex draft Code of Hygienic Practice for Meat and the IDF Guide to Good Dairy Farming Practices.

Role and functionality of veterinary services

Dr Vallat recalled that the original idea for this paper was that it would be advisory for those countries where the veterinary services had both public and animal health objectives (estimated to be at least at 70% of the OIE Member Countries). He emphasised the problems caused by uncoordinated representation from Member Countries in Codex and OIE fora to the harmonisation of the work of the two Organisations. Member Countries were asking the OIE to help them reform their administrations to ensure effective links between animal health and public health, and this document will assist that process.

The Chair noted that Codex had not produced a similar document but that some minor changes could be made to accommodate Codex issues.

The Working Group requested the OIE Headquarters to redraft the document in accordance with comments received, and circulate it among Working Group members before the next meeting, with a view to a final position in the Terrestrial Code.

Certification

Dr Vallat indicated that the OIE was interested in working with Codex on combined certificates when this was possible and asked the Working Group to recommend a suitable way of advancing the work.

Some key points were identified by the Working Group: that OIE and Codex should agree on a list of minimum requirements for a certificate, that the certificate should be applicable regardless of which Competent Authority was making the certification (e.g. veterinary services or public health services), and that an electronic certification system should be further developed.
The Working Group recommended that the OIE provide its input to the ongoing work by CCFICS, including participation in the working group established by CCFICS on the revision of the Codex Guidelines for Generic Certificate Formats and the Production and Issuance of Certificates, outlining its proposal for a combined certificate.

Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection

Dr McKenzie spoke to a revised version of this paper which is intended to provide guidelines for veterinary services. Comments received had been addressed and other improvements made to the document which was agreed as a Working Group document. The document is attached as Appendix D.

The Working Group requested the OIE Headquarters to:

1. finalise the document in line with the discussion, with a view to placing it on the OIE Website as an information document;

2. refine and reduce the document, including links to the Codex Meat Hygiene Code, for circulation to the Working Group members, with a view to a final position in the Terrestrial Code.

Fourth OIE Strategic Plan

The Working Group discussed the new proposed OIE Strategic Plan and welcomed the increased emphasis on combating zoonoses in the work of the OIE, and the strengthening of the scientific basis for OIE standards. It also noted the emphasis on communication and coordination with other international organisations, especially Codex and WHO.

Bovine tuberculosis

The Working Group reviewed the work of the OIE ad hoc group in revising the current Terrestrial Code chapter on bovine tuberculosis, and welcomed the new emphasis placed on the food safety aspects of the disease. The Working Group recalled that it had initiated the review of this chapter and discussed the criteria it should use to review such technical work in future, for example does it adequately address the food safety issues and does it do so in a manner which meets OIE and Codex objectives?

The Working Group recommended that Articles 2.3.3.8 and 2.3.3.9 refer to the relevant Codex Codes of Practice covering meat and meat products, and that there be a differentiation between measures recommended for infected and free countries/zones/herds (as has been done in the article dealing with milk and milk products).

The Working Group also noted that an international sanitary certificate could serve, instead of a veterinary certificate, for products for human consumption.

The Working Group recommended that the Terrestrial Code chapters on brucellosis be revised through a risk-based approach for the food safety aspects and taking into account the above comments.

Revision of the OIE list of diseases

The Working Group discussed the principles underpinning the new OIE single list of terrestrial diseases, and the criteria used for determining whether a disease would be listed. The Working Group encouraged the OIE in its work and recommended that the OIE continue to screen against the listed criteria significant human pathogens associated with foodborne illness, eg Salmonella spp, for inclusion in the list. The Working Group was of the view that the text in Article 2.1.1.1 should be better aligned with the criteria in the flowchart.
The Working Group believed that, in reviewing the criteria for the inclusion of zoonoses for compulsory notification by Member Countries, the OIE should take account of all risk management options including alternatives to listing, eg for some human pathogens associated with foodborne illness. If other risk management options prove to be more effective and less trade restrictive, they should be chosen; these risk management options could include measures at the production or processing stages of the food chain, and may lead to additional chapters in appropriate OIE and/or Codex codes. The Working Group recommended that the OIE develop alternative methods for managing such food borne pathogens for which compulsory reporting may not be the most appropriate risk management strategy.

In response to the question posed by the OIE ad hoc group on disease notification regarding listeriosis, the Working Group believed that, for that disease, listing was not an appropriate risk management option, and noted ongoing Codex work on the safety of food products.

The Working Group was informed of the upcoming meeting of the OIE ad hoc group on emerging zoonoses and requested to be informed on its outcomes, especially if those addressed foodborne zoonoses.

**Animal identification and traceability**

Mme Croyère (a stagiaire in the OIE International Trade Department) reported to the Working Group on the initial work underway in OIE Headquarters on animal identification and traceability.

The Working Group noted that the Codex Code of Hygienic Practice for Meat included references to traceability. Dr Miyagishima advised that traceability was being referenced in several Codex texts as a tool for managing risks - Codex had agreed on a definition of traceability/product tracing for its purposes, and CCFICS was now developing guidelines on traceability for Member Countries through a working group.

The Working Group noted the relevance of traceability for both animal health and food safety - among the reasons for progressing work on animal identification and traceability were the benefits in having the ability to trace forward and backwards within the food continuum.

The Working Group recommended that the OIE coordinate its work with that of Codex on traceability, including at the working level through the OIE ad hoc group and CCFICS. The Working Group requested that the OIE include information on its work in its report to the Codex Commission.

The Working Group reviewed the draft terms of reference of the ad hoc group and suggested some enhancements.

**Work Programme**

The Working Group’s work programme, as revised at the meeting, is attached at Appendix E.

**Next meeting**

The Working Group decided that it would aim to meet between mid-November and mid-December 2005 in order to take advantage of meetings of ad hoc groups and the January 2006 meeting of the Terrestrial Code Commission.

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OIE Terrestrial Animal Health Standards Commission September 2005
MEETING OF THE OIE WORKING GROUP ON ANIMAL PRODUCTION FOOD SAFETY
Paris, 21-23 March 2005

List of participants

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<th>Address</th>
</tr>
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<tbody>
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</tbody>
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<th>Address</th>
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<tbody>
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Appendix XXXVI (contd)

Appendix A (contd)

**OIE HEADQUARTERS**

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<th>Name</th>
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OIE Terrestrial Animal Health Standards Commission September 2005
MEETING OF THE OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP
Paris, 21-23 March 2005

Adopted Agenda

1. Welcome from the OIE Director General
2. Adoption of the Agenda
3. Report of the previous Working Group Meeting
4. Update on OIE/ Codex Alimentarius activities
5. Modus operandi of the Working Group
   5.1. Chair’s discussion paper on the outputs of the OIE APFSWG
   5.2. Fourth OIE Strategic Plan
6. Role and Functionality of Veterinary Services in Food Safety throughout the Food Chain
   6.1. Revision and endorsement
   6.2. Harmonisation of Codex and OIE certificates in order to ensure both animal health and public health issues are addressed
   7.1. Comments received from Member Countries - revision and endorsement
8. Guide to Good Farming Practices
   8.1. Comments received from Member Countries/Organisations - revision and endorsement
   8.2. Harmonisation with the Codex document ‘RECOMMENDED CODE OF PRACTICE ON GOOD ANIMAL FEEDING’
9. Animal Identification and Traceability
   9.1. Region by region analysis of animal identification systems.
   9.2. Establishment of terms of reference for an OIE ad hoc Group.
Appendix XXXVI (contd)

Appendix B (contd)

10. Antimicrobial Resistance

10.1. Revised Appendix 3.9.4. ‘RISK ASSESSMENT FOR ANTIMICROBIAL RESISTANCE ARISING FROM THE USE OF ANTIMICROBIALS IN ANIMALS’ – for endorsement

10.2. Revised Appendix 3.9.3. ‘GUIDELINES FOR THE RESPONSIBLE AND PRUDENT USE OF ANTIMICROBIAL AGENTS IN VETERINARY MEDICINE’ – for endorsement


11.1. Revised Chapter 2.3.3. ‘BOVINE TUBERCULOSIS’ – for endorsement

12. Revision of the OIE list of diseases

12.1. Criteria for food borne pathogens

12.2. OIE ad hoc Group on Emerging Zoonoses

13. Work Programme for 2005

14. Resolutions and Recommendations for the 73rd OIE General Session

15. Any other business

16. Next Meeting
MEETING OF THE OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP

Paris, 21-23 March 2005

Modus operandi

In accordance with the XV Resolution of the 70th OIE General Session, the terms of reference for the Animal Production Food Safety Working Group include:

- consideration of all food-borne hazards arising from animals before slaughter,
- a primary focus on food safety measures applicable at the farm level,
- consideration of food safety measures applicable elsewhere, for example during animal transport and harvesting of wild animals for food,
- work criteria and priorities that take into account global food safety priorities and current work programmes of relevant international organisations, especially the CAC,
- the taking into account of the food safety standards developed and under development by relevant international organisations, especially the CAC,
- support for the work of the OIE Specialist Commissions on pre-slaughter animal production food safety,
- advising the Director-General of the OIE on the implementation of the OIE strategy regarding:
  - establishing Ad hoc Groups to address specific tasks,
  - linking at the working level with the CAC, FAO and WHO,
  - ensuring pre-slaughter animal production food safety is integrated in Specialist Commissions’ and Ad hoc Groups’ activities,
  - providing technical input into the review of OIE disease notification criteria,
  - enhancing communications, information sharing and consultation.

Within these terms of reference, the Working Group saw its role as:

1. providing advice to the OIE Director-General on policy and strategic issues relating to the OIE’s work on animal production food safety which has the goal of ‘reducing food borne risks to human health by preventing, eliminating or controlling hazards arising from animals prior to primary processing of animals and animal products’. The priorities were identified as:

- identifying and addressing gaps, contradictions, areas where harmonisation is necessary and duplications in the work of the OIE and other international/intergovernmental organisations (in particular Codex) involved in food safety standards,
Appendix XXXVI (contd)

Appendix C (contd)

- strengthening the relationship to other relevant standard-setting organisations (in particular Codex), through enhanced information exchange,
- improving coordination between competent authorities with animal health and food safety responsibilities at the national and regional levels,
- recommending a work programme to address the mandate of the OIE on animal production food safety;

2 acting in a steering group capacity, as required by the OIE Director-General, regarding the work of OIE expert groups:

- advising the Director-General on membership, scope and terms of reference for expert groups,
- reviewing texts arising from relevant expert groups for consideration by the relevant Specialist Commissions.

Intended outputs addressed to the Director-General and the relevant Specialist Commissions include:

- discussion papers
- policy documents
- reports
Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection

Working Group on Animal Production Food Safety

Background

Food-borne disease and zoonoses are generally recognised as important public health problems and important causes of decreased economic productivity in both developed and less developed countries. Similarly, transmission of hazards of animal health importance via the food chain and associated by-products can result in highly significant economic loss in animal populations. Inspection of slaughter animals can also provide a valuable contribution to surveillance for specified diseases of animal health importance particularly exotic disease. Control and/or reduction of hazards of public health and animal health importance by ante- and post-mortem meat inspection is a core responsibility for government veterinary services.

Recent government policy changes in many countries reflect the demand for significantly increased resources to protect public health against food-borne diseases of animal origin. Along with this, rapidly increasing trade in food at both the local and international level is resulting in increased attention to biosecurity and the potential for transmission of diseases of animal health importance via the food and feed chain. In a global regulatory environment that is more and more intent on placing responsibility on industry for ensuring “biosecurity” in relation to human and animal health, government veterinary services must exercise these responsibilities in a cost-effective, independent, transparent and interdisciplinary manner.

Scope of this paper

Increased collaboration between the World Organisation for Animal Health (OIE) and the Codex Alimentarius Commission (CAC) in respect of food standards (see below) has led to the formation by OIE of the Animal Production Food Safety Working Group (APFS WG). It is the intent of OIE that the work of the APFS WG will result in the development of recommendations on several aspects of veterinary involvement in food safety. This document on ante- and post-mortem meat inspection controls provides a discussion paper on which to base future development of OIE guidelines. It is complimentary to a discussion paper on "The role and functionality of Veterinary Services in food safety throughout the food chain" that has been circulated to OIE Member Countries and has been discussed at the OIE General Session in May 2004.

International standards

International organisations involved with public and animal health include the World Trade Organization (WTO), Food and Agriculture Organization (FAO), and World Health Organisation (WHO). At the sector level, the international organisations developing "standards" (standards, guidelines and related texts) are the CAC and the OIE.

CAC

The CAC develops international food standards, guidelines and related texts (hereafter referred to collectively as "standards"). Standards concerned with food safety should be implemented within a generic framework for managing food-borne risks and should “recognise the need for flexibility … consistent with the protection of consumers’ health”8. The activities of Task Forces functioning in parallel with the Committee system also include risk-based approaches to food safety e.g. the goal of the Ad Hoc Intergovernmental Task Force on Animal Feeding is to ensure risk-based animal feeding practices at the level of primary production9. National competent authorities are increasingly adopting this approach.

9 Code of Practice on Good Animal Feeding.

OIE Terrestrial Animal Health Standards Commission September 2005
Although the establishment of national food regulatory systems is the responsibility of governments, the CAC has a strong interest in providing guidance on sound legislative frameworks and infrastructure. Official recognition of the equivalence of alternative measures in different scenarios is a key principle of food safety risk management.

The CAC seeks wider strategic alliances with other international organisations in working towards enhancing food control on a world-wide basis. In this respect, the strategic framework of the CAC for 2003-2007 has an objective to “promote linkages between Codex and other multilateral regulatory instruments and conventions”.

**OIE**

OIE develops international "standards" for animal health and zoonoses. These are primarily designed to prevent the introduction of pathogens to animals and humans into an importing country during trade. The Terrestrial Animal Health Code does not generally differentiate between measures intended to safeguard animal health and those intended to safeguard human health.

There has been a significant increase in OIE food safety activities in recent years. Historically OIE has mainly been concerned with zoonoses that cause disease in animals but has now accepted the challenge to be more active in the area of public health and consumer protection and has noted that this should include “zoonoses and diseases transmissible to humans through food, whether or not animals are affected by such diseases”. OIE intends developing new standards covering most relevant pathogens and contaminants that are dangerous for humans for inclusion into the *Terrestrial and Aquatic Animal Health Codes* and the *Manuals*.

Veterinary public health issues addressed by OIE to date include: inspection regimes for animals and products of animal origin; certification of meat; control of food-borne hazards during primary production e.g. the agent of BSE, *Salmonella* spp., *Trichinella spiralis*, cysticercosis, antimicrobial resistance and residues of veterinary drugs; and good veterinary practice at farm level. All these activities contribute to meat hygiene amongst other benefits.

Increased collaboration between OIE and CAC in respect of food borne zoonoses, particularly through the work of the OIE APFS WG, will result in standards and texts that bridge public and animal health interests across the ‘production to consumption’ continuum. It is the intent of OIE that collaborative work will result in increasing cross-reference to Codex in the *Terrestrial Animal Health Code*, and development of recommendations by OIE on several aspects of veterinary involvement in food safety. Similarly, it is expected that OIE will provide major contributions to the Codex codes of practice and other texts that incorporate a ‘production to consumption’ risk-based approach.

**Codex Code of Hygienic Practice for Meat**

A new Draft Code of Hygienic Practice for Meat\(^\text{10}\) has recently been completed by the Codex Committee on Meat Hygiene (CCMH) and is expected to be adopted in 2005 by the CAC. The Code constitutes the primary international standard for meat hygiene and incorporates a risk-based approach to application of sanitary measures throughout the food chain. Ante-mortem inspection is described as a primary component of meat hygiene pre-slaughter, and post-mortem inspection is described as a primary component of process control in post-slaughter meat hygiene.

\(^{10}\) Draft Code of Hygienic Practice for Meat. ALINORM 05/28/16. FAO 2005
The Draft Code of Hygienic Practice for Meat specifically recognises the duality of objectives that slaughterhouse inspection activities deliver in terms of public and animal health.

As the draft Code must serve as an international standard, it does not provide inspection measures for specific hazards or organoleptically detected abnormalities which remain the responsibility of national competent authorities. The public and animal health risks associated with slaughter populations are very different in different geographical regions and animal husbandry systems, and therefore the ante- and post-mortem inspection should be tailored to the individual country situation and their public and animal health objectives.

Other inputs to ante- and post-mortem meat inspection programmes arise from other Codex work. In particular, the Codex Committee on Food Hygiene (CCFH) develops overarching standards on food hygiene; the Codex Committee on General Principles (CCGP) develops general guidelines for risk analysis and for collaboration with OIE and the Codex Committee on Import and Export Inspection and Certification Systems (CCFICS) develops "horizontal" standards that guide implementation of national inspection programmes and certification.

Ante- and post-mortem inspection includes "any procedure or test conducted by a competent person...for the purpose of judgement of safety and suitability and disposition"11. Thus tests for compliance with the standards established by CAC for chemical residues, pesticides and contaminants may be included in these inspection activities. Similarly, the new microbiological risk assessment work of the Joint Expert Meeting on Microbiological Risk Assessment (JEMRA) will lead to specific risk management advice from CCFH on tests for microbial hazards e.g. *Salmonella* spp. in broilers, enterohaemorrhagic *Escherichia coli* in ground meats, *Listeria* spp. in manufactured meats.

Although the Draft Code provides a platform for development of meat hygiene systems that are based on risk assessment, it is recognised that currently there is a dearth of risk assessment models and other risk-based scientific information in this area. While this scientific information is being accumulated, ante- and post-mortem inspection systems will remain dependent on "traditional" approaches (Appendix II). A framework for developing risk-based procedures is presented in Appendix III.

**Veterinary services**

Special editions of the OIE Scientific and Technical Review Series have illustrated the widely varying approaches to organisation of veterinary public health, veterinary animal health and public health services within national competent authorities12. Integrating all nationally-mandated food inspection systems under a single competent authority is promoted as having several advantages, including a reduction in overlap and improvement in service delivery13. While organisation structure can vary from country to country, it is essential that coverage, resources and scientific and technical capabilities deliver a continuously high standard of service. Further, credible public and animal health assurances are essential for access of animal products to international markets.

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In respect of ante- and post-mortem inspection as a component of meat hygiene, responsibilities of national competent authorities who are usually Veterinary Services\textsuperscript{14} include:

a) Risk assessment

b) Establishment of policies and standards

c) Design and management of inspection programmes to deliver public and animal health objectives which must involve a risk based approach

d) Assurance and certification of appropriate delivery of inspection and compliance activities

e) Dissemination of information throughout the food chain

f) Notification of presence of notifiable diseases

g) Conformance with WTO obligations

h) Negotiation of mutual recognition and equivalence agreements with trading partners.

**Ante- and post-mortem meat inspection programmes**

Ante- and post-mortem meat inspection programmes are primary responsibilities of national Veterinary Services\textsuperscript{15}. Wherever possible, inspection procedures should be designed according to a risk-based approach and management systems should reflect international norms.

**Risk assessment**

In a contemporary veterinary public health and animal health environment, Veterinary Services should utilise risk assessment to the greatest extent possible in the development of measures. National competent authorities are facing increased demands for technical expertise to develop domestic measures on this basis, while at the same time endeavouring to meet risk analysis obligations as assumed under international trade.

The unavailability of human risk assessment information for the whole food chain makes difficult the development of risk-based standards for food-borne zoonoses.

**Risk assessment in meat hygiene**

Ante- and post-mortem inspection programmes are aimed at achieving the designation of meat as being "safe and suitable". However, this is generally only a *qualitative* measure of freedom from hazards to human health. Post-mortem meat inspection cannot ensure freedom from grossly-detectable abnormalities, and sampling programmes for hazards have limited ability to detect randomly-occurring non-complying levels of residues and contaminants. More importantly, some transfer of microbiological contamination from the hide / fleece etc. to the carcass is inevitable in the slaughterhouse environment.

\textsuperscript{14} For the purposes of this discussion paper, "Veterinary Services" refers to veterinary public and animal health activities irrespective of the organisational arrangements of competent authorities at the national level.

\textsuperscript{15} OIE Animal Production Food Safety Working Group. "Role and functionality of veterinary services in meat hygiene throughout the food chain". 71st General Session of the OIE. 2003
There is only limited scientific evidence linking traditional ante- and post-mortem inspection with measurable outcomes in terms of human health. Additionally, there has been limited progress in tailoring inspection procedures to the spectrum and prevalence of the diseases/defects present in a particular class of slaughtered livestock from a specific geographical region. A risk assessment approach can be used to address these problems and facilitate the proportional allocation of meat hygiene resources and type of inspection and tests according to level of risk.\textsuperscript{16}

Risk-based approaches to meat-borne risks to human health are also demonstrating that unseen microbiological contamination rather than grossly-apparent abnormalities detected at ante and post-mortem inspection, is the most important source of hazards. This has led to increasing demands for more systematic approaches to combat these hazards e.g. HACCP systems.

Microbiological, serological or other testing at single-animal and herd level as part of new, risk-based post-mortem inspection can support surveillance as well as risk assessment efforts related to priority foodborne hazards. Such data and typing information can be linked to human disease data, providing for assessment of efficiency of management options as well as a general evaluation of food sources of foodborne disease.

**Risk assessment in animal health**

The OIE \textit{Terrestrial Animal Health Code} contains detailed provisions on import risk analysis. Regionalisation and surveillance for animal diseases in the exporting country provide important inputs to the risk assessment process. Unlike food safety, animal health risk assessment for control of endemic diseases of animal health importance in a regional environment is not commonly carried out. OIE standards for zoonoses are not generally based on human health risk assessments \textit{per se}.\textsuperscript{17}

OIE defines risk assessment as "the evaluation of the likelihood and the biological and economic consequences of entry, establishment, or spread of a hazard within the territory of an importing country". For many of the standards, it is stated that there is "broad agreement concerning the likely risks", however, these are not linked to specific decisions on an appropriate level of protection (ALOP). The recently formulated OIE risk analysis process for antimicrobial resistance introduces a risk management framework very similar to that used in food safety\textsuperscript{17} (see below).

**Generic framework for managing public health and animal health risks**

Although food safety and animal health sectors have developed a different history and usage of risk analysis, many aspects are common.\textsuperscript{18} Application of a generic framework provides a systematic and consistent process for managing all “biosecurity” risks while accommodating different risk assessment methodologies as appropriate. This framework generally consists of four components:

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\textsuperscript{17} Antimicrobial resistance: risk analysis methodology for the potential impact on public health of antimicrobial resistant bacteria of animal origin. OIE Scientific and Technical Review 20: 811-827

Appendix XXXVI (contd)

Appendix D (contd)

a) Preliminary risk management activities
b) Assessment of risk management options
c) Implementation
d) Monitoring and review.

A brief description of a generic risk management framework is provided in Appendix III.

Whatever the biosecurity issue, there should be a strategic, organisational and operational context for veterinary aspects of risk analysis. Appropriate inputs will be required to guide the process, which should be undertaken in a transparent and consistent manner.

Veterinary involvement in risk assessments associated with development of ante- and post-mortem inspection measures is essential. In this respect, the trend toward institutional approaches that bridge the animal and public health sectors / disciplines involved is increasingly gaining recognition at the national level and the traditional focus on regulating individual production systems is shifting to one of ensuring confidence in overall regulatory frameworks at all levels. Further, development of a more unified approach will assist general understanding of risk assessment across all biosecurity sectors and the optimisation of scarce technical resources in developing countries.

Establishment of policies and national measures

Meat hygiene

Meat hygiene is defined as "all conditions and measures necessary to ensure the safety and suitability of meat at all stages of the food chain"\(^\text{19}\). In the context of meat hygiene, safety is defined in terms of appropriate application of measures to protect public health, and achievement of any quantitative outcomes for hazard control that may be required. Suitability is defined in terms of meat having been produced in a hygienic manner, and meeting any non-safety quantitative standards that may be identified.

Development of policies and standards for ante-and post-mortem inspection is predicated by these objectives. Technical justification, practicality and effectiveness of measures rely on veterinary public health inputs, as do establishment of competencies of inspection personnel and training requirements\(^\text{20}\). The national competent authority(s) must also provide an appropriate institutional environment for Veterinary Services to develop such policies and measures.

Measures for ante- and post-mortem inspection of meat include disposition judgements following detection of abnormalities. Judgements must be exercised by personnel who have the appropriate competence if dispositions are to achieve the "safety and suitability" objectives described above. However, sorting and removal of all abnormal tissues from the food chain without recourse to further examination/judgement as to safety or suitability is a practical alternative in many situations. In fact, a conservative policy in regard to disposition of abnormal carcasses and/or viscera is reflected in the precautionary approach inherent in any risk assessment process.

\(^{19}\) Draft Code of Hygienic Practice for Meat. ALINORM 04/27/16. FAO, 2004

\(^{20}\) In the absence of a risk-based approach, inspection measures are prescribed according to long-standing practice: see Appendix I
Animal health

A further and vital component of ante- and post-mortem inspection is the detection and removal of hazards of animal health significance from the food chain where the food (or associated by-products) might be considered a means of transmission of that hazard e.g. transmission of diseases by feeding of meat scraps to animals, or transmission via meat with a designated non-human end-use e.g. uncooked petfood. This objective may be met by removal of live animals at ante-mortem inspection or by removal of specific tissues at post-mortem inspection.

Animal health surveillance and monitoring

Animal health surveillance constitutes "continuous investigation of a given population to detect the occurrence of disease for control purposes" and monitoring constitutes "on-going programmes directed at detection of changes in the prevalence of a disease in a given population"21. In this context, ante-mortem and organoleptic inspection of slaughter animals can provide an important sentinel function for zoonoses as well as other animal diseases of importance. Further diagnostic tests can be applied in the case of suspect animals and/or carcasses.

Animal health surveillance and monitoring allow Veterinary Services to identify and control significant endemic or exotic diseases within their territory, and substantiate reports on the animal health situation in their country. Both functions provide essential inputs to import risk analysis and certification for export.

As for meat hygiene, policies and measures applied at ante- and post-mortem inspection for the purposes of animal health surveillance and monitoring should be risk-based and should be feasible and practical in the slaughterhouse environment.

An example of risk-based monitoring of zoonoses is well illustrated in the OIE chapter for bovine spongiform encephalopathy (BSE)22. It is stated that surveillance strategies “should be determined by, and commensurate with the outcome of risk assessment” and have two primary goals: to determine whether BSE is present in a country, and once it has been detected, monitor development of the disease, direct control measures and monitor their effectiveness.

Integration of veterinary activities

It is clear that veterinary inputs to ante- and post-mortem inspection achieve a duality of public health and animal health objectives. Irrespective of the jurisdiction of the competent authorities involved, it is obvious that Veterinary Services should integrate their activities to the maximum extent possible and practicable so as to increase the efficacy of policies to prevent duplication of effort and unnecessary costs e.g. within the process of international certification.

In addition to sharing of routine inspection activities to achieve both public health and animal health objectives, other opportunities that arise for collaboration are: collection and integration of monitoring data, sharing of diagnostic facilities and methodologies, verification and enforcement of inspection requirements in an integrated manner, verification of relevant professional skills of inspectors, and pooling of technical expertise. Additionally, the primary role of industry in contributing to food safety can be enhanced, allowing cost-effective structural adjustments in Veterinary Services.

21 OIE Terrestrial Animal Health Code

Management of public and animal health inspection programmes

Competent Authority

In meeting veterinary public health and animal health objectives prescribed in national legislation or required by importing countries, Veterinary Services contribute in various ways "from the direct performance of necessary veterinary tasks to the evaluation of veterinary activities conducted by operators in the agro-industrial chain". It should be noted that "Veterinary Services" are no longer the sole managers of animal health protection and disease control, but rather guarantors that all parties involved in food production fulfil their respective obligations to guarantee safe food for the consumer"23. To this end Veterinary Services fulfil the role of "Competent Authority" and provide assurance both domestically and to trading partners guaranteeing safety standards have been met as well as those pertaining to suitability.

The CCMH recognises that while responsibility for meat hygiene always rests with Veterinary Services in the national Competent Authority, "flexibility should be allowed on how the service is delivered e.g. by the competent Authority or by an officially recognised competent body operating under the supervision and control of the Competent Authority"24.

The OIE Terrestrial Animal Health Code ascribes that the quality of Veterinary Services can be determined through an evaluation that ensures compliance with principles on professional judgement, independence, impartiality, integrity, objectivity, general organisation, quality policy, procedures/standards, communication, and self-evaluation. Whatever the activity, Veterinary Services must be able to demonstrate that no conflict of interest exists between public and/or animal health objectives and economic support for the meat production and processing industry.

Inputs to ante- and post-mortem inspection activities may also be provided by veterinarians employed by industry e.g. industry-led quality assurance programmes at the level of primary production may involve veterinary supervision and slaughterhouse information servicing. Individual health certification of groups of slaughter animals is a common practice in a number of countries e.g. for zoonotic diseases, veterinary drug residues and vaccination regimes. Veterinary ante-mortem inspection may also be provided at the level of livestock production25.

Quality assurance of systems

Those who benefit from inspection provided by Veterinary Services e.g. farmers and meat processing companies, are increasingly committing themselves to quality systems due to demand from their customers26. Consequently, these stakeholders are increasingly demanding inspection by competent authorities that is consistent and of high-quality.

24 Report of the 10th Session of the Codex Committee on Meat Hygiene. ALINORM 04/27/16. FAO, Rome
25 McKenzie, A. I. and Hathaway S. C. The role of veterinarians in the prevention and management of food-borne diseases, in particular at the level of livestock producers. 70th General Session of OIE. 2002
In some countries, formal quality assurance procedures are being put in place to assure competence and reliability of Veterinary Services on an on-going basis. Creating a quality system is a simple way of implementing the objectives contained in the quality policies that are written by veterinary managers. Tools such as quality accreditation are seen as necessary components of "modern economic management systems".

Quality assurance systems can be extended in the case of ante- and post-mortem inspection to "co-regulatory" systems that integrate industry and Veterinary Service activities. In Australia, these systems are based on HACCP principles, are nationally uniform and extend from “production to consumption”. Through a co-regulatory partnership arrangement, the official Veterinary Service is responsible for the broad design of the inspection system and its audits and sanctions, while the industry is responsible for further developing, implementing and maintaining the system. The veterinarian responsible for the specific slaughterhouse ensures that the meat safety quality assurance programme implemented by industry meets regulatory requirements on an on-going basis.

Use of non-veterinary inspection personnel

Use of private or public non-veterinary personnel to carry out ante- and post-mortem inspection activities is well established within many national programmes. However, all ante- and post-mortem inspection arrangements should satisfy the principles of independence, competence of inspectors and impartiality, and must be carried out under the overall supervision and responsibility of the official Veterinary Services. The Competent Authority should specify the competency requirements for all persons engaged in inspection and verify the performance of those persons.

Assurance and certification

Assurance and certification of appropriate delivery of inspection and compliance activities is a vital function of Veterinary Services. International health certificates providing official assurances for trading of meat must engender full confidence to the country of importation.

Information networks

The SPS Agreement and the standards developed by the CAC and OIE all refer to the need for a systematic process to gather, evaluate and document scientific and other information as the basis for sanitary measures. This has long been recognised by Veterinary Services at the national level.

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30 Draft Code of Hygienic Practice for Meat. ALINORM 05/28/16. FAO, 2005

Organization and dissemination of information throughout the food chain involves multidisciplinary inputs. Effective implementation of risk-based ante- and post-mortem inspection procedures is dependant on on-going monitoring and exchange of information. Animal identification, either as individuals or groups, is necessary in most situations and slaughtered animals should be able to be traced back to their place of origin as appropriate.

Veterinary inputs from primary production and slaughter are especially important to information networks servicing ante- and post-mortem inspection. As an example, it is likely that extrinsic cross-contamination as a result of slaughter, dressing and subsequent processing of meat is by far the most important source of hazards of public health importance. Bioloads of known food-borne pathogens that are transferred in this way are often a reflection of pre-harvest animal husbandry, the health status of the slaughter population, and pre-slaughter handling.

**Conformance with WTO obligations**

The World Trade Organisation (WTO) Sanitary and Phytosanitary (SPS) Agreement represents the best efforts of the global community to establish principles and guidelines governing the establishment and implementation of measures to protect public and animal health.

Veterinary Services should ensure that ante-and post-mortem inspection of slaughter is based on an overall assessment, as appropriate to the circumstances, "of the risks to human, animal, or plant life or health, taking into account risk assessment techniques developed by the relevant international organisations". Further, inspection procedures utilised in import/export programmes should be comparable to those used in domestic programmes.

In implementing the provisions of the WTO SPS and TBT Agreements, Veterinary Services have an increasing role in developing mutual recognition and equivalence agreements with trading partners. A risk-based approach to ante- and post-mortem inspection programmes allows the performance and equivalence of different meat inspection systems to be judged in terms of in meeting animal and public health objectives, thereby mitigating technical barriers to trade.
Appendix XXXVI (contd)

Appendix D (contd)

Appendix I

Ante-mortem inspection procedures

The health status of the farm of origin and the husbandry of slaughter animals has a significant effect on the safety and wholesomeness of meat. In this respect, all efforts should be made to collect and evaluate information that might have influence on ante-mortem and post-mortem inspection.

Ante-mortem inspection should be carried out in a systematic manner in accordance with routine procedures established by the controlling authority, and should ensure that animals found to be affected by a disease or defect that would render their meat unfit for human consumption are removed from the human food chain and so identified.

Ante-mortem inspection should ensure that animals whose meat may be fit for human consumption but that require special handling during slaughter and dressing, and animals that will require special attention during post-mortem inspection, are segregated and so handled or inspected.

Adequate animal identification and record keeping systems are essential if full use is to be made of on-farm information relevant to ante-mortem and post-mortem inspection. Data collection and recording systems should accurately reflect on-farm health status and allow meaningful epidemiological analysis. In addition, the data collection and recording system should be capable of responding to changes in local or regional human health and animal health status.

One of the most important functions of ante-mortem inspection is to ensure that animals are rested sufficiently so that signs important to inspection disposition are not masked. It also ensures that signs that are important to inspection disposition but that may be less readily observed (or not evident) at post-mortem inspection can be taken into account in reaching a decision as to the safety and wholesomeness of meat. When it is found on ante-mortem inspection that an animal is not fit to be slaughtered for human consumption, a judgement should be based on that finding and not delayed until after slaughter and post-mortem inspection. Ante-mortem inspection enables animals that require special handling on the slaughter and dressing floor (whether because of uncleanness, disease or defect) to be identified and given that special handling, as well as permitting the identification of animals requiring special post-mortem inspection.

Post-mortem inspection procedures (traditional)

Post-mortem inspection procedures and tests should be established by the competent authority according to a science- and risk-based approach. In the absence of a risk-based system, procedures will have to be based on current scientific knowledge and practice.

Post-mortem inspection procedures based on current knowledge and practice vary considerably in different countries. The procedures that are presented in the following tables are only intended to provide general guidance in meeting public and animal health objectives, and should be adapted by the competent authority as appropriate. In particular:


OIE Terrestrial Animal Health Standards Commission September 2005
Appendix XXXVI (contd)

Appendix D (contd)

a) Routine procedures may be supplemented by additional procedures to assist judgement.

b) Young animals are likely to need less intensive inspection than older animals, although some diseases are confined to young animals e.g. omphalophlebitis.

c) In the case of farmed game and farmed game birds, post-mortem inspection procedures established for similar domestic animals may act as a basis for their post-mortem inspection. These may need to be modified as necessary.

d) In the case of killed wild game and wild game birds, post-mortem inspection procedures should reflect the particular circumstances of harvesting and transport to the establishment.

e) Special post-mortem inspection procedures may need to be applied to animals that have reacted to screening tests, e.g., animals which have reacted positively to a tuberculin test should be slaughtered under special hygiene conditions and be subject to more intensive inspection procedures than non-reactor animals.

f) Special post-mortem judgements may need to be applied to animals that have reacted to screening tests, e.g., irrespective of detection of lesions suggestive of infection, the udder, genital tract and blood of animals which have reacted positively to a brucellosis test should be judged as unfit for human consumption.
Table 1: Examples of procedures for routine post-mortem inspection of the head of animals intended for human consumption

<table>
<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>Pigs</th>
<th>Sheep/goats</th>
<th>Horses</th>
<th>Deer</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>External surfaces/oral cavity</td>
<td>V</td>
<td>V</td>
<td>V&lt;sup&gt;a&lt;/sup&gt;</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Submaxillary lymph nodes</td>
<td>V, I&lt;sup&gt;b&lt;/sup&gt;</td>
<td>V, I</td>
<td>—</td>
<td>V, P</td>
<td>V, I</td>
<td>—</td>
</tr>
<tr>
<td>Parotid lymph nodes</td>
<td>V, I</td>
<td>—</td>
<td>—</td>
<td>V, P</td>
<td>V, I</td>
<td>—</td>
</tr>
<tr>
<td>Retropharyngeal lymph nodes</td>
<td>V, I</td>
<td>—</td>
<td>—</td>
<td>V, P</td>
<td>V, I</td>
<td>—</td>
</tr>
<tr>
<td>Tongue</td>
<td>V, P&lt;sup&gt;c&lt;/sup&gt;</td>
<td>V</td>
<td>—</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>Muscles of mastication</td>
<td>V, P, I&lt;sup&gt;d&lt;/sup&gt;</td>
<td>V, P, I</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Other</td>
<td>—</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>—&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

V is visual inspection, P is inspection by palpation, I is inspection by incision.

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<sup>a</sup> Notwithstanding post-mortem inspection for animal health purposes, the head may be discarded if brains and tongues are not collected for human consumption

<sup>b</sup> Incision of lymph nodes of the head is not necessary in calves

<sup>c</sup> Palpation of the tongue is not necessary in calves

<sup>d</sup> The muscles of mastication should be incised according to the potential for infestation with cysts of *Taenia* pp.

<sup>e</sup> The nasal septum should be removed and examined if glanders is present in the slaughter population
### Table 2: Examples of procedures for routine post-mortem inspection of the carcass of animals intended for human consumption

<table>
<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>Pigs</th>
<th>Sheep/goats</th>
<th>Horses</th>
<th>Deer</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>External surfaces</td>
<td>V</td>
<td>V(^a)</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Prescapular lymph nodes</td>
<td>V</td>
<td>—</td>
<td>V</td>
<td>—</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Thoracic cavity/pleura</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Abdominal cavity/peritoneum</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Superficial inguinal lymph nodes</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>External/internal iliac lymph nodes</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Supramammary lymph nodes</td>
<td>V, P(^b)</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Pre-pectoral lymph nodes</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>Popliteal lymph nodes</td>
<td>—</td>
<td>—</td>
<td>P</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Renal lymph nodes</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>V</td>
<td>V(^c)</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Other</td>
<td>—(^d)</td>
<td>—</td>
<td>—</td>
<td>—(^e)</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

V is visual inspection, P is inspection by palpation, I is inspection by incision.

**Note:** The umbilicus and joints of the limbs should be viewed and palpated in very young animals.

**Note:** A quality assurance system should be in place to ensure that all thyroid tissue has been removed from the throat.

\(^a\) Castration sites should be palpated

\(^b\) Supramammary lymph nodes should be incised in lactating animals

\(^c\) The muscles of the diaphragm should be incised according to the potential for infestation with cysts of *Taenia* spp.

\(^d\) The udder should be incised if it is intended for human consumption

\(^e\) The muscles and lymph nodes beneath one of the two scapular cartilages should be examined for melanosis in all grey and white horses
**Table 3: Examples of procedures for routine post-mortem inspection of the viscera of animals intended for human consumption**

<table>
<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>Pigs</th>
<th>Sheep/goats</th>
<th>Horses</th>
<th>Deer</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lungs</td>
<td>V, P(^{a})</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Trachea</td>
<td>V</td>
<td>V</td>
<td>—</td>
<td>V</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Bronchial lymph nodes</td>
<td>V, I(^{b})</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V, I</td>
<td>—</td>
</tr>
<tr>
<td>Mediastinal lymph nodes</td>
<td>V, I</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V, I</td>
<td>—</td>
</tr>
<tr>
<td>Heart</td>
<td>V, P, I(^{c})</td>
<td>V, P, I</td>
<td>V, P</td>
<td>V, P, I</td>
<td>V, P</td>
<td>V</td>
</tr>
<tr>
<td>Pericardium</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Liver</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
</tr>
<tr>
<td>Portal lymph nodes</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>Gall bladder</td>
<td>V, I(^{d})</td>
<td>—</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>Kidneys</td>
<td>V</td>
<td>P</td>
<td>V</td>
<td>V(^{e})</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Renal lymph nodes</td>
<td>V</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Spleen</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Gastrointestinal tract</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Mesenteric lymph nodes</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
<td>V, P</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td>Genital organs(^{f})</td>
<td>V</td>
<td>V</td>
<td>—</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
</tbody>
</table>

V is visual inspection, P is inspection by palpation, I

---

\(^{a}\) Incision of the diaphragmatic lobe can be used to examine the bronchii if lungs are intended for human consumption

\(^{b}\) Incision of the bronchial and mediastinal lymph nodes is not necessary in calves

\(^{c}\) The number and location of incisions in the heart muscle should be according to the potential for infestation with cysts of *Taenia* spp.

\(^{d}\) An alternative to incision of the bile ducts for the deletion of distomatosis is incision through the gastric surface of the liver. Inspection for distomatosis is not necessary in calves

\(^{e}\) Kidneys should be palpated if intended for human consumption; kidneys of grey or white horses should be incised

\(^{f}\) Palpation and incision should be carried out as appropriate if tissues are intended for human consumption e.g. uterus of heifers.
Appendix XXXVI (contd)

Appendix D (contd)

Appendix II

Risk-based ante- and post-mortem inspection procedures

Background

The Codex General Principles of Food Hygiene state that “in deciding whether a (food control) requirement is necessary or appropriate, an assessment of the risk should be made, preferably within the framework of the HACCP approach”. Many long-standing ante- and post-mortem meat inspection procedures are complex, labour-intensive, undifferentiated for different classes of slaughtered livestock, and poorly evaluated in terms of their relative contribution to reducing food-borne risks to public health. For these reasons, competent authorities in a number of countries are carrying out investigations into the scientific basis of current procedures.

A risk-based approach to meat inspection can achieve the following objectives:

a) Determination of the level of consumer protection provided by specified inspection procedures;

b) Relative measurement of the contribution of inspection to the overall level of control of hazards in meat (and risks to consumers), thereby allowing risk managers to allocate meat hygiene resources proportionate to their greatest benefit in preventing meat-borne risks;

c) Comparison of the effectiveness of different inspection procedures applied for the same purpose and in the same context, e.g. positive predictive value;

d) Provision of information that allows appropriate evaluation of different risk management options e.g. regionalisation of inspection programmes, feasibility and comparative costs of different inspection procedures, potential for cross-contamination;

e) Full integration of inspection procedures into a “production-to-consumption” approach to meat hygiene.

f) Provision of animal production data to enable linkages to foodborne disease data, e.g. through relevant serological, bacteriological and other testing to assess animal or herd prevalence, as well as isolates for typing purposes.

In the ideal situation, risk estimates will be quantified in terms of risks to human health, and risk management decisions on an appropriate level of protection (ALOP) will dictate the nature and intensity of the inspection procedures to be applied. However, risk assessment of microbiological hazards in meat is currently limited by a lack of quantitative risk assessment models. Nevertheless, appropriate assembly of scientific information and qualitative risk characterisation as to the probable impacts on human health can provide an objective basis for decision-making.

Principles

1. Inspection procedures should be evaluated for application within a specific context e.g. species and class of slaughtered animal, defined geographical region, defined animal husbandry system.
2. Where different inspection procedures that have the same purpose and context are being evaluated:
   a) An objective basis for comparison of the level of control of hazards associated with these procedures, should be established;
   b) The efficacy of each inspection procedure in detecting abnormalities and visible contamination affecting the safety of meat should be taken into account;
   c) Other risk management factors should be taken into account as appropriate e.g. potential for inadvertent cross-contamination, feasibility, and practicality.

3. Where needed, representative and sufficiently large field trials should be undertaken to determine the performance attributes of specified inspection procedures e.g. sensitivity, specificity, and non-detection rates for abnormalities.

4. Where appropriate, laboratory investigations should be designed to detect the range of hazards of possible public health importance that have been described in hazard identification.

5. Routine application of inspection procedures should not inadvertently increase cross-contamination with microbiological hazards.

6. Irrespective of inspection delivery systems, the competent authority should be responsible for defining the role of personnel involved in inspection procedures, and verifying that any performance criteria are met.

7. Alternative inspection procedures (e.g. serology) may be utilised to complement post-mortem inspection, which might be reduced to visual inspection.

8. Surveillance through serological, bacteriological or other testing for priority foodborne hazards should be promoted in order to provide food production chain data for risk assessment and monitoring purposes.

Guidelines in developing a risk-based inspection system

Identification of the issues

A hazard identification process should be undertaken to determine the likely range of hazards of public health significance that may be present. Following this, field trials should be undertaken to determine the performance attributes of specified inspection procedures or new technologies relative to the hazards that may be present.

Field trials

Once the likely range of hazards has been established, field trials may be an appropriate means to establish the prevalence of these hazards in the animal population, the potential exposure of consumers to these hazards and the potential impact of different inspection procedures on this exposure. Field trials should be carried out under competent authority supervision and employing competent personnel. The number of animals examined by the inspection procedures under evaluation should give a statistically valid estimate of the detection rate of abnormalities achieved by specific post-mortem inspection procedures.
Sampling plans should be representative of the slaughter population, and cater for known biological variation in respect of the type and prevalence of abnormalities e.g. influence of animal age, geographical region, farming type and season.

Where different inspection procedures are being compared: all procedures should be applied to the same animals, each inspection station should be designed to provide independent results, and the trial should include enough samples so as to allow definite conclusions as to the consequences of changing inspection procedures.

Laboratory investigations e.g. microbiological examination and histology, should be designed to identify the range of hazards of possible public health importance that have been identified in the hazard identification process.

**Performance attributes**

An understanding of the level of consumer protection that is achieved by particular inspection procedures requires knowledge of the level of control of hazards that is attained in meat. These would be reflected in performance objectives and/or performance criteria where these have been defined. Performance attributes for inspection procedures should achieve these.

The performance attributes of inspection procedures under test (e.g. visual inspection, palpation, and/or incision) should be determined within appropriate statistical limits established by the Competent Authority. The intended end-use of the target tissues has an important influence on the development of risk-based inspection procedures.

The sensitivity of an inspection procedure is the probability of correctly identifying an animal or tissue that is likely to contain public health hazards. An inspection procedure with a high sensitivity will result in few false negatives.

The specificity of an inspection procedure is the probability of correctly identifying animals or tissues that do not contain public health hazards. An inspection procedure with a high specificity will result in few false positives.

**Risk management decisions**

Risk management decisions on the acceptability or otherwise of specified inspection procedures will generally be based on the worst case of non-detection included in an appropriate statistical confidence interval. In the general case, new or alternative inspection procedures should provide a level of consumer protection that is at least equivalent to that provided by existing procedures, unless there are strong mitigating factors that may influence a different risk management choice e.g. unacceptable introduction of new hazards, undue risks from occupational exposure.

Where detailed information on the health status of slaughtered animals is available from primary production, risk-based inspection procedures may be modified on a lot-by-lot basis, with the Competent Authority having responsibility for determining the frequency and extent of the procedures.
Appendix III

A generic risk management framework for biosecurity

Introduction

A risk-based biosecurity programme is one that is formulated according to some knowledge, whether quantitative or qualitative, on risks to health. A generic risk management framework provides the process whereby knowledge on risk, and evaluation of other factors relevant to health protection and the promotion of fair trade practices, are used to choose and implement appropriate controls.

Generic framework

The four key steps in application of a generic risk management framework are:

a) Preliminary risk management activities
b) Selection of risk management options
c) Implementation of controls
d) Monitoring and review.

This framework should be applied in a consistent, open, transparent and fully documented manner. Recognising the iterative and interactive nature of risk management is essential. Effective risk management incorporates a precautionary approach and relies on appropriate risk communication and stakeholder representation at all steps.

Preliminary risk management activities

Preliminary risk management activities include identification of health issues and assembly of information to guide further risk management activities. In this context, sources of knowledge on risk include: risk profiles, ranking processes for different hazard exposure pathways, “qualitative” or “quantitative” risk assessments, and health surveillance data. The risk manager may commission a detailed risk assessment as an independent scientific process so as to better inform decision-making. Once a risk assessment has been received, the last task in preliminary risk management activities is to consider the results for completeness and appropriateness.

Selection of risk management options

This is the process whereby potential risk management options are identified, and then selected according to appropriate decision-making criteria. The selection of preferred risk management options will primarily involve a systematic evaluation of the likely impact of different measures on preventing, eliminating or reducing risks to health. Factors other than risks to health can be taken into account if relevant and appropriate e.g. cost-effectiveness of a measure. Wherever possible and practical, a risk-based control system will use risk assessment information to establish regulatory “targets” at a particular step in the exposure pathway that delivers a defined level of health protection.
Implementation of controls

Implementation of food safety measures will usually involve regulatory standards and associated regulatory activities. In cases of urgency and “emerging” hazards, risk managers may have to implement interim controls on the basis of limited scientific information. Verification of measures will assure that the health protection goals are being achieved on an on-going basis.

Monitoring and review

This risk management activity is represented by the gathering and analysing of data on health so as to give an overview of outcomes of risk management decisions. Monitoring (which includes surveillance) should identify new health problems as they emerge. Where there is evidence that required health goals are not being achieved, redesign of controls will be needed.

Summary

Application of a generic risk management framework allows decisions to be taken that are proportionate to the health risks involved, facilitates innovation and flexibility in application of control measures, and allows due regard to be taken of costs as well as benefits. Regulatory input in a control programme should be broad enough to encompass all relevant components of the exposure pathway and ensure that control measures are applied where they will be most effective in reducing risks.
WORK PROGRAMME FOR 2005/2006

The Working Group discussed issues identified at its previous meeting and which still needed to be addressed at some stage in the work programme. The following priorities for 2005 were agreed:

1) Horizontal issues
   a) animal identification and traceability – underway through an OIE ad hoc group
   b) testing, inspection and certification – the Working Group recommended that the OIE work with Codex (especially CCFICS) and other relevant international organisations (such as the IDF) to review international standards with a view to maximising harmonisation – underway with Working Group to follow up
   c) antimicrobial resistance - Working Group to follow up Codex and OIE developments
   d) most effective approaches to zoonoses – listing (ad hoc group on disease notification) or alternative approaches (ad hoc group on emerging zoonoses)
   e) good farming practices – revise, through establishment of an ad hoc group if necessary
   possible future subtopic – hazards arising from use of animal waste and by-products in animal production (in coordination with other organisations)
   f) guidelines for animal feeding, addressing the animal health issues
   g) summary of document on ‘Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection’.

2) Disease-specific OIE texts
   a) Terrestrial Code chapter on bovine tuberculosis – underway for possible adoption
   b) Terrestrial Code chapters on brucellosis – subject to adoption of Tuberculosis chapter
   c) Salmonellosis – take into account Codex (CCFH) and WHO work on risk reduction for salmonellosis; initially Salmonella enteritidis in eggs

3) Continue to strengthen relationship between OIE and Codex by
   a) encouraging enhanced OIE input into Codex texts
   b) developing a method for the most effective utilisation of Codex expertise in the work of OIE ad hoc Groups

4) Development of new texts
   The role of veterinary services in the reduction of chemical hazards of public and animal health significance at the farm level through establishment of an ad hoc group as resources permit.
CHAPTER 3.1.6.
PARATUBERCULOSIS

Preamble: Standards for diagnostic tests and vaccines are described in the Terrestrial Manual.

Article 3.1.6.1.

Veterinary Administrations of importing countries should require:

for domestic cattle for breeding

the presentation of an international veterinary certificate attesting that:

1) the animals showed no clinical sign of paratuberculosis on the day of shipment;

AND

2) were kept in a herd in which no clinical sign of paratuberculosis was officially reported during the 5 years prior to shipment;

the animals were kept in an establishment not known to be, or suspected of being, infected with paratuberculosis, and

a) from which all, or at least 30, animals of 3 years of age and older gave a negative result to an absorbed ELISA within the 14 months prior to export; or

b) if over 2 years of age, the animals gave a negative result to an absorbed ELISA during the 30 days prior to shipment.

Article 3.1.6.2.

Veterinary Administrations of importing countries should require:

for domestic ruminants for fattening

the presentation of an international veterinary certificate attesting that the animals:

1) showed no clinical sign of paratuberculosis on the day of shipment;

2) were kept in an establishment not known to be, or suspected of being, infected with paratuberculosis during the 5 years prior to shipment.

Article 3.1.6.3.

Veterinary Administrations of importing countries should require:

for sheep and goats for breeding

the presentation of an international veterinary certificate attesting that:

1) the animals showed no clinical sign of paratuberculosis on the day of shipment;
Appendix XXXVII (contd)

2) the animals were not vaccinated against paratuberculosis;

3) the animals were kept in an establishment not known to be, or suspected of being, infected with paratuberculosis, and

   a) from which all animals, or at least 100 animals from larger flocks, of 2 years of age and older were subjected to a serological test for paratuberculosis, and

      i) either each animal tested gave a negative result, or

      ii) animals which gave a positive or doubtful result were slaughtered and subjected to a detailed histopathological examination for the presence of paratuberculosis, with negative results;

OR

b) if over 2 years of age, the animals were subjected to a serological test for paratuberculosis during the 30 days prior to shipment, with negative results.

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