REPORT OF THE MEETING OF THE OIE AD HOC GROUP
TO REVIEW THE BOVINE SPONGIFORM ENCEPHALOPATHY CHAPTER IN THE
OIE TERRESTRIAL ANIMAL HEALTH CODE

Paris, 15-16 April 2004

The OIE ad hoc Group to review the bovine spongiform encephalopathy (BSE) chapter in the OIE Terrestrial Animal Health Code (hereafter referred to as the Terrestrial Code) met at the OIE Headquarters from 15 to 16 April 2004.

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, Head of the OIE International Trade Department, welcomed the participants and thanked them for their willingness to work on some essential issues. He recalled the discussions on BSE at the 2003 General Session regarding a simplification of the BSE-risk categorisation system while retaining its scientific base, and noted the comments from Member Countries, both of which should form the basis of the ad hoc Group’s discussions. The OIE’s task and hence that of the ad hoc Group was to give an indication to the International Committee in May 2004 as to directions the experts think the simplified BSE-risk categorisation system should go, with a detailed text perhaps available for adoption in 2005.

The ad hoc Group discussed the simplification of the BSE-risk categorisation in the Terrestrial Code. The ad hoc Group’s proposals are at Appendix III.

The ad hoc Group reviewed some other aspects of the BSE chapter and surveillance appendix in the Terrestrial Code, on the basis of the latest scientific information and comments from Member Countries. Amendments proposed by the ad hoc Group are at Appendix IV.

The ad hoc Group recommended that it meet again after the General Session to review the comments from Member Countries on its proposals for BSE-risk categorisation.

Appendix XXIV

Original: English
April 2004
Appendix XXIV (contd)

Appendix I

MEETING OF THE OIE AD HOC GROUP
TO REVIEW THE BOVINE SPONGIFORM ENCEPHALOPATHY CHAPTER IN THE
OIE TERRESTRIAL ANIMAL HEALTH CODE

Paris, 15-16 April 2004

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MEETING OF THE OIE AD HOC GROUP
TO REVIEW THE BOVINE SPONGIFORM ENCEPHALOPATHY CHAPTER IN THE
OIE TERRESTRIAL ANIMAL HEALTH CODE

Paris, 15-16 April 2004

Adopted Agenda

1. Update on significant scientific advances on BSE and its relationship with other TSE’s
3. Proposals for revision of the other aspects of the 2003 Terrestrial Animal Health Code chapter on BSE
PROPOSED BOVINE SPONGIFORM ENCEPHALOPATHY CATEGORISATION SYSTEM

The ad hoc Group believed that the purpose of a bovine spongiform encephalopathy (BSE) categorisation system was to enable and encourage appropriate risk mitigation measures (based on a risk assessment as described in Article 2.3.13.2) to be applied to commodities for trade so that they would present a negligible risk to the importing country.

The ad hoc Group believed that the use of three categories offered the best science-based practicable approach to the epidemiology of BSE, with an emphasis on the safety of commodities for trade rather than on a pragmatic classification of country status. It believed that a change in emphasis would be best achieved through an expanded list of conditions for safe trading of commodities.

In this context, the ad hoc Group believed that it was appropriate to emphasize the use of surveillance as specified in Appendix 3.8.4, to supplement data provided by risk assessments.

The ad hoc Group proposed the following three categories:

a) Category 1 - negligible BSE risk or negligible BSE risk without mitigating measures

A country or zone/compartment where a combination of surveillance and risk assessment confirms that commodities need no risk mitigation measures to present a negligible risk of transmitting the BSE agent.

b) Category 2 - controlled BSE risk or negligible BSE risk with mitigating measures

A country or zone/compartment where a combination of surveillance and risk assessment confirms that the risk factors present are being mitigated, and that commodities present a negligible risk of transmitting the BSE agent due to the application of additional commodity-specific risk mitigation measures. The general and commodity-specific risk mitigation measures applied are commensurate with the risk factors identified and are subject to regular review, based on the latest scientific information.

c) Category 3 - undetermined BSE risk

A country or zone/compartment not complying with the requirements of Category 1 or 2.

The ad hoc Group proposed a broad second category with no arbitrary distinctions, due to the difficulty of estimating accurately the prevalence of BSE infection and the relative lack of importance of prevalence in relation to rendering commodities safe. A country or zone/compartment in this category would need to demonstrate:

- an effective ruminant to ruminant feed ban;
- routine ante-mortem and post-mortem veterinary inspection;
- SRM removal and destruction to reinforce the effectiveness of the feed ban;
- completion and regular review of a risk assessment in accordance with Article 2.3.13.2;
- implementation of a surveillance programme (in accordance with Appendix 3.8.4) to supplement data provided by the risk assessment;
- routine examination and notification of clinical cases;
Appendix XXIV (contd)

Appendix III (contd)

– access to adequate laboratory capacity;

– implementation of an awareness programme in accordance with Article 2.3.13.2.

The third category still offered the opportunity for trade in certain commodities for those Member Countries where the required risk assessment and/or surveillance were not within their capabilities at the time. In order to qualify for category 2, a country or zone/compartment in category 3 would need to demonstrate that all criteria for category 2 had been in place for an appropriate period of time.

The ad hoc Group noted that risk mitigation measures in line with the current five categories (based primarily on differences in apparent prevalence of BSE infection) were not being implemented in practice. It believed that, with the three proposed categories being risk-based (with emphasis on a combination of risk assessment and surveillance), there would be less opportunity for subjective interpretation.

The ad hoc Group will develop procedures for countries or zones/compartments moving from categories presenting a higher risk to those of lower risk. These procedures will be based on the outcomes of a risk assessment, and the quantity and duration of surveillance, to confirm compliance with the requirements of the lower risk category.

The ad hoc Group agreed that the Terrestrial Code should contain a list of commodities presenting a negligible likelihood of transmitting the BSE agent, either without any restrictions being applied or as a result of the application of risk mitigation measures. Accordingly, it proposed the following modifications to Article 2.3.13.1, subject to a revised categorisation system being adopted:

“Veterinary Administrations should authorise trade:

1) without BSE related restrictions and from all categories of countries or zones/compartments regardless of their BSE status, in:
   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 (excluding hides and skins from the head);
   d) gelatin and collagen prepared exclusively from hides and skins (excluding hides and skins from the head);

2) without BSE related restrictions from category 1 countries or zones/compartments, in all other commodities;

3) with BSE related restrictions, from categories 2 and 3 countries or zones/compartments, in:
   a) for cattle under 30 months of age, boneless beef (muscle meat) from cattle subject to ante-mortem and post-mortem veterinary inspection and stunning conducted in accordance with Article 2.3.13.15;
   b) for cattle over 30 months of age, boneless beef (muscle meat) from cattle subject to ante-mortem and post-mortem veterinary inspection and stunning conducted in accordance with Article 2.3.13.15, and with removal of all SRMs (in accordance with Article 2.3.13.19) in a hygienic manner;
c) for cattle of all ages, heart, liver and kidneys, and products made exclusively from these tissues, from cattle subject to ante-mortem and post-mortem veterinary inspection and stunning conducted in accordance with Article 2.3.13.15;

d) for cattle of all ages, bovine-derived tissues (other than those designated in Article 2.3.13.18), not intended for use in food or feed, cosmetics, pharmaceuticals including biologicals, or in vivo medical devices;

4) subject to the additional prescribed conditions relating to the BSE status of the cattle population of the exporting country or zone, from category 2 countries or zones/compartments, in:

a) cattle;
b) bone-in fresh meat and meat products;
c) gelatin and collagen prepared from bones;
d) tallow and tallow derivatives, and dicalcium phosphate.”
PROPOSED MODIFICATIONS TO OTHER ASPECTS OF THE
OIE TERRESTRIAL ANIMAL HEALTH CODE
CHAPTER AND APPENDIX ON BOVINE SPONGIFORM ENCEPHALOPATHY

The *ad hoc* Group proposed some modifications to other aspects of the *Terrestrial Code* chapter and appendix on BSE, to better address the risk factors and to harmonise with the latest scientific information on BSE.

The *ad hoc* Group believed that references to an effective feed ban and the need for accurate record keeping should be included in Article 2.3.13.2.

The *ad hoc* Group proposed clearer wording for the paragraph addressing the ‘on-going awareness programme’.

The *ad hoc* Group discussed the BSE risks associated with the *in vivo* use of medical devices and with the use of bovine-derived tissues in industry (e.g. for the manufacture of bone china, soap, etc.) and proposed some changes to the release assessment in Article 2.3.13.2 to address such risks.

The *ad hoc* Group was not aware of new information questioning the safety of ‘protein free tallow’. Therefore, at this stage, the *ad hoc* Group did not believe that it was justified to propose a change to the text on tallow in the BSE chapter of the 2003 *Terrestrial Code*.

The *ad hoc* Group believed that the general approach should be that SRMs be removed from cattle in country or zone categories other than ‘free’ and ‘provisionally free’, as described in Article 2.3.13.19.

The *ad hoc* Group believed that the information available indicated that ‘bovine blood and blood by-products’ would be safe, subject to stunning being carried out in accordance with Article 2.3.13.15.

The *ad hoc* Group believed that, for the practical implementation of Article 2.3.13.3, the OIE should not recommend in c) ii) merely that “the feeding of ruminants with meat-and-bone meal and greaves derived from ruminants has been banned” (although this would be the science-based position) but that the feeding to ruminants of *any* meat-and-bone meal and greaves be banned, unless (in practice) bovine SRM removal and destruction requirements are in place. This was due to concerns over multiples streams of raw materials which may not have been separated adequately in feed manufacturing premises and over the presence of ruminant-derived meat-and-bone meal in the intestines of pigs and poultry at slaughter.

In point 2) b) of Article 2.3.13.4, the *ad hoc* Group recommended that feed cohorts be included in the definition to address cases where several are imported from the same herd and may have been exposed to the same contaminated feed in the exporting country. The *ad hoc* Group believed that the Canadian proposal for testing birth and feed progeny at the time of their death could yield valuable additional data but should not be compulsory.

The *ad hoc* Group noted that, in Article 2.3.13.5, the 24 months age cut off was not consistent with Table 1 in Appendix (30 months), but it believed that 24 months was the usual cut off point for census data; if the ages are aligned at 24 months, the *ad hoc* Group considered that the prevalence cut-off limits for the categories may need to be adjusted.

The *ad hoc* Group also recommended that the Code Commission clarify text in Article 3.8.4.1 regarding sub-populations, and address some apparent inconsistencies between the reference in that article to the need to sample from more than one sub-population and the references in Article 2.3.13.6 to the various sub-populations to be sampled.
Appendix XXIV (contd)

Appendix IV (contd)

The ad hoc Group also recommended that ‘and post-mortem inspection’ be added in Articles 2.3.13.14 and 2.3.13.15 to ensure a general minimum standard of hygiene at plants.

The ad hoc Group also recommended that, in point 5) of Article 2.3.13.16, the cut off age could be increased to 12 months as an effective feed ban was in place. It also recommended that points 2) to 4) of Article 2.3.13.17 be harmonised with the age cut offs in Article 2.3.13.19 by moving all to 12 months.

The ad hoc Group did not consider that there were sufficient new data to recommend a change from its previous recommendation to remove tonsils and intestine from cattle of all ages from moderate and high risk countries or zones, due to the presence of lymphoid tissue throughout the intestines.

The ad hoc Group indicated that progress in the European Union (EU) work on a statistically-valid surveillance programme for BSE would be monitored as a basis for reviewing and updating the appendix.

The ad hoc Group recalled that the purpose of the Appendix was to detect the presence of BSE and that it was therefore correct to:

– sample more than one sub-population;
– recognise that BSE is not unilaterally present in the first sub-population;
– propose a relative distribution of BSE among sub-populations;
– recognise that Table 1 is a highly optimistic interpretation based on the following (as described in Article 3.8.4.2)
  . concentration of all BSE within that sub-population,
  . an adult cattle mortality rate of 1%,
  . prevalence of central nervous system (CNS) signs of 1% within dying adult cattle.

The ad hoc Group proposed a modification to the second paragraph of Article 3.8.4.2 to clarify the use of Table 1, as follows:

Table 1 indicates the minimum number of animals exhibiting one or more clinical signs of BSE that should be subjected to diagnostic tests according to the total cattle population over 30 months of age. The calculations assume a prevalence of one BSE clinically affected animal per one million adult cattle, a mortality rate not exceeding one percent per year in adult cattle, and a prevalence of central nervous system (CNS) signs not exceeding one percent within dying cattle. In countries where these assumptions do not apply, a different sampling rate needs to be used to reach the same conclusions.

The ad hoc Group believed that the above supports the adoption of a revised surveillance approach which:

– recognises the apparent distribution of BSE among the three sub-populations (based on initial EU findings);
– recognises the need for sampling of all sub-populations (except healthy cattle at slaughter unless sufficient samples cannot be derived from other sub-populations);
– recognises, on the basis of the EU CRL model or an equivalent examination of statistics derived from the sub-populations, the appropriate factors to be applied in the determination of the underlying prevalence of BSE in the cattle population.
CHAPTER 2.3.13.  

BOVINE SPONGIFORM ENCEPHALOPATHY

...  

Article 2.3.13.2.

The BSE risk status of the cattle population of a country or zone can only 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 of the Terrestrial Code, identifying all potential factors for BSE occurrence and their historic perspective:

   a) Release assessment

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

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

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

         iii) imported live animals;

         iv) imported animal feed and feed ingredients;

         v) imported products of ruminant origin for in vivo use in cattle;

   b) Exposure assessment

      Exposure assessment consists of assessing the likelihood of exposure of the BSE agent to cattle susceptible animal species, through a consideration of the following:

         i) epidemiological situation concerning all the presence or absence of animal TSE agents in the country or zone and, if present, their prevalence based on the outcomes of surveillance;

         ii) prevalence of infection of animals with TSE agents in the country or zone, including the surveillance and other epidemiological investigations on which the determination is based;

         iii) 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;

         iv) the origin and use of ruminant carcasses (including fallen stock), by-products and slaughterhouse waste, the parameters of the rendering processes and the methods of animal feed manufacture;
iv) implementation and enforcement of feed bans, including measures to prevent cross-contamination of animal feed;

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 Articles 3.8.4.2 and 3.8.4.3 of neurological disease in adult cattle as well as fallen stock;

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

4) a BSE surveillance and monitoring system with emphasis on risks identified in point 1) above, taking into account the guidelines in Appendix 3.8.4.; records of the number and results of investigations should be maintained for at least 7 years;

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

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

Paris, 12-14 January 2005

The OIE ad hoc group on surveillance for bovine spongiform encephalopathy (BSE) met at the OIE Headquarters from 12 to 14 January 2005. The members of the ad hoc group and other participants are listed in Appendix I. The Agenda adopted is given in Appendix II.

Dr B. Vallat, Director General of the OIE, welcomed the participants and thanked them for their willingness to work on improving the guidelines in the OIE Terrestrial Animal Health Code (hereafter referred to as the Terrestrial Code) on conducting surveillance for BSE. He recalled the discussions on BSE at the 2004 General Session regarding the Appendix, and noted the comments from OIE invited experts, Member Countries (the USA, Japan, New Zealand, Chile, the Southern Cone countries of South America, Australia, Norway and the EU) all of which should form the basis of the ad hoc Group’s discussions.

Working on the basis of a three category BSE-risk system, the ad hoc Group first clarified the reasons for conducting surveillance for BSE, which included:

- detecting BSE, to a pre-determined design prevalence, on a country or zone/compartment basis;
- monitoring the evolution of BSE in a country or zone/compartment;
- monitoring the effectiveness of a feed ban and/or other risk mitigation measures, in conjunction with auditing etc;
- supporting a claimed BSE risk status (in conjunction with a risk assessment and the evaluation of other factors);
- gaining or regaining a higher BSE status.

Based on Member Countries’ comments, the ad hoc Group recommended the division of the cattle population into four subpopulations for surveillance purposes, instead of the current three subpopulations. Based on the latest scientific information, the ad hoc Group also recommended a cut off age of 36 months when sampling healthy cattle at slaughter, and a cut off age of 30 month for the other three subpopulations.
Appendix XXIV (contd)

The ad hoc Group recalled that the International Committee had accepted the gradient concept, and the approach used assigns 'point values' to each sample based on the likelihood of detecting infection according to the subpopulation from which it was collected and the age of the animal sampled. This approach takes into account the general principles of surveillance described in Chapter 3.8.7 and the epidemiology of BSE.

The approach taken by the ad hoc Group assigns 'point values' to each sample collected based on the age of the animal sampled, the subpopulation from which it was collected and the likelihood of detecting infected cattle in that subpopulation. For example, a sample from the highest risk animal (a 5-year old cow that is a clinical suspect for BSE) is assigned more points than a sample from a healthy animal of any age because the 5-year old clinical suspect is much more likely to test positive if BSE is present, and therefore provides more valuable information. 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 previous appendix did not take age into account.

Because precise aging of animals that are sampled may not be available, the appendix combines point values into five age categories. The point estimates for each category were determined as an average over each of the ages 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, its clinical and pathological diagnosis and the world BSE experience. While samples may be collected from any combination of subpopulations and ages, the ad hoc Group believed that they should reflect the demographics of the cattle herd of the country, zone or compartment.

The total points for samples may be accumulated over an interval of a maximum of seven consecutive years to achieve the target number of points.

The epidemiological model referred to above as being the basis for the ad hoc Group's recommendations is the BSurvE model developed by the EU. The ad hoc Group could not recommend that this model be used directly by Member Countries, at this stage, because of its intense informational requirements, its complexity, and the fact that few Member Countries have had the opportunity to attend the explanatory seminars. In addition, the ad hoc group understood that the model would soon be subjected to a process of international peer review. Nevertheless, extensive use was made of a model derived from BSurvE by experts from the USA.

In the time available, the ad hoc Group was not able to develop detailed recommendations on maintenance surveillance, and proposed to continue work on this subject after the 2005 General Session. However, it was acknowledged that the level of surveillance needed for maintenance in countries which had demonstrated negligible BSE risk through risk assessment (taking into account results from historical BSE surveillance) should be significantly lower than the level needed to demonstrate freedom from disease or to determine the prevalence of disease. The ad hoc Group recommended that the Code Commission examine this approach. (Dr Poudelet was not present during the discussion on maintenance surveillance.)

The ad hoc Group’s proposed new appendix is at Appendix III.

.../Appendices
MEETING OF THE OIE AD HOC GROUP ON BSE SURVEILLANCE

Paris, 12-14 January 2005

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MEETING OF THE OIE AD HOC GROUP ON BSE SURVEILLANCE

Paris, 12-14 January 2005

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Adopted Agenda

1. Update on research on BSE surveillance
2. Update on discussions at the General Session and the meeting of the Bureau of the Code Commission
3. Proposed Appendix on BSE surveillance
4. Other issues
5. Further work programme
APPENDIX 3.8.4.

SURVEILLANCE AND MONITORING FOR BOVINE SPONGIFORM ENCEPHALOPATHY

Article 3.8.4.1.

Introduction

Depending on the BSE-risk category of a country, zone or compartment, surveillance for bovine spongiform encephalopathy (BSE) may have one or more goals:

1) detecting BSE, to a pre-determined design prevalence, on a country, zone or compartment basis;
2) monitoring the evolution of BSE in a country, zone or compartment;
3) monitoring the effectiveness of a feed ban and/or other risk mitigation measures, in conjunction with auditing etc;
4) supporting a claimed BSE risk status;
5) gaining or regaining a higher BSE status.

The cattle population of a country or zone not known to be free from BSE, will comprise the following sectors in order of decreasing size:

1) cattle not exposed to the infective agent;
2) cattle exposed but not infected;
3) infected cattle, which may lie within one of three stages in the progress of BSE:
   a) the majority will die or be killed before reaching a stage at which BSE is detectable by current methods;
   b) some will progress to a stage at which BSE is detectable by testing before clinical signs appear;
   c) the smallest number will show clinical signs.

A surveillance programme cannot be the sole determinant of the BSE status of a country, zone or compartment, which should be determined in accordance with 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.
Appendix XXIV (contd)

Appendix III (contd)

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:

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

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, emergency slaughter or downer cattle);

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

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

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 surveillance and monitoring of animal health.

Article 3.8.4.2.

Description of cattle subpopulations

A cattle over 30 months of age displaying clinical signs consistent with BSE

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.

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 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.
Appendix XXIV (contd)

Appendix III (contd)

C  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.

D  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.

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 national 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 measures to overcome these difficulties.

Article 3.8.4.3.

Application of the procedure

In order to implement efficiently a national 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. Depending on the country's choice, the application of the following procedure will allow the detection of BSE prevalence of either at least one case per million in the adult cattle population, or 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. This Appendix utilises Tables 1 and 2 to determine a desired surveillance point target and the point values of surveillance samples collected.

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.

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.
Appendix XXIV (contd)

Appendix III (contd)

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

. a prevalence of either at least one case per million or one case per 100,000 of the adult cattle population;

. a confidence level of 95%;

. the pathogenesis, and pathological and clinical expression of BSE

. sensitivity of diagnostic methods used

. relative frequency of expression by age

. relative frequency of expression within each subpopulation

. interval between clinical pathological change and clinical expression;

. demographics of the cattle population, including age distribution;

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

. 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:

. cattle population numbers stratified by age;

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

Article 3.8.4.4.

Selecting the points target

The desired surveillance points target is selected from Table 1, which shows target points for 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 choice of target depends on the degree of certainty with which a country wishes to demonstrate its BSE prevalence.
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>*DP 1/1,000,000</th>
<th>*DP 1/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1,000,000</td>
<td>3,000,000</td>
<td>300,000</td>
</tr>
<tr>
<td>800,000 – 1,000,000</td>
<td>2,400,000</td>
<td>240,000</td>
</tr>
<tr>
<td>600,000 – 800,000</td>
<td>1,800,000</td>
<td>180,000</td>
</tr>
<tr>
<td>400,000 – 600,000</td>
<td>1,200,000</td>
<td>120,000</td>
</tr>
<tr>
<td>200,000 – 400,000</td>
<td>600,000</td>
<td>60,000</td>
</tr>
<tr>
<td>100,000 – 200,000</td>
<td>300,000</td>
<td>30,000</td>
</tr>
<tr>
<td>50,000 – 100,000</td>
<td>150,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

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

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 it was collected and the age of the animal sampled. This approach takes into account the general principles 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. In addition, countries should sample at least three of the four subpopulations.

The total points for samples collected may be accumulated over an period of a maximum of seven consecutive years to achieve the target number of points determined in Table 1.
Appendix XXIV (contd)

Appendix III (contd)

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</th>
<th>fallen stock *</th>
<th>casualty slaughter **</th>
<th>clinical suspect</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>

* Article 3.8.4.2 C
** Article 3.8.4.2 B

Surveillance points remain valid for seven years (the incubation period that encompasses 95% of cases).

Maintenance surveillance (under study)

For countries which have demonstrated that they meet the requirements for 'negligible risk without commodity-specific risk mitigation measures', surveillance should continue at a maintenance level. Maintenance surveillance should focus on clinical suspects, and 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 seven years).

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 SRM removal policies.
REPORT OF THE MEETING OF THE OIE AD HOC GROUP ON AVIAN INFLUENZA

Padova (Italy), 8-10 November 2004

The OIE ad hoc Group on Avian Influenza met at the Istituto Zooprofilattico Sperimentale delle Venezie Laboratorio Virologia in Padova (Italy) from 8 to 10 November 2004.

The members of the OIE 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, Head of the International Trade Department, welcomed the experts and thanked them for their willingness to continue their work on revising the chapter of the OIE Terrestrial Animal Health Code (hereafter referred to as the “Terrestrial Code”) on avian influenza (AI). He noted the following priorities for the work of the ad hoc Group: a definition of AI which took into account the associated notification obligations, compartmentalisation as a practical concept, vaccination, and measures for commodities commonly traded (addressing the different risks presented by low pathogenic AI [LPAI] and highly pathogenic AI [HPAI]). Dr A. Thiermann, President of the OIE Terrestrial Animal Health Standards Commission, provided a summary of discussions on AI since the previous meeting of the ad hoc Group. The OIE International Committee had adopted the new text proposed by the OIE Terrestrial Animal Health Standards Commission (hereafter referred to as the “Code Commission”) ‘under study’ and this provided Delegates with an opportunity to study the articles in advance of their implementation.

The ad hoc Group stressed the need for the concepts of zoning and compartmentalisation to be better implemented by Member Countries as a way of minimising unjustified trade restrictions on countries reporting LPAI and of permitting commercial companies to move material safely. Effective compartmentalisation requires strong collaboration between the private and public sectors, with the biosecurity measures being developed by the former and auditing being carried out by the relevant competent authority. Accurate and timely disease reporting is an essential component of the process in order to gain and maintain credibility. The ad hoc Group agreed that a geographic factor may need to be included in the descriptions of some compartments to address the epidemiology of AI applicable in particular situations. The ad hoc Group strongly encouraged Member Countries to establish compartments and zones compatible with their particular situations, prior to the occurrence of outbreaks.

Update on Avian Influenza virus

Several review articles are referred to in (Appendix III), one discussing the present international situation regarding AI, a second the inactivation of the virus in various commercial egg products, and the third the distribution of virus in avian tissues. These are attached as pdf files.
Appendix XXV (contd)

Dr D. Swayne reported on some research which showed that AI viruses were inactivated during the normal commercial pasteurisation processes except the process carried out to produce powdered egg white (unless the egg raw materials had been pasteurised in its liquid form). There is ongoing research on the inactivation of the AI viruses in meat; data generated from current experimental work may allow extrapolation into the heat inactivation of the AI viruses in meat, however it is clear that several factors contribute to variation including virus titre and the species infected.

The presence or otherwise of LPAI viruses in meat is unresolved. Some research to date had shown that specific LPAI viruses were not present in chicken meat and bone, and viraemia was not a feature of the infection; however, virus had been found in the respiratory and intestinal tracts which indicated that carcass contamination with LPAI viruses was possible during the acute phase of the disease but was highly unlikely 21 days after the onset of clinical signs. This is supported by the fact that there is no record of LPAI viruses being transmitted via meat. There are some indications which suggest that LPAI viruses may be found in the meat of certain species in the acute phase of the disease and ongoing research will clarify some of these issues. In contrast, HPAI viruses did cause viraemia and could be found in meat, bones, blood and the interior of eggs in moderate to high levels, and hence HPAI infected poultry should not be used as a source of human food.

The *ad hoc* Group agreed that the behaviour of LPAI viruses is different in turkeys and ostriches in that these birds may show clinical signs, with virus being found in some organs. Definitive data had not been developed for turkey meat.

The *ad hoc* Group agreed that vaccination within a compartment was useful to reduce the level of virus in flocks during eradication campaigns but that it should be used only as a temporary measure as the virus could become endemic. As a result, vaccinated flocks needed to be under constant surveillance. Immunisation was shown to be able to prevent viraemia and the infection of meat and internal organs with HPAI viruses; however, immunisation will reduce but may not eliminate virus shedding from the respiratory and intestinal tracts.

While HPAI viruses are not generally pathogenic in adult ducks (although the 2002 Hong Kong strain has been reported to cause high rates of mortality), the virus could be found in meat. The *ad hoc* Group noted reports of mortalities in tigers and crows.

The *ad hoc* Group discussed the issues regarding AI in wild birds. In Asia, their contribution was difficult to assess although traditionally, HPAI has not been found in wild birds. Surveillance in wild birds adds knowledge of the ecology of AI viruses. There appears to be no predictive value in a positive finding in wild birds for AI infection in poultry. Isolation of AI viruses from wild birds alone should not compromise the status of a country or zone. Dr M.L. Perdue indicated that a World Health Organization research priority was to identify the influenza gene pool existing in animal reservoirs to better target surveillance towards the linkage between domestic animals and wild birds.

**Review of the Highly Pathogenic Avian Influenza chapter in the 2004 Terrestrial Code**

The *ad hoc* Group revised the proposals made at its November 2003 meeting, taking into account the latest information on the disease, the discussion at the OIE 72nd General Session, the risks presented by avian commodities usually traded and the comments received from Member Countries since December 2003. The revised proposals are at Appendix IV.

The proposal from South Africa that pigeons be included in the definition of ‘poultry’ was not adopted, as while pigeons could act as mechanical carriers, they are rarely infected themselves.

To address the New Zealand comment regarding the presence of NAI viruses in non-poultry species, the *ad hoc* Group redrafted the relevant articles.
Appendix XXV (contd)

The paragraphs on surveillance were deleted from the chapter as this issue will be addressed in an appendix on surveillance for NAI being developed by a separate *ad hoc* Group reporting to the Scientific Commission for Animal Diseases.

The incubation period of 21 days takes into account the maximum period for a flock of 14 days usually cited in the literature.

The *ad hoc* Group considered that the risk of virus transmission was highest for live birds and that surveillance to substantiate the safe export of live poultry from NAI free countries or zones/compartments should take into account the need to minimise the interval between testing and export of the live birds; routine surveillance would be sufficient for trade in product due to the inherently lower risks. Article 2.7.12.8 was modified accordingly.

Due to the systemic spread of HPNAI viruses, the likelihood of virus being present in product was considered to be higher than for LPNAI viruses. For hatching eggs, surface contamination was an issue for LPNAI virus but account needed to be taken of the presence of HPNAI within the egg.

For Article 2.7.12.13, the *ad hoc* Group agreed that surface decontamination was required to reduce virus levels on the surface of eggs; in this regard, LPNAI virus was more stable in faecal material than HPNAI virus.

Article 2.7.12.14 and Article 2.7.12.22 were deleted to address the public health risks associated with consumers being exposed to live virus from zones/compartments not free from HPNAI and the likelihood of diversion of material into pig or bird feed.

In Article 2.7.12.21, the exceptional requirements for turkey meat were removed.

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.../Appendices
MEETING OF THE OIE AD HOC GROUP ON AVIAN INFLUENZA

Padova (Italy), 8-10 November 2004

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OIE Terrestrial Animal Health Standards Commission/January 2005
MEETING OF THE OIE AD HOC GROUP ON AVIAN INFLUENZA

Padova (Italy), 8-10 November 2004

Agenda

1. Introduction
2. Update on scientific and epidemiological information on avian influenza
3. Update on discussions at OIE General Session and other OIE fora
4. Review of the Terrestrial Code chapter
5. Other issues
6. Future work programme
RELEVANT ARTICLES

- Avian influenza: recent developments
  Ilaria Capua and Dennis J. Alexander
  Avian Pathology (August 2004) 33(4), 393-404

- Heat inactivation of avian influenza and Newcastle disease viruses in egg products
  David E. Swayne and Joan R. Beck
  Avian Pathology (October 2004) 33(5), 512-518

- Experimental Study to Determine if Low Pathogenicity and High Pathogenicity Avian Influenza Viruses Can Be Present in Chicken Breast and Thigh Meat following Intranasal Virus Inoculation,
  Avian Diseases 49(1): in press.
CHAPTER 2.7.12.

HIGHLY PATHOGENIC AVIAN INFLUENZA

Article 2.7.12.1.
For the purposes of the Terrestrial Code, the incubation period for highly pathogenic avian influenza (HPAI) shall be 21 days.

Standards for diagnostic tests are described in the Terrestrial Manual.

Article 2.7.12.2.
HPAI-free country

A country may be considered free from HPAI when it has been shown that HPAI has not been present for at least the past 3 years.

This period shall be 6 months after the slaughter of the last affected animal for countries in which a stamping out policy is practised with or without vaccination against HPAI.

Article 2.7.12.3.
HPAI-infected zone

A zone shall be considered as infected with HPAI until:

1) at least 21 days have elapsed after the confirmation of the last case and the completion of a stamping out policy and disinfection procedures, or
2) 6 months have elapsed after the clinical recovery or death of the last affected animal if a stamping out policy was not practised.

Article 2.7.12.4.
Veterinary Administrations of importing countries should require similar arrangements to those provided in Chapter 2.7.13. (Newcastle disease) of the Terrestrial Code for the following commodities:

1) domestic and wild birds;
2) day-old birds;
3) hatching eggs;
4) semen of domestic and wild birds;
5) fresh meat of domestic and wild birds;
6) products of animal origin (from birds) intended for use in animal feeding or for agricultural or industrial use;
7) pathological material and biological products (from birds) which have not been processed to ensure the destruction of the HPAI virus.
Appendix XXV (contd)

Appendix IV (contd)

Article 2.7.12.5.
(under study)

1. For the purposes of this Terrestrial Code, notifiable avian influenza (NAI) is defined as an infection of poultry caused by any influenza A virus of the H5 or H7 subtypes or by any AI virus with an intravenous pathogenicity index (IVPI) greater than 1.2 (or as an alternative at least 75% mortality) as described below. NAI viruses can be divided into highly pathogenic notifiable avian influenza (HPNAI) and low pathogenicity notifiable avian influenza (LPNAI):

a) HPNAI viruses have an IVPI in 6-week-old chickens greater than 1.2 or, as an alternative, cause at least 75% mortality in 4-to 8-week-old chickens infected intravenously. H5 and H7 viruses which do not have an IVPI of greater than 1.2 or cause less than 75% mortality in an intravenous lethality test should be sequenced to determine whether multiple basic amino acids are present at the cleavage site of the haemagglutinin molecule (HA0); if the amino acid motif is similar to that observed for other HPNAI isolates, the isolate being tested should be considered as HPNAI.

b) LPNAI are all influenza A viruses of H5 and H7 subtype that are not HPNAI viruses.

2. Poultry is defined as ‘all birds reared or kept in captivity for the production of meat or eggs for consumption, for the production of other commercial products, for restocking supplies of game, or for breeding these categories of birds’.

3. For the purpose of international trade, this chapter deals not only with the occurrence of clinical signs caused by an NAI virus, but also with the presence of infection with an NAI virus in the absence of clinical signs.

4. The following defines the occurrence of infection with an NAI virus:

a) HPNAI virus has been isolated and identified as such or specific viral RNA specific for HPNAI has been detected in poultry or a product derived from poultry, or

b) LPNAI virus has been isolated and identified as such or specific viral RNA specific for LPNAI has been detected in poultry or a product derived from poultry, or

c) antibodies to H5 or H7 subtype of NAI virus that are not a consequence of vaccination, nor indicative of a non-specific reaction, have been detected in poultry; in such cases, virus isolation should be attempted to establish whether the serological positivity is due to LPNAI or HPNAI. If appropriate samples are not available or if results are negative, a thorough epidemiological investigation including further sampling and testing should be carried out to identify the type or exclude the presence of NAI infection. Have been detected in poultry. In the case of isolated serological positive results, NAI infection may be ruled out on the basis of a thorough epidemiological investigation that does not indicate further evidence of NAI infection.
For the purposes of this Terrestrial Code, ‘NAI-free establishment’ means an establishment in which the birds on the establishment have shown there has been no clinical sign, no evidence of NAI infection for the past 21 days based on surveillance in accordance with Appendix XXX, and the establishment is situated within a country, zone/compartment free from HPNAI, but not situated within 3 kilometres of any establishment infected with HPNAI or and within one kilometre of any establishment infected with LPNAI within the past 21 days.

For the purposes of this Terrestrial Code, the incubation period for NAI shall be 21 days.

Standards for diagnostic tests are described in the Terrestrial Manual.

Any vaccine used should comply with the standards described in the Terrestrial Manual.

Article 2.7.12.6.

(under study)

The NAI status of a country or a zone/compartment can be determined on the basis of the following criteria:

1) the outcome of a risk assessment identifying all potential factors for NAI occurrence and their historic perspective;

2) NAI is notifiable in the whole country, an on-going NAI awareness programme is in place, and all notified suspect occurrences of NAI are subjected to field and, where applicable, laboratory investigations;

3) appropriate surveillance is in place to demonstrate the presence of infection in the absence of clinical signs in poultry, and the risk posed by birds other than poultry; this may be achieved through an NAI surveillance programme in accordance with Appendix XXX, this Chapter and Chapter 1.3.

Article 2.7.12.7.

(under study)

NAI free country or zone/compartment

A country or zone/compartment may be considered free from NAI when it has been shown that NAI infection has not been present in the country or zone/compartment for the past 12 months based on surveillance in accordance with Appendix XXX. The surveillance may need to be adapted to parts of the country or existing zones/ compartments depending on historical or geographical factors, industry structure, population data, or proximity to recent outbreaks.

If infected poultry are slaughtered or a stamping out policy is carried out, this period shall be 3 months after the slaughter of the last infected poultry and disinfection of all affected establishments, providing that surveillance in accordance with Appendix XXX has been carried out during that 3-month period. In the case of HPNAI infections, a stamping out policy should be applied; in LPNAI infections, poultry may be slaughtered for human consumption subject to specified conditions.

The NAI status should be determined by an ongoing surveillance and monitoring programme (carried out in conformity with the provisions of Chapter 1.3.6) based on virus isolation, virus detection or serology. The programme may need to be adapted to target parts of the country or zone/compartment at a higher risk due to historical or geographical factors, population data, or proximity to recent outbreaks.

OIE Terrestrial Animal Health Standards Commission/January 2005
Appendix XXV (contd)

Appendix IV (contd)

Freedom of infection in a country or zone can be demonstrated with random and/or targeted serological surveillance at a minimum interval of 6 months designed to provide at least a 95% level of confidence of detecting a prevalence of NAI infected enterprises of 1%. Freedom of infection in a compartment can be demonstrated with an ongoing surveillance programme designed to provide at least a 95% level of confidence of detecting a prevalence of NAI infection of 10%. Each establishment should be sampled to provide a 95% level of confidence of detecting a prevalence of NAI of 25%. For commercial ducks the surveillance programme should be based on virus isolation or detection in the absence of validated serological methods.

In the case of a country or zone in which vaccination is being conducted, the ongoing surveillance and monitoring programme (carried out in conformity with the provisions of Chapter 1.3.6.) based on virus isolation, virus detection or serology should be carried out on all vaccinated flocks at a minimum interval of 6 months. In each vaccinated flock, the number of birds to be tested should provide at least a 95% level of confidence of detecting a prevalence of NAI infection of 25%. In the case of a compartment in which vaccination is being conducted, the ongoing surveillance and monitoring programme (carried out in conformity with the provisions of Chapter 1.3.6.) based on virus isolation, virus detection or serology should be carried out to provide at least a 95% level of confidence of detecting a prevalence of NAI infection of 10%. If a serological test is used, it should be able to distinguish vaccinated birds from infected birds. Additional security should be provided by the use of identifiable sentinel birds which can be clinically inspected or tested to help identify field infections in vaccinated flocks.

Article 2.7.12.7.bis

HPNAI free country or zone/compartment

A country or zone/compartment may be considered free from HPNAI when, based on surveillance in accordance with Appendix XXX, it does not meet the criteria for freedom from NAI and, based on subsequent surveillance in accordance with Appendix XXX, no NAI virus detected has been identified as HPNAI virus. The surveillance may need to be adapted to parts of the country or existing zones/compartment/s depending on historical or geographical factors, industry structure, population data, or proximity to recent outbreaks.

If infected poultry are slaughtered or a stamping out policy is carried out, this period shall be 3 months after disinfection of all affected establishments, providing that surveillance in accordance with Appendix XXX has been carried out during that 3-month period. In the case of HPNAI infections, a stamping out policy should be applied.

Article 2.7.12.8.

(under study)

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for live poultry (other than day-old poultry)

the presentation of an international veterinary certificate attesting that:

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

2) the poultry were kept in an NAI free country or zone/compartment since they were hatched or for the past 21 days;
2bis. The required surveillance has been carried out on the establishment within the past 21 days:

3) the poultry either have not been vaccinated against NAI, or have been vaccinated and the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.9.

Regardless of the NAI status of the country or zone/compartment of origin, Veterinary Administrations should require:

for live birds other than poultry

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

1) showed no clinical sign of infection with a virus which would be considered NAI in poultry on the day of shipment;

2) were kept in isolation approved by the Veterinary Services since they were hatched or for the 21 days prior to shipment and showed no clinical sign of infection with a virus which would be considered NAI in poultry during the isolation period;

3) were subjected to a diagnostic test 7 to 14 days prior to shipment to demonstrate freedom from infection with a virus which would be considered NAI in poultry.

Article 2.7.12.10.

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for day-old live poultry

the presentation of an international veterinary certificate attesting that:

1) the poultry were kept in an NAI free country or zone/compartment since they were hatched;

2) the poultry were derived from parent flocks which had been kept in an NAI free country or zone/compartment for 21 days prior to and at the time of the collection of the eggs;

3) and/or the parent flock had/had not been vaccinated and, if vaccinated, the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.10.bis

When importing from an HPNAI free country or zone/compartment, Veterinary Administrations should require:

for day-old live poultry

the presentation of an international veterinary certificate attesting that:

1) the poultry were kept in an HPNAI free country or zone/compartment since they were hatched;

2) the poultry were derived from parent flocks which had been kept in an NAI free establishment for 21 days prior to and at the time of the collection of the eggs;
Appendix XXV (contd)

Appendix IV (contd)

3) and/or the parent flock had/had not been vaccinated and, if vaccinated, the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.11.
(under study)

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for hatching eggs

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

1) came from an NAI free country or zone/compartment;

2) were derived from parent flocks which had been kept in an NAI free country or zone/compartment for 21 days prior to and at the time of the collection of the eggs;

3) were derived from parent flocks which had not been vaccinated against NAI, or which had been vaccinated against NAI and the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.11.bis

When importing from a HPNAI free country or zone/compartment, Veterinary Administrations should require:

for hatching eggs

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

1) came from an HPNAI free country or zone/compartment;

2) were derived from parent flocks which had been kept in an NAI free establishment for 21 days prior to and at the time of the collection of the eggs;

3) were derived from parent flocks which had not been vaccinated against NAI, or which had been vaccinated against NAI and the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.12.
(under study)

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for eggs for consumption

the presentation of an international veterinary certificate attesting that the eggs come from an NAI free country or zone/compartment.
When importing from a HPNAI free country or zone/compartment, Veterinary Administrations should require:

for eggs for consumption

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

1) come from a country or zone/compartment free from HPNAI infection;
2) come from an NAI free establishment; or
3) have had their surfaces decontaminated, and are transported in new disposable packing material.

When importing from a country or zone/compartment not known to be free from HPNAI, Veterinary Administrations should require:

for eggs for consumption

the presentation of an international veterinary certificate attesting that the entire consignment of eggs comes from birds:

1) which have been kept in an NAI free establishment;
2) which have been tested serologically or by virus detection to give a 95% probability of detecting a 5% prevalence of NAI infection, every 21 days, with negative results.

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for egg products

the presentation of an international veterinary certificate attesting that the egg products come from, and were processed in, an NAI free country or zone/compartment.

When importing from a country or zone/compartment free from HPNAI infection, Veterinary Administrations should require:

for egg products

the presentation of an international veterinary certificate attesting that the egg products come from, and were processed in a country or zone/compartment free from HPNAI infection.
Appendix XXV (contd)

Appendix IV (contd)

Article 2.7.12.17. (under study)

When importing from a country or zone/compartment not known to be free from HPNAI, Veterinary Administrations should require:

for egg products

the presentation of an international veterinary certificate attesting that the egg products:

1) are derived from eggs for consumption which meet the requirements of Articles 2.7.12.11., 2.7.12.11.bis, 2.7.12.12., or 2.7.12.13. or 2.7.12.14.; or

2) were processed to ensure the destruction of NAI virus, and the necessary precautions were taken after processing to avoid contact of the commodity with any source of an NAI virus.

Article 2.7.12.18. (under study)

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for poultry semen

the presentation of an international veterinary certificate attesting that the donor poultry:

1) showed no clinical sign of NAI on the day of semen collection;

2) were kept in an NAI free country or zone/compartment for the 21 days prior to and at the time of semen collection.

Article 2.7.12.18.bis

When importing from a HPNAI free country or zone/compartment, Veterinary Administrations should require:

for poultry semen

the presentation of an international veterinary certificate attesting that the donor poultry:

1) came from an HPNAI free country or zone/compartment;

2) were kept in an NAI free establishment for 21 days prior to and at the time of semen collection;

3) had not been vaccinated against NAI, or which had been vaccinated against NAI and the date of vaccination and the details of the vaccine are stated.

Article 2.7.12.19. (under study)

Regardless of the NAI status of the country or zone/compartment of origin, Veterinary Administrations should require:

for semen of birds other than poultry

the presentation of an international veterinary certificate attesting that the donor birds:
1) were kept in isolation approved by the Veterinary Services for the 21 days prior to semen collection;
2) showed no clinical sign of infection with a virus which would be considered NAI in poultry during the isolation period;
3) were tested between 7 and 14 days prior to semen collection and shown to be free of NAI.

Article 2.7.12.20.

When importing from an NAI free country or zone/compartment, Veterinary Administrations should require:

for fresh meat and meat products of poultry and poultry viscera,

the presentation of an international veterinary certificate attesting that the entire consignment of fresh meat comes from birds:

1) which have been kept in an NAI free country or zone/compartment since they were hatched or for the past 21 days;
2) which have been slaughtered in an approved abattoir and have been subjected to ante-mortem and post-mortem inspections for NAI with favourable results.

Article 2.7.12.21.

When importing from a HPNAI free country or zone/compartment, Veterinary Administrations should require:

for fresh meat and meat products of poultry (other than turkey)

the presentation of an international veterinary certificate attesting that the entire consignment of fresh meat comes from birds:

1) which were derived from flocks which came from an NAI free establishment; or
2) which have been kept in an establishment since they were hatched or for the past 21 days and in which there has been no clinical sign evidence of NAI in the past 21 days; and
2bis were derived from flocks which have been tested for the presence of NAI viruses, using virus detection or isolation tests, with negative results, 7-10 days prior to the slaughter of the birds;
3) which have been slaughtered in an approved abattoir and have been subjected to ante-mortem and post-mortem inspections for NAI with favourable results.

Article 2.7.12.22.

When importing from a country or zone/compartment not known to be free from HPNAI, Veterinary Administrations should require:

for fresh meat and meat products of poultry and poultry viscera (other than turkey)

the presentation of an international veterinary certificate attesting that the entire consignment of meat or meat product comes from birds:
1) which have been kept in a free establishment;
2) which have been tested to give a 95% probability of detecting a 5% prevalence of NAI infection not more than 7 days prior to slaughter using virus detection or virus isolation tests, and serological tests, with negative results in all cases.
Appendix XXV (contd)

Appendix IV (contd)

3) which have been slaughtered in an approved abattoir which has not processed poultry infected with NAI since last cleaned and disinfected, and have been subjected to ante mortem and post mortem inspections for NAI with favourable results.

Article 2.7.12.23. (under study)

When importing from a country or zone/compartment not known to be free from NAI, Veterinary Administrations should require:

for fresh meat and viscera of turkey

the presentation of an international veterinary certificate attesting that the entire consignment of meat comes from birds:

1) which have been kept in a free establishment;
2) which have been tested to give a 95% probability of detecting a 5% prevalence of NAI infection not more than 7 days prior to slaughter using virus detection or virus isolation tests, and serological tests, with negative results in all cases;
3) which have been slaughtered in an approved abattoir which has not processed poultry infected with NAI since last cleaned and disinfected, and have been subjected to ante mortem and post mortem inspections for NAI with favourable results.

Article 2.7.12.24. (under study)

Regardless of the NAI status of the

When importing from a country or zone/compartment of origin not known to be free from NAI, Veterinary Administrations should require:

for meat products and processed viscera of poultry

the presentation of an international veterinary certificate attesting that:

1) the commodity is derived from fresh meat and/or meat products and/or viscera which meet the requirements of Articles 2.7.12.20, or 2.7.12.21, or 2.7.12.22, or
2) the commodity has been processed to ensure the destruction of the NAI virus;
3) the necessary precautions were taken after processing to avoid contact of the commodity with any source of NAI virus.

Article 2.7.12.25. (under study)

Regardless of the NAI status of the

When importing from an NAI free country or zone/compartment of origin, Veterinary Administrations should require:

for products of poultry origin intended for use in animal feeding, or for agricultural or industrial use

the presentation of an international veterinary certificate attesting that:

1) these products come from birds which have been kept in an NAI free country or zone/compartment since they were hatched or for the past 21 days; or
2) these products have been processed to ensure the destruction of the NAI virus;
3) the necessary precautions were taken to avoid contact of the products with any source of NAI virus,
Appendix XXV (contd)

Appendix IV (contd)

Article 2.7.12.26. (under study)

When importing from a country or zone/compartment not considered free from NAI, Veterinary Administrations should require:

for meal containing meat and/or feathers and/or bones (from poultry)

the presentation of an international veterinary certificate attesting that:

1) the commodity has been processed to ensure the destruction of the NAI virus;

2) the necessary precautions were taken after processing to avoid contact of the commodity with any source of NAI virus.

Article 2.7.12.27. (under study)

Regardless of the NAI status of the country or zone/compartment of origin, Veterinary Administrations should require:

for feathers and down (from poultry)

the presentation of an international veterinary certificate attesting that:

1) the entire consignment of feathers or down these products come from birds which have been kept in an NAI free country or zone/compartment since they were hatched or for the past 21 days; or

2) these products have been processed to ensure the destruction of the NAI virus;

3) the necessary precautions were taken to avoid contact of the products with any source of NAI virus.

Article 2.7.12.28. (under study)

When importing from a country or zone/compartment not known to be free from NAI, Veterinary Administrations should require:

for feathers and down (from poultry)

the presentation of an international veterinary certificate attesting that:

1) the commodity has been processed to ensure the destruction of the NAI virus;

2) the necessary precautions were taken after processing to avoid contact of the commodity with any source of NAI virus.

Article 2.7.12.29. (under study)

Regardless of the NAI status of the country or zone/compartment of origin, Veterinary Administrations should require for the importation of:
meat or other products from birds other than poultry

the presentation of an international veterinary certificate attesting that:

1) the commodity has been processed to ensure the destruction of the NAI virus;

2) the necessary precautions were taken after processing to avoid contact of the commodity with any source of an NAI virus.
The OIE Working Group on Animal Welfare held its third meeting at the OIE Headquarters on 7-9 December 2004.

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.

Dr B. Vallat, Director General of the OIE, welcomed the members of the Working Group and thanked them for agreeing to continue their work on this important mandate of the OIE. He also welcomed Mr R. Cotta (from the International Federation of Agricultural Producers [IFAP]) as an observer to the Working Group.

1. Priorities

Dr Vallat noted that Member Countries were awaiting the new standards to be proposed for adoption in May but he acknowledged the difficulty of addressing the needs of all Member Countries. He discussed with the Working Group the likely priorities for the upcoming year to balance the demands of Member Countries and OIE resources. He considered that the housing of animals needed to be addressed but that the Working Group needed to decide on an approach (either generic or specific) which would allow progress to be made. The welfare of laboratory animals already had a rich literature which could be drawn upon and the subject is important to the work of the c.160 OIE Reference Laboratories. He noted also that ad hoc groups on the welfare of aquatic animals would be meeting in 2005.

The Working Group discussed priorities for new standards, including on zoo animals, wildlife, poultry, companion animals (including urban animal control especially in developing countries) and laboratory animals. The Working Group recalled that it had made animal housing a priority for standards development, and discussed whether work should commence with generic guidelines or species specific guidelines. It was noted that the generic approach had been successful to date and was considered the preferred approach as a starting point to gaining broad agreement among Member Countries.

It also acknowledged that there may be an expectation from Member Countries that the four priority issues already commenced be further developed.

2. Proposed standards on prioritised issues

The Working Group then examined the guidelines proposed by each of the four ad hoc groups which had met to date. For information, the reports of the four ad hoc groups are at:

- Slaughter for human consumption (Appendix D)
- Land transport of animals (Appendix E)
- Transport of animals by sea (Appendix F)
- Humane killing of animals for disease control purposes (Appendix G).
The Working Group proposed some modifications to the recommendations of the four _ad hoc_ groups, the significant ones of which were made in consultation with the members of the _ad hoc_ groups. The Working Group congratulated the experts on their work to date and was of the strong view that the recommendations (as modified by the Working Group) be put to the OIE International Committee for adoption at the 73rd General Session.

A list of proposed definitions (both generic and chapter specific) is at Appendix C, and the modified recommendations are at Appendix I for consideration by the Terrestrial Animal Health Standards Commission at its meeting in January 2005.

2.1. **Slaughter for human consumption**

The Working Group noted that the text below taken from the report of the first meeting of the _ad hoc_ group provided the context in which that _ad hoc_ group addressed the religious aspects of its guidelines, and proposed that it be included in the guidelines:

“The _ad hoc_ group approached its work by assessing the animal welfare concerns associated with every procedure during the pre-slaughter and slaughter processes, reviewing them on the basis of the available scientific data, independent of any religious or cultural context. Once those animal welfare concerns were qualified, the _ad hoc_ group considered the specific issues associated with slaughter without stunning, such as the necessary restraint, the pain likely to be associated with the cut (for which it noted that there were no definitive data) and distress prior to unconsciousness (using available data to estimate the length of this period).

The _ad hoc_ group acknowledged the significance of religious requirements, cultural and ethnic factors associated with some forms of slaughter. The _ad hoc_ group felt it important that these should not be treated as exempt from these guidelines, which are intended to provide a framework within which variations to certain steps in the process may be practised to improve animal welfare.

The _ad hoc_ group believed that methods of lairaging, and the moving and restraining of animals prior to and during religious slaughter are separate issues from religious slaughter requirements; with regard to restraint, there is a wide variation in methods, ranging from those with acceptable animal welfare to some which are totally unacceptable under any slaughter method. The _ad hoc_ group also contended that some distressful and painful methods applied to conscious animals such as shackling and hoisting by the hind leg(s) or dragging by the leg(s) are not part of any religious requirements, are unacceptable in all circumstances, and should be phased out.”

The Working Group made several recommendations to the _ad hoc_ group regarding definitions and illustrations and requested that the unloading of non-ambulatory animals be addressed in the future.

2.2. **Land transport of animals**

To reduce the risks to animal health and welfare through the movement of animals, the Working Group considered that it was desirable to minimise both the frequency and length of animal journeys. Ideally, animals should always be transported for as short a distance as possible and, if to be killed, be humanely killed as close as possible to the point of production, consistent with the _Terrestrial and Aquatic Codes_ guidelines for the slaughter of animals for human consumption or the guidelines for the humane killing of animals for disease control purposes. In this regard, the Working Group proposed some additional text for the guidelines for land and sea transport.

The Working Group noted the benefits of identifying a person with overall responsibility for the welfare of the animals. The Working Group also noted that the _ad hoc_ Group would be addressing species-specific issues in future.
2.3. **Transport of animals by sea**

The Working Group made several recommendations to the *ad hoc* Group regarding the accreditation of those responsible for the welfare of the animals.

2.4. **Humane killing of animals for disease control purposes**

The Working Group made several recommendations to the *ad hoc* Group regarding definitions, illustrations and several of the procedures described.

The Working Group noted that killing for disease control purposes could also apply to depopulation of animals for other purposes.

3. **Other business**

3.1. **International Declaration on Animal Welfare**

Dr D. Wilkins provided background information on the initiative of the World Society for the Protection of Animals (WSPA) for an International Declaration on Animal Welfare. He indicated the widespread support the initiative had received from animal welfare NGOs and that WSPA was planning a second Ministerial Conference in 2005 to carry on the work of the 2003 Manila Conference.

The Working Group considered favourably a WSPA request that the OIE support the principles underpinning the Declaration and encourage OIE Member Countries to be involved in the development of United Nations Convention. The Working Group considered that the OIE Director-General and the Terrestrial Animal Health Standards Commission were in the best position to determine a preferred approach for the OIE to take on this issue.

3.2. **International Food and Agriculture Trade Policy Council**

Dr Wilkins reported on his presentation and the subsequent discussion at the recent International Food and Agriculture Trade Policy Council (IPC) meeting in Brazil.

3.3. **Animal welfare in the veterinary curriculum**

Dr Wilkins reported on the work of WSPA with universities in many countries on introducing animal welfare into the veterinary curriculum through a ‘concepts in animal welfare’ syllabus. He noted the difficulty in making progress in some regions (e.g. in Africa) due to their other priorities. Dr Rahman reported on relevant activities in India including those of the Commonwealth Veterinary Association; he indicated that the OIE’s work was central to these activities. Professor Fraser advocated the provision of scholarships for post-graduate studies for veterinarians from developing countries.

Members agreed on the importance of the veterinary profession in promoting this work. Dr Wilkins advised that WSPA was keen to work with the OIE on this initiative, for example through the International Association of Veterinary Schools and at the OIE General Session.

The Working Group agreed that the issue should remain on the work programme and that it should be strongly promoted by the OIE.

On a related issue, Dr Gavinelli reported that the OIE’s work on animal welfare was now being referenced in various trade agreements being negotiated by the European Communities.

3.4. **OIE Global Animal Welfare Conference**

The Working Group discussed the distribution of the Conference CD-ROM.
3.5. OIE Animal Welfare Website
The Working Group discussed the new OIE animal welfare Website and noted the need to reference aquatic animals.

3.6. Working Group Membership
The OIE Director General discussed with the Working Group the need to include expertise from the private sector. He welcomed the observer from the IFAP and noted the pending discussions on including expertise from the processing sector on the Working Group.

The Working Group agreed that it needed to have a balanced membership to bring an international perspective to its meetings, to help determine priorities and enhance communications. It believed that the ad hoc group system provided the ideal mechanism for utilising specific technical expertise and for ensuring the scientific basis of OIE standards.

3.7. Communications and consultation
The Working Group noted the presentations on animal welfare made by members of the Working Group and officers of the OIE Central Bureau at various conferences and seminars.

3.8. International relationships
The Director General advised the Working Group of the planned 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.

Dr Bayvel reported that the International Egg Commission (IEC) had discussed with him its standards which it believed should be taken into account by the OIE.

Dr Wilson reported on discussions with the International Dairy Federation (IDF) on its involvement in the OIE’s work.

Dr Bayvel reported on his discussions with the American Association for Laboratory Animal Science (AALAS) on laboratory animal welfare.

Professor Fraser reported on his work at the FAO in developing a paper on animal welfare assurance programmes in food production, and options for developing and developed countries.

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

4. Strategic Planning
The Working Group discussed priorities for 2005/2006. The outcomes for 2004 and the agreed work programme are at Appendix H.

The Working Group agreed that its annual meetings would be enhanced by opportunistic meetings of members and by the outcomes of teleconferences between the Chair and Central Bureau staff being circulated to all members.

It was also agreed to formally review the performance of the working group using a standard evaluation instrument.

5. Next meeting
The Working Group agreed that its next meeting would be planned for December 2005, to allow it to review the work of animal welfare ad hoc groups meeting during the year and to draft the workplan for 2006.

Appendix XXVI (contd)
## THIRD MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE

Paris, 7-9 December 2004

### List of participants

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THIRD MEETING OF THE OIE WORKING GROUP ON ANIMAL WELFARE

Paris, 7-9 December 2004

Adopted agenda

1. Introduction/Formalities
2. Reports from OIE Animal Welfare ad hoc Groups
3. Strategic Planning
4. Other Business
   4.1. International Declaration for Animal Welfare
   4.2. Animal welfare in the veterinary curriculum
   4.3. CDROM OIE Global Conference on Animal Welfare
   4.4. OIE Website on Animal Welfare
   4.5. Communication and consultation
   4.7. Link with FAO animal welfare activities
   4.8. International relationships
      4.8.1. International Air Transport Association (IATA)/Animal Transport Association (AATA)/World Association of Zoos and Aquaria (WAZA)
      4.8.2. International Egg Commission (IEC)
      4.8.3. International Food and Agriculture Trade Policy Council (IPC). Task Force
      4.8.4. Laboratory animal science
   4.9. 2004 Work Plan Review
   4.10. 2005 Work Plan Preparation: ad hoc Groups
   4.11. Other
      4.11.1. Animal welfare assurance programmes
      4.11.2. New OIE policy on document circulation
5. Next meeting
CHAPTER 1.1.1.

GENERAL DEFINITIONS

**Animal handler**
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.

**Container**
A non-self-propelled receptacle or other rigid structure for holding animals during a *journey* by one or several means of transport.

**Death**
Irreversible loss of brain activity demonstrable by loss of brain stem reflexes.

**Journey**
An animal transport journey commences when the first animal is loaded onto a *vehicle/vessel* or into a *container* and ends when the last animal is unloaded, and includes any stationary resting / holding periods of less than 48 hours. The same animals do not commence a new journey until after a period of over 48 hours for rest and recuperation, with adequate feed and water.

**Killing**
Any procedure which causes the death of an animal.

**Lairage**
Pens, yards and other holding areas used for accommodating animals in order to give them necessary attention (including water, feed, rest) before they are moved on or used for specific purposes including slaughter.

**Loading/Unloading**
*Loading*: the procedure of moving animals onto a *vehicle/vessel* or into a *container* for transport purposes; *unloading*: the procedure of moving animals off a *vehicle/vessel* or out of a *container*.

**Post-journey period**
The period between *unloading* and either recovery from the effects of the *journey* or slaughter (if this occurs before recovery).

**Pre-journey period**
The period during which animals are identified, and often assembled for the purpose of loading them.

**Resting point**
A place where the *journey* is interrupted to rest, feed or water the animals; the animals may remain in the *vehicle/vessel* or *container*, or be unloaded.

**Restraint**
The application to an animal of any procedure designed to restrict its movements.
Appendix XXVI (contd)

Appendix C (contd)

Slaughter
Any procedure which causes the death of an animal by bleeding.

Space allowance
The measure of the floor area and height on a vehicle/vessel or container allocated per individual or body weight of animals transported.

Stocking density
The number or body weight of animals per unit area on a vehicle/vessel or container.

Stunning
Any mechanical, electrical, chemical or other procedure which causes immediate loss of consciousness; when used before slaughter, the loss of consciousness lasts until death from the slaughter process; in the absence of slaughter, the procedure would allow the animal to recover consciousness.

Transport
The procedures associated with the carrying of animals for commercial purposes from one location to another by land (road and rail), sea or air.

Transporter
The person licensed by the Competent Authority to transport animals.

Travel
The movement of a vehicle/vessel or container carrying animals from one location to another.

Vehicle/vessel
Any train, truck, or ship that is used for carrying animal(s).

Slaughterhouse (to be harmonised by the Code Commission with the existing definition for approved abattoir)
Premises, including facilities for moving or lairaging animals, used for the slaughter of animals for human consumption or animal feeding, and approved by the Veterinary Services or other Competent Authority.
CHAPTER SPECIFIC DEFINITIONS

1. Definitions specific to slaughter for human consumption

Halal slaughter
Slaughter of a religiously acceptable species, by a Muslim slaughterman, with or without prior stunning, by cutting the neck in order to sever the jugular veins and carotid arteries, oesophagus and trachea, without severing the spinal cord.

Kosher slaughter
Slaughter of a religiously acceptable species, by a trained and accredited Jewish slaughterman, by cutting the neck, using a specifically approved blade, in order to sever the oesophagus, trachea, jugular veins and carotid arteries without severing the spinal column.

Jhatka slaughter
Slaughter of an acceptable species by decapitation, according to the Sikh religion.

2. Definitions specific to land transport of animals

Animal
For the purposes of this chapter, ‘animal’ refers to the following live domesticated animals: cattle, buffalo, camels, sheep, goats, pigs, poultry and equines. These guidelines 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.

3. Definition specific to transport of animals by sea

Animal
For the purposes of this chapter, ‘animal’ refers to the following live domesticated animals: cattle, buffalo, deer, camels, sheep, goats, pigs and equines. These guidelines may also be applicable to other domesticated animals.

4. Definitions specific to humane killing of animals for disease control purposes

RMS
Root mean square – a means of calibrating the amount of alternating current to a direct current unit.
REPORT OF THE SECOND MEETING OF THE OIE AD HOC GROUP ON THE SLAUGHTER OF ANIMALS FOR HUMAN CONSUMPTION

Paris 20–22 July 2004

The OIE ad hoc Group on the Slaughter of Animals for Human Consumption held its second meeting at the OIE Headquarters from 20–22 July 2004.

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

On behalf of the Director General of the OIE, Dr A. Thiermann welcomed the members and thanked them for continuing their work on this very important topic within the OIE’s programme on animal welfare.

The ad hoc Group took into account comments from New Zealand, the USA, Canada and the International Coalition for Farm Animal Welfare (ICFAW) in revising the draft guidelines on the slaughter of animals for human consumption developed at the first meeting. Some definitions were also revised.

The revised guidelines are at Appendix IV.

.../Appendices
SECOND MEETING OF THE OIE AD HOC GROUP ON THE
SLAUGHTER OF ANIMALS FOR HUMAN CONSUMPTION

Paris, 20-22 July 2004

List of participants

<table>
<thead>
<tr>
<th>MEMBERS OF THE AD HOC GROUP</th>
<th>MEMBERS OF THE AD HOC GROUP</th>
<th>OTHER PARTICIPANTS</th>
<th>OTHER PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prof. Arnon Shimshony (Chair)</strong>&lt;br&gt;P.O. Box 13327&lt;br&gt;Tel Aviv 61132&lt;br&gt;ISRAEL&lt;br&gt;Tel: (972) 3 64 81 515&lt;br&gt;Fax: (972) 3 64 45 518&lt;br&gt;E-mail: <a href="mailto:ashimsh@agri.huji.ac.il">ashimsh@agri.huji.ac.il</a></td>
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<td><strong>OIE HEADQUARTERS</strong></td>
</tr>
</tbody>
</table>
SECOND MEETING OF THE OIE AD HOC GROUP ON THE SLAUGHTER OF ANIMALS FOR HUMAN CONSUMPTION

Paris, 20-22 July 2004

Agenda adopted

1. Introduction
   1.1. Discussion on the report of the recent meeting of the OIE Working Group on Animal Welfare
   1.2. Discussion on the outcomes of the OIE Global Conference on Animal Welfare
   1.3. Discussion on the OIE 72nd General Session (Animal Welfare)
   1.4. Comments from Member Countries (Canada, USA, New Zealand)
   1.5. Comments from ICFAW

2. Development of specific guiding principles and standards

3. Work programme

4. Conclusions
INTRODUCTION TO OIE GUIDELINES FOR THE WELFARE OF ANIMALS

Article 4

Definitions

For the purposes of this *Terrestrial Code*, the following definitions apply:

_Slaughterhouse_: premises, including facilities for moving or lairaging animals, used for the slaughter of _animals_ for human consumption or animal feeding, and approved by the *Veterinary Services* or other competent authority.

_Lairage_: pens, yards and other holding areas used for accommodating animals in order to give them necessary attention (including water, fodder, rest) before they are moved on or used for specific purposes including slaughter.

_Restraint_: the application to an animal of any procedure designed to restrict its movements in order to facilitate effective management.

_Stunning_: any mechanical, electrical, chemical or other procedure which causes immediate loss of consciousness which lasts until death.

_Killing_: any procedure which causes the death of an animal.

_Slaughter_: any procedure which causes the death of an animal by bleeding.

_Death_: irreversible loss of brain activity as demonstrated by loss of brain stem reflexes.

_Halal slaughter_: slaughter of a religiously acceptable species, by a Muslim slaughterman, with or without prior stunning, by cutting the neck in order to sever the jugular veins and carotid arteries, oesophagus and trachea, without severing the spinal cord.

_Kosher slaughter_: slaughter, of a religiously acceptable species, by a trained and accredited Jewish slaughterman, by cutting the neck, using a specifically approved blade, in order to sever the oesophagus, trachea, jugular veins and carotid arteries without severing the spinal column.

_Jhatka slaughter_: slaughter of an acceptable species by decapitation according to the Sikh religion.
GUIDELINES FOR THE SLAUGHTER OF ANIMALS FOR HUMAN CONSUMPTION

Article 1

General principles for slaughter

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 those domestic animals commonly slaughtered in slaughterhouses, that is: cattle, buffalo, sheep, goats, deer, horses, pigs, ratites and poultry. Other animals, wherever they have been reared, 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.

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 in this document and their application within the national context.

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.

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.

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

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

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

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

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

Handler movement pattern to move cattle forward

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

Domestic animals have wide-angle vision but only have limited forward binocular vision and poor perception of depth. This means that they can detect objects and movements beside and behind them, but can only judge distances directly ahead.
Although all domestic animals have a highly sensitive sense of smell, they react in different ways to the smells of slaughterhouses. Smells which cause fear or other negative responses should be taken into consideration when managing animals.

Domestic animals can hear over a greater range of frequencies than humans and are more sensitive to higher frequencies. They tend to be alarmed by constant loud noise and by sudden noises, which may cause them to panic.

**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:

- Reflections on shiny metal or wet floors - move a lamp or change lighting.
- 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.
- Animals seeing moving people or equipment up ahead - install solid sides on chutes and races or install shields.
- Chains or other loose objects hanging in chutes or on fences - remove them.
- 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.
- Sounds of air hissing from pneumatic equipment - install silencers or use hydraulic equipment.
- Clanging and banging of metal objects - install rubber stops on gates and other devices to reduce metal to metal contact.
- Air currents from fans or air curtains blowing into the face of animals - redirect or reposition equipment.

**Article 2**

**Moving and handling animals**

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

- The conditions of the animals should be assessed upon their arrival for any animal welfare problems.
- Injured or sick animals, requiring immediate slaughter, should be killed humanely at the site where they are found.
- The use of force on animals that have little or no room to move should not occur.
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 the animals. 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.

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.

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.

Shouting or yelling at animals to encourage them to move should not occur as such actions may make the animals agitated, leading to crowding or falling.

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.

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.

Conscious animals should not be thrown or dragged.

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.

Animal handlers should not force an animal to walk over the top of other animals.

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 sensitive areas such as eyes, mouth, ears, anogenital region or belly.

Requirements for animals delivered in containers

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.
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.

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.

Provision relevant to restraining and containing animals

Provisions relevant to restraining animals for stunning or slaughter without stunning, to help maintain animal welfare include:

- Provision of a non-slip floor
- Avoidance of excessive pressure applied by restraining equipment that causes struggling or vocalisation in animals
- Equipment engineered to reduce noise of air hissing and clanging metal
- Absence of sharp edges in restraining equipment that would harm animals
- Avoidance of jerking or sudden movement of restraining device.

Methods of restraint causing avoidable suffering, such as the following, should not be used in conscious animals because they cause severe pain and stress:

- suspending or hoisting animals (other than poultry) by the feet or legs
- indiscriminate and inappropriate use of stunning equipment
- mechanical clamping of an animal’s legs or feet (other than shackles used in poultry and ostriches) as the sole method of restraint
- cutting leg tendons or blinding animals in order to immobilise them
- using puntilla to immobilise animals
- using electric currents to immobilise animals, except for proper stunning.

Article 3

Lairage design and construction

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.

Design

- The lairage should be designed to allow a one-way flow of animals from unloading to the point of slaughter, with a minimum of abrupt corners to negotiate.

- 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.

- 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.

- Holding pens should be 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.

- 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.

- Passageways and races should be either straight or slightly 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.

- 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.

- 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.

- 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. The ramp should be well drained, non-slippery and adjustable to facilitate easy movement of animals without causing distress or injury.
Appendix XXVI (contd)

Appendix D (contd)

Appendix III (contd)

Construction

- 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.

- 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.

- 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.

- 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.

- 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.

- Where animals are kept in outdoor lairages without natural shelter or shade, they should be protected from the effects of adverse weather conditions.

Article 4

Care in lairages

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

- 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.

- Where tethers, ties or individual stalls are used they should allow animals to stand up and lie down without causing injury or distress.

- Where bedding is provided, it should be maintained in a condition that minimises risks to the health and safety of the animals, and sufficient should be used so that animals do not become soiled with manure.

- Animals should be kept securely in the lairage and care should be taken to prevent them from escaping and from predators.

- 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.

- 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.
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.

That 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.

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 killed immediately.

Lactating dairy animals should be slaughtered as soon as possible. Dairy animals with obvious udder distension should be milked to minimise udder discomfort.

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 and the welfare of the newborn.

Horned animals, if aggressive, should be penned separately.

Recommendations for specific species are described in detail in Articles 6-9.

**Article 5**

**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.
### Article 6

**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>Competent animal handlers in lairage; facilities; stocking density</td>
</tr>
<tr>
<td></td>
<td>In the field</td>
<td>Free bullet</td>
<td>Saving distance, calibre and ballistics</td>
<td>Operator competence</td>
<td>Deer</td>
</tr>
<tr>
<td>Restraining methods</td>
<td>Individual animal confinement</td>
<td>Group stunning pen</td>
<td>Head-only electrical Captive bolt</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>Individual animal confinement</td>
<td>Stunning pen/box</td>
<td>Electrical and mechanical stunning methods</td>
<td>Loading of animal; accuracy of stunning method, slippery floor and animal falling down</td>
<td>Competent animal handlers</td>
</tr>
<tr>
<td></td>
<td>Restraining methods</td>
<td>Head restraint, upright</td>
<td>Halter/ head collar/bridle</td>
<td>Captive bolt Free bullet</td>
<td>Suitable for halter-trained animals; stress in untrained animals</td>
</tr>
<tr>
<td></td>
<td>Restraining methods</td>
<td>Head restraint, upright</td>
<td>Neck yoke</td>
<td>Captive bolt Electrical-head only Free bullet Slaughter without stunning</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>
</tr>
<tr>
<td></td>
<td>Leg restraint</td>
<td>Single leg tied in flexion (animal standing on 3 legs)</td>
<td>Captive bolt Free bullet</td>
<td>Ineffective control of animal movement, misdirected shots</td>
<td>Competent animal handler,</td>
</tr>
<tr>
<td>Presentation of animals</td>
<td>Specific procedure</td>
<td>Specific purpose</td>
<td>AW concerns/implications</td>
<td>Key AW requirements</td>
<td>Applicable species</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>-----------------</td>
<td>--------------------------</td>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Restraining methods</td>
<td>Upright restraint</td>
<td>Beak holding</td>
<td>Captive bolt Electrical-head-only</td>
<td>Stress of capture</td>
<td>Sufficient competent animal handlers</td>
</tr>
<tr>
<td></td>
<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>
</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>
</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>
</tr>
<tr>
<td>Lateral restraint – manual or mechanical</td>
<td>Restrainer/cradle /cratch</td>
<td>Slaughter without stunning</td>
<td>Stress of restraint</td>
<td>Competent animal handlers</td>
<td>Sheep, goats, calves, camelids, cattle</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>
</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>
</tr>
<tr>
<td>Restraining and /or conveying methods</td>
<td>Presentation of animals</td>
<td>Specific procedure</td>
<td>Specific purpose</td>
<td>AW concerns/implications</td>
<td>Key AW requirements</td>
</tr>
<tr>
<td>--------------------------------------</td>
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</tr>
<tr>
<td>Restraining and /or conveying methods</td>
<td>V-restrainer</td>
<td>Electrical methods</td>
<td>Loading of animal and overriding; excessive pressure, size mismatch between restrainer and animal</td>
<td>Proper design and operation of equipment</td>
<td>Cattle, calves, sheep, goats, pigs</td>
</tr>
<tr>
<td>Restraining and /or conveying methods</td>
<td>Mechanical straddle – band restrainer (moving)</td>
<td>Mechanical methods</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>Restraining and /or conveying methods</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>Restraining and /or conveying methods</td>
<td>Poultry shackle</td>
<td>Electrical 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>Restraining and /or conveying methods</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>Restraining and /or conveying methods</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>
<tr>
<td>Presentation of animals</td>
<td>Specific procedure</td>
<td>Specific purpose</td>
<td>AW concerns/implications</td>
<td>Key AW requirements</td>
<td>Applicable species</td>
</tr>
<tr>
<td>-------------------------</td>
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</tr>
<tr>
<td>Restraining by inversion</td>
<td>Rotating box</td>
<td>Fixed side(s) (e.g. Weinberg)</td>
<td>Slaughter without stunning</td>
<td>Inversion stress; stress of resisting restraint, prolonged restraint. Keep restraint as brief as possible</td>
<td>Proper design and operation of equipment</td>
</tr>
<tr>
<td></td>
<td></td>
<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>
</tr>
<tr>
<td>Body restraint</td>
<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>
</tr>
<tr>
<td>Leg restraints</td>
<td>Rope casting</td>
<td>Mechanical stunning methods Slaughter without stunning</td>
<td>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>
</tr>
<tr>
<td></td>
<td></td>
<td>Tying of 3 or 4 legs 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>
</tr>
</tbody>
</table>
Article 7
Stunning methods

Stunning

The competence of the operators, and the appropriateness and effectiveness of the method used for stunning 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:

- the animal is adequately restrained,
- animals in restraint are stunned as soon as possible;
- 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;
- the instrument is applied correctly;
- stunned animals are bled out (slaughtered) as soon as possible,
- do not stun animals when slaughter is likely to be delayed.

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

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

Cattle: aim at the point halfway between the top of the head and the imaginary line between the eyes and place the muzzle at right angles to the frontal surface.
Pigs: place the muzzle about 2.5 to 5 cm above the level of the eyes, and at right angles to the frontal surface.

Sheep

In hornless sheep use the highest point of the head and aim towards the angle of the jaw. For horned sheep place the muzzle just behind the ridge which runs between the horns and aim towards the mouth.

Goats

In hornless goats use the highest point of the head and aim towards the angle of the jaw. For horned goats, place the muzzle just behind the ridge which runs between the horns and aim towards the mouth.
Place the muzzle at right angles to the frontal surface well above the point where imaginary lines from eye to ear cross.

Signs of correct stunning using a mechanical instrument:

i) the animal collapses immediately and does not attempt to stand up;

ii) the body and muscles of the animal become tonic (rigid) immediately after the shot;

iii) normal rhythmic breathing stops; and

iv) the eyelid is open with the eyeball facing straight ahead and is not rotated.

**Electrical stunning**

**a) General**

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 to manufacturing specification. They should be placed so that they span the brain. The application of electrical currents which bypass the brain are 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 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.

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 requires 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 &amp; Goats</td>
<td>0.5 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 shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve electrical conductivity of the water it is recommended that salt be added in the waterbath as necessary.
Appendix XXVI (contd)

Appendix D (contd)

Appendix III (contd)

Birds should receive the current for at least 4 seconds.

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.

<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 is recommended to ensure that any birds which have missed the waterbath stunner and/or the automatic neck-cutter are immediately stunned and/or humanely killed. 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.

**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 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 three minutes.

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\textsubscript{2} chamber whilst it is in use, and to have access to the animals in emergency cases.

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

\textit{b) Inert gas mixtures for stunning pigs (under development)}

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.

Gas mixtures:

a) A maximum of 2\% by volume of oxygen in argon, nitrogen or other inert gases, or

b) 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.

\textit{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 poultry on a conveyor eliminates the problems associated with the electrical water bath stunning.

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

\textit{i) Gas mixtures used for stunning poultry}

- Minimum of 2 min exposure to 40\% carbon dioxide, 30\% oxygen and 30\% nitrogen, followed by a minimum of 1 min exposure to 80\% carbon dioxide in air; or

- Minimum of 2 min 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 min 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 XXVI (contd)

Appendix D (contd)

Appendix III (contd)

ii) Requirements for effective use:

- Compressed gases should be vaporised prior to administration into the chamber.
- 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.

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 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 thirty seconds, or in any case until all brain-stem reflexes have ceased.
## Article 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</td>
<td>Cattle, calves, buffalo, deer, horses, pigs (boars and sows)</td>
<td>Personnel safety</td>
</tr>
<tr>
<td></td>
<td>Captive bolt -</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, camellids, 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>penetrating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Captive bolt -</td>
<td>Inaccurate targeting, velocity of bolt, potentially higher failure rate than</td>
<td>Competent operation and maintenance of equipment; restraint; accuracy</td>
<td>Cattle, calves, sheep, goats, deer, pigs, camellids, ratites</td>
<td>Presently available devices are not recommended for young bulls and animals with thick skull</td>
</tr>
<tr>
<td></td>
<td>non-penetrating</td>
<td>penetrating captive bolt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual percussive</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></td>
<td>blow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Split application:</td>
<td>Accidental pre-stun electric shocks; electrode positioning; application of</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>
<tr>
<td></td>
<td>1. across head</td>
<td>a current to the body while animal conscious; inadequate current and voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>then head to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>chest; 2. across head</td>
<td>then across chest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all together</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OIE Terrestrial Animal Health Standards Commission/January 2005
**Article 8 (contd)**

**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>
</table>
| Electrical | Single application:  
1. head only;  
2. head to body;  
3. head to leg | Accidental pre-stun electric shocks; inadequate current and voltage; wrong electrode positioning; recovery of consciousness  | Competent operation and maintenance of equipment; restraint; accuracy | Cattle, calves, sheep, goats, pigs, ratites, poultry | Where cardiac arrest occurs, the carcass may not be suitable for Halal |
|          | Waterbath                                           | Restraint, accidental pre-stun electric shocks; inadequate current and voltage; recovery of consciousness | Competent operation and maintenance of equipment | Poultry only                  | Where cardiac arrest occurs, the carcass may not be suitable for Halal |
| Gaseous  | CO₂ air/O₂ mixture; CO₂ inert gas mixture           | Aversiveness of high CO₂; respiratory distress; inadequate exposure | Concentration; duration of exposure; design, maintenance and operation of equipment; stocking density management | Pigs, poultry | Gaseous methods may not be suitable for Halal |
|          | Inert gases                                         | Recovery of consciousness                  | Concentration; duration of exposure; design, maintenance and operation of equipment; stocking density management | Pigs, poultry | Gaseous methods may not be suitable for Halal |
## Article 9
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 for relevant species</td>
</tr>
<tr>
<td>Bleeding with prior stunning</td>
<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>Camelids, sheep, goats, poultry, ratites</td>
<td></td>
</tr>
<tr>
<td></td>
<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 sticking;</td>
<td>Camelids, sheep, goats, poultry, ratites</td>
<td></td>
</tr>
<tr>
<td></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>
</tbody>
</table>
### Article 9 (contd)

**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 with prior stunning</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>Neat dislocation should be performed in one stretch to sever the spinal cord</td>
<td>Sheep, goats, poultry</td>
<td>This method is only applicable to Jhatka</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></td>
<td>Poultry only</td>
<td>Slaughter by neck dislocation should be performed in one stretch to sever the spinal cord</td>
</tr>
<tr>
<td>Cardiac arrest in a waterbath electric stunner</td>
<td>Bleeding by evisceration</td>
<td>Induction of cardiac arrest</td>
<td></td>
<td>Quail</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 10

Methods, procedures or practices unacceptable on animal welfare grounds

- The restraining methods through immobilisation by injury like ‘puntilla’ and ‘leg tendon cutting’, cause severe pain and stress in animals. Those methods are not acceptable in any species.

- The use of electrical stunning method with single application leg to leg is ineffective and unacceptable in any species. The electrocution in this way is likely to be painful. The animal welfare concerns are:
  - accidental pre-stun electric shocks;
  - inadequate current and voltage;
  - wrong electrode positioning;
  - recovery of consciousness.

- The slaughter method of brain stem severance by piercing through the eye socket or skull bone is not acceptable in any species except fish.
The OIE ad hoc Group on Land Transport of Animals held its second meeting at the OIE Headquarters from 22 to 24 September 2004.

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

The Director General of the OIE, Dr B. Vallat, welcomed the members of the ad hoc Group and thanked them for their willingness to continue working on the new mandate of the OIE for animal welfare. He noted that many Member Countries were developing legislation on animal welfare after the OIE Conference of February 2004 and that they would be looking to the OIE for guidance. The Director General advised that the recommendations from the ad hoc Group would be put to the Working Group on Animal Welfare for endorsement and then circulated in the report of the OIE Terrestrial Animal Health Standards Commission for Member Country comment. He urged all Member Countries to examine carefully the recommendations with a view to adoption at the 2005 OIE General Session.

The Director General and the Chairman agreed that it was necessary for the guidelines to contain sufficient detail to be useful for Member Countries but that Member Countries should appreciate that refinement would be required as experience in their use was gained. Accordingly, the ad hoc Group prepared general guidelines on the principles which should be adopted in order that animal welfare during transport can be good. Further work is in progress in the preparation of detailed guidelines for the major species which are transported.

The ad hoc Group noted that the aim of its recommendations was to ensure that the welfare of animals during land transport was as good as possible and to provide standards which will be usable by all OIE Member Countries. This is an important and wide-ranging objective since many billions of animals are transported each year and there are many potential causes of poor welfare in these animals. The major reason for attempting to minimise any poor welfare is our obligation to and concern for the animals which we use but it is also clear that there is a close relationship between welfare and product quality when animals are travelling to slaughter, and between welfare and continuing efficient production in animals travelling to a place of further rearing. In the assessment of welfare during transport, due account has been taken of pain, fear, failure to meet the animals' needs and disease. Since disease is an important cause of poor welfare, the health of transported animals and of animals potentially affected by those which are transported has been carefully considered.
Appendix XXVI (contd)

Appendix E (contd)

The *ad hoc* Group worked through comments received from two Member Countries, information from several non-governmental organisations, the report of the land transport syndicate group from the animal welfare conference and the report of the recent meeting of the Working Group on Animal Welfare. It also took into account the work of the *ad hoc* Group on Sea Transport. The *ad hoc* Group drafted guidelines addressing the responsibilities of various parties at each stage, the competences and documentation required, preparation for transport, loading and unloading, and journey issues. The proposed definitions are at Appendix III and the draft guidelines at Appendix IV.

.../Appendices
SECOND MEETING OF THE OIE AD HOC GROUP ON LAND TRANSPORT OF ANIMALS

Paris, 22-24 September 2004

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SECOND MEETING OF THE OIE AD HOC GROUP ON LAND TRANSPORT OF ANIMALS

Paris, 22 –24 September 2004

Agenda adopted

1. Introduction
   1.1. Discussion on the report of the recent meeting of the OIE Working Group on Animal Welfare
   1.2. Discussion on the outcomes of the OIE Global Conference on Animal Welfare
   1.3. Discussion on the OIE 72nd General Session (Animal Welfare)
   1.4. Comments from Member Countries
   1.5. Comments from ICFAW

2. Development of specific guiding principles and standards

3. Work programme

4. Conclusions
Article 1

Definitions

**Animal**
For the purpose of this chapter ‘animal’ refers to the following live domesticated animals: cattle, buffalo, camels, sheep, goats, pigs, poultry and equines. These guidelines 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.

**Animal handler**
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.

**Container**
A non-self-propelled receptacle or other rigid structure for holding animals during a journey by one or several means of transport.

**Journey**
An animal transport journey should be regarded as commencing when the first animal is loaded onto a vehicle or into a container and as ending when the last animal is unloaded, and includes any stationary resting / holding periods of less than 48 hours. The same animals should not be regarded as commencing a new journey until a period of over 48 hours sufficient for rest and recuperation of the animals with adequate feed and water provided, has passed since the end of the previous journey.

**Loading**
Is the procedure of moving animals onto a vehicle/vessel or into a container from the pre-loading site; **unloading** is the procedure of moving animals off a vehicle/vessel or out of a container.

**Post-journey period**
The period between unloading and either recovery from the effects of the journey or slaughter if this occurs before recovery.

**Pre-journey period**
The period during which animals are identified, and often assembled for the purpose of loading them.

**Space allowance**
Is the measure of the floor area and height on a vehicle/vessel or container allocated per individual or body weight of animals transported.

**Staging point**
A place where the journey is interrupted to rest, feed or water the animals; the animals may remain in the vehicle or container, or be unloaded.
Stocking density
   Is the number or body weight of animals per unit area on a \textit{vehicle/vessel}.

Transport
   The procedures associated with the carrying of animals for commercial purposes from one location to another by land (road and rail), sea or air.

Travel
   The movement of a \textit{vehicle or container} carrying animals from one location to another.

Vehicle/vessel
   Includes any train, truck, or ship that is used for carrying animal(s).
GUIDELINES FOR THE LAND TRANSPORT OF ANIMALS

Article 1

Responsibilities

The welfare of animals during their transport is the joint responsibility of all people involved.

The roles of each of those responsible are defined below:

- Owners and managers of animals are responsible for the general health of the animals and their fitness for the journey, and their 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 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.

- 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.

- Animal handlers are responsible for the humane handling and care of the animals, especially during loading and unloading, and for maintaining a journey log. In the absence of a separate animal handler, the driver is the animal handler.

- Transport companies, vehicle owners and drivers are responsible for planning the journey to ensure the care of the animals:
  o 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,
  o transport companies and vehicle owners are responsible for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport,
  o transport companies and vehicle owners are responsible for producing a journey plan which includes a loading plan, journey duration and location of resting places,
  o 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.

- Managers of facilities at the start and at the end of the journey, and at staging points are responsible for:
  o providing suitable premises for loading, unloading and securely holding the animals in lairage, with water and feed when required, until further transport, sale or other use (including rearing or slaughter),
  o providing competent animal handlers to load, unload, drive and hold animals in a manner that causes minimum stress and injury,
minimising the opportunities for disease transmission,

- providing appropriate facilities, with water and feed when required,

- providing appropriate facilities for emergencies,

- providing facilities for washing and disinfecting vehicles after unloading,

- providing facilities and competent staff to allow the humane killing of animals when required,

- ensuring proper rest times and minimal delay during lairage. See Article XXX

The responsibilities of the Competent Authority include:

- establishing minimum standards for animal welfare, including requirements for inspection of animals before, during and after their travel, and appropriate certification and record keeping,

- approving facilities, containers and vehicles for the transport of animals,

- ensuring appropriate awareness and training,

- setting standards for the competence of drivers, animal handlers and managers,

- implementation of the standards, including through accreditation of / interaction with other organisations,

- monitoring and evaluating the effectiveness of standards of health and other aspects of welfare,

- monitoring and evaluating the use of veterinary medications.

All individuals, including veterinarians, involved in transporting animals and the associated handling procedures should receive appropriate training and to be competent to meet their responsibilities.

**Article 2**

**Training and competence**

- All people handling animals, or who are otherwise responsible for animals during journeys, should be competent according to their responsibilities listed in Article 1. Competence may be gained through formal training or practical experience. Competence in areas other than animal welfare would need to be addressed separately.

- This competence for 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.

- The training and assessment of the competence of animal handlers should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:
Appendix XXVI (contd)

Appendix E (contd)

Appendix IV (contd)

- planning a journey, including appropriate space allowance, and feed, water and ventilation requirements,
- responsibilities for animals during the journey, including loading and unloading,
- sources of advice and assistance,
- animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation,
- relevant authorities and applicable transport regulations, and associated documentation requirements,
- general disease prevention procedures, including cleaning,
- appropriate methods of driving,
- methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies,
- species-specific aspects of animal handling and care, including feeding, watering and inspection,
- maintaining a journey log and other records.

- The above are also important areas of knowledge for owners and managers.

**Article 3**

Planning the journey

**General**

- Adequate planning is a key factor affecting the welfare of animals during a journey.

- Before the journey starts, plans should be made in relation to:
  - preparation of animals for the journey,
  - choice of road or rail,
  - nature and duration of the journey,
  - vehicle/container design and maintenance, including roll-on roll-off vessels,
  - required documentation,
  - space allowance,
  - rest, water and feed,
  - observation of animals en route,
  - control of disease, and
  - emergency response procedures.

- Regulations concerning drivers (for example maximum driving periods) should be harmonised with maximum transport journey intervals appropriate for the species.
Preparation of animals for the journey

- 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.

- 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 5).

- 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.

Nature and duration of the journey

- The maximum duration of a journey should be determined according to:
  - the ability of the animals to cope with the stress of transport (such as very young, old or pregnant animals),
  - the animals’ previous transport experience,
  - the onset of fatigue,
  - the need for special attention,
  - the need for feed and water,
  - the increased susceptibility to injury and disease,
  - space allowance, vehicle design, road conditions, driving quality,
  - weather conditions.

Vehicle and container design and maintenance

- 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 also be taken into account.

- 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.

- In order to minimise the likelihood of the spread of pathogenic agents during transport, vehicles and containers should be designed to permit thorough cleaning and disinfection, and the containment of faeces and urine during a journey.

- Vehicles and containers should be maintained in good mechanical and structural condition.

- Vehicles should have adequate ventilation which can be adjusted to meet variations in climate and the needs of the animal species being transported.
Appendix XXVI (contd)

Appendix E (contd)

Appendix IV (contd)

- **Vehicles** should be designed so that the faeces or urine from animals on upper levels do not soil animals on lower levels.

- When **vehicles** are carried on board ferries, facilities for adequately securing them should be available.

- If feeding or watering while the **vehicle** is moving may be required, adequate facilities on the **vehicle** should be available.

- 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.

**Special provisions for transport in vehicles (road and rail) on roll-on/roll-off vessels or for containers**

- **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**.

- **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.

- 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.

**Documentation**

- Animals should not be loaded until the required documentation is complete.

- The documentation accompanying the consignment should include:
  - journey travel plan,
  - date, time, and place of loading and unloading,
  - veterinary certification, when required,
  - driver’s competencies,
  - identities of the animals transported to allow traceback of individual animals to the premises of departure, and where possible to the premises of origin,
  - details of any animals considered ‘at risk’ (Article 5),
  - documentation of the period of rest, and access to feed and water, prior to the journey,
  - **stocking density** estimate for each load in the consignment,
  - the journey log - daily record of inspection and important events, including records of morbidity and mortality, climatic conditions, rest stops, travel time and distance, feed and water offered and estimates of consumption, medication provided, and mechanical defects.
Appendix XXVI (contd)

Appendix E (contd)

Appendix IV (contd)

- When veterinary certification is required to accompany consignments of animals, it should include:
  - appropriate animal identification (description, number, etc.),
  - health status including test, treatment and vaccination status,
  - factors affecting fitness to travel.

Space allowance

- 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.

- 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.

- When animals lie down, they should all be able to adopt a comfortable, normal lying posture which allows necessary thermoregulation.

- When animals are standing, they should have sufficient space to adopt a balanced position without body contact with other animals.

- 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.

- Calculations according to the space allowance permitted for each animal should be carried out, using the figures given in these guidelines (see 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.

- Other factors which may influence space allowance include:
  - vehicle / container design
  - length of journey
  - quality of roads
  - expected weather conditions.

Rest, water and feed

- 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.
• Animals should be rested at staging points at appropriate intervals during the journey. The type of transport and species being transported should determine the frequency of rest stops and whether the animals are unloaded. There should be planning for water and feed availability during rest stops.

Ability to observe animals en route in relation to journey duration

• Animals should be positioned to enable each animal to be observed regularly during the journey to ensure their safety and good welfare.

• 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.

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:
  o mixing of animals from different sources in a single consignment should be minimised,
  o contact at staging points between animals from different sources should be avoided,
  o the use of markets should be minimised,
  o when possible, animals should be vaccinated against diseases to which they are likely to be exposed at their destination,
  o 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.

Emergency response procedures

• Appropriate contingency plans to address emergencies should be prepared in advance (see Article 6).

Other considerations

• Extreme weather conditions are hazards for certain 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.

• In some circumstances, transportation during the night may reduce thermal stress or the adverse effects of other external stimuli.
Pre-journey period

General

- Pre-journey rest is necessary if the welfare of animals has become poor during the collection period because of major physical or social problems.

- 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 XXX.

- 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.

- 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.

- Where an animal handler believes that there is a significant risk of disease among the animals to be loaded, the animals should be inspected by a veterinarian.

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

Shelter in the assembly/holding area

- Assembly/holding areas should be designed to:
  
  - securely hold the animals,
Appendix XXVI (contd)

Appendix E (contd)

Appendix IV (contd)

- maintain a safe environment from hazards, including predators and disease,
- protect animals from exposure to severe weather conditions,
- allow for maintenance of social groups, and
- allow for rest, and appropriate water and feed.

**Effect of travel experience, long and short term**

- 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.

- Exposure to familiar personnel should reduce the fearfulness of animals and improve their approachability during transport procedures.

**Fitness to travel**

- Each animal should be inspected by an *animal handler* to assess fitness to travel. Animals found unfit to travel should not be loaded onto a *vehicle*, except for transport to receive veterinary treatment.

- 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.

- Animals that are unfit to travel include:
  - those that are sick, injured, weak, disabled or fatigued,
  - those that are unable to stand unaided and bear weight on each leg,
  - those that are blind in both eyes,
  - those that cannot be moved without causing them additional suffering,
  - pregnant animals which are likely to give birth during the *journey,*
  - those whose body condition would result in poor welfare because of the expected climatic conditions.

- 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.

- Animals ‘at risk’ which require special conditions (such as in the design of facilities and vehicles) and additional attention during *transport,* may include:
  - large or obese individuals,
  - young or old animals,
  - excitable or aggressive animals,
  - animals which have had little contact with humans,
Appendix XXVI (contd)

Appendix E (contd)

Appendix IV (contd)

- animal subject to motion sickness,
- females in late pregnancy or heavy lactation; dam and offspring,
- those with a history of exposure to stressors or pathogenic agents prior to transport.

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 XXX.

Article 5

Loading

Experienced supervision

- 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 supervised 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.
- When containers are loaded onto a vehicle, this should be carried out in such a way to avoid poor animal welfare.

Facilities

- 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.
- 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 directly over approaches to sorting pens, chutes, loading ramps, with brighter lighting inside vehicles / containers, in order to minimise baulking. Dim lighting may be advantageous for the catching of poultry and some other animals.
- 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.
Goads and other aids

- The following principles should apply:
  - Animals which have little or no room to move should not be subjected to physical force or goads and other aids which compel movement.
  - 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.
  - 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 large wooden sticks, sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts), should not be used to move animals.
  - 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.
  - The use of muzzled, well trained dogs to help with the loading of some species may be acceptable.
  - The throwing or dropping of animals, or their lifting or dragging by their tail, head, horns, ears, limbs, wool, hair or feathers should not be permitted. The manual lifting of small animals is permissible.

Article 6

Travel

- 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.
- Drivers should utilise smooth, defensive driving techniques, without sudden turns or stops, to minimise uncontrolled movements of the animals.

Methods of restraining or containing animals

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

Regulating the environment within vehicles or containers

- 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.
• 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 ventilation.

• 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.

Sick, injured and dead animals

• A driver or animal handler finding sick, injured or dead animals should act according to a predetermined emergency response plan.

• If possible, sick or injured animals should be segregated.

• Ferries (roll-on roll-off) should have procedures to treat sick or injured animals during the journey.

• In order to reduce the likelihood that animal transport will increase the spread of infectious disease, contact between transported animals, or the products of the transported animals, and other farm animals should be minimised.

• 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.

• When euthanasia is necessary, the driver or animal handler should 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 the Chapter on humane killing of animals for disease control purposes.

Water and feed requirements

• 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 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.

• Recommendations for specific species are described in detail in Article XXX.

Rest periods and conditions including hygiene

• 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.

• 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.

In-transit inspections

• Animals being transported by road should be observed soon after a journey is commenced and subsequently at least every 5 hours, in particular whenever the driver has a rest stop. After meal breaks and refuelling stops, the animals should be observed immediately prior to departure.
Animals being transported by rail should be observed every 5 hours or at the 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.

- 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 7**

**Unloading and post-journey handling**

**General**

- The required facilities and the principles of animal handling detailed in Article 5 (Loading) apply equally to unloading, but consideration should be given to the likelihood that the animals will be fatigued.

- **Unloading** should be supervised by animal handlers 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.

- 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.

- For details regarding the unloading of animals at a slaughterhouse, see Chapter on slaughter of animal for human consumption.

**Sick and injured animals**

- An animal that has become sick, injured or disabled during a journey should be appropriately treated or humanely killed. When necessary, veterinary advice should be sought in the care and treatment of these animals.

- 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.

- 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.

- Feed, if appropriate, and water should be available for each sick or injured animal.

**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:
  - Increased contact among animals, including those from different sources and with different disease histories,
increased shedding of pathogens and increased susceptibility to infection related to stress and impaired defences against disease, including immunosuppression,

- exposure of animals to pathogens which may contaminate vehicles, staging points, markets etc.

Cleaning and disinfection

- *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.

- 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.

- 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.

- 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.

- Where disinfection is necessary, it should be carried out with the minimum stress to the animals.

Article 8

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

- The welfare of the animals should be the first consideration in the event of a refusal to allow the completion of the journey.

- 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 pending resolution of the situation. In this situation, the priorities should be:
  - the Competent Authority of the importing country should provide urgently in writing the reasons for the refusal,
  - 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,
  - 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,
  - if the matter cannot be promptly resolved, the Competent Authorities of the exporting and importing countries should call on the OIE to mediate.
• In the event that a Competent Authority requires the animals to remain on the vehicle, the priorities should be:
  o the Competent Authority should allow reprovision of the vehicle with water and feed as necessary,
  o the Competent Authority should provide urgently in writing the reasons for the refusal,
  o 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
  o the Competent Authority should provide access to allow continued assessment of the health and other aspects of the welfare of the animals.

• 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 XXX

Species specific issues

(To be developed)
REPORT OF THE SECOND MEETING OF THE OIE AD HOC GROUP ON
THE TRANSPORT OF ANIMALS BY SEA

Paris, 15-17 September 2004

The OIE ad hoc group on the transport of animals by sea held its second meeting at the OIE Headquarters from 15-17 September 2004.

The members of the OIE ad hoc group and other participants are listed in Appendix I. Dr. Kassab advised that he was unable to attend the meeting.

The Agenda adopted is given in Appendix II.

The Director General of the OIE, Dr Bernard Vallat, welcomed the members of the ad hoc group and thanked them for their willingness to continue their work within the OIE’s new mandate for animal welfare. The Director-General noted the importance of the ad hoc Group’s work. He indicated that he had discussed with various parties the problems arising from the rejection of a consignment by an importing country and requested the ad hoc Group to make recommendations concerning the management of the animal welfare issues arising from a rejected consignment.

The Director-General advised that the recommendations from the ad hoc group would be put to the Working Group on Animal Welfare for endorsement and then circulated in the report of the Code Commission for Member Country comment. He urged all Member Countries to examine carefully the recommendations with a view to adoption at the 2005 General Session.

The ad hoc group noted with disappointment the paucity of comments from Member Countries (with only New Zealand contributing), but comments had been received from the International Coalition for Farm Animal Welfare and the European Community Shipowners’ Association. These were taken into account in its deliberations.

The ad hoc group worked through the relevant sections of the report of the Working Group on Animal Welfare to ensure that it addressed all points raised. These included the need for some new or revised definitions, better harmonisation of terms with other relevant ad hoc Groups, the importance of competence of animal handlers and the need to consider in more detail roll-on-roll-off transport. The ad hoc group next considered the report of the discussion on sea transport at the OIE Animal Welfare Conference, and at the 2004 General Session, and addressed the points raised.
The *ad hoc* group decided that the meeting would be best spent finalising general guidelines for the transport of animals by sea, with some information addressing species-specific issues. Based on the feedback from Member Countries, species-specific guidelines addressing *inter alia* accommodation, space requirements, ventilation, and feeding and watering would be the task of future meetings.

With regard to the adopted Guiding Principles, the *ad hoc* group recommended the removal of the word 'entertainment' from the list of uses of animals making a major contribution to the wellbeing of people.

The proposed definitions are at Appendix III and the guidelines at Appendix IV.
SECOND MEETING OF THE OIE AD HOC GROUP
ON THE TRANSPORT OF ANIMALS BY SEA

Paris, 15-17 September 2004

List of participants

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OIE Terrestrial Animal Health Standards Commission/January 2005
SECOND MEETING OF THE OIE AD HOC GROUP
ON THE TRANSPORT OF ANIMALS BY SEA

Paris, 15-17 September 2004

Agenda adopted

1. Introduction
   - Discussion on the report of the recent meeting of the OIE Working Group on Animal Welfare
   - Discussion on outcomes of OIE Global Conference on Animal Welfare
   - Discussion on OIE 72nd General Session (Animal Welfare)
   - Comments from Member Countries
   - Comments from ICFAW

2. Development of specific guidelines

3. Work programme

4. Conclusions
INTRODUCTION TO OIE GUIDELINES FOR THE WELFARE OF ANIMALS

Article 1

Definitions

- **Animal.** For the purposes of this chapter, ‘animal’ refers to the following live domesticated animals: cattle, deer, camels, buffalo, sheep, goats, pigs and equines. These guidelines may also be applicable to other domesticated animals.

- **Animal handler.** 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 welfare requirements, results in effective management and good welfare. Their competence should be demonstrated through independent assessment and certification.

- **Container.** A non-self-propelled receptacle or other rigid structure for holding animals during a journey by one or several means of transport.

- **Exporter.** A person licensed by the Competent Authority to export animals by sea. For the purposes of this chapter, the term applies equally to the transport of animals by water within a country.

- **Journey.** An animal transport journey commences when the first animal is loaded onto a vehicle/vessel or into a container and ends when the last animal is unloaded, and includes any stationary resting / holding periods of less than 48 hours. The same animals do not commence a new journey until after a period of over 48 hours for rest and recuperation, with adequate feed and water.

- **Loading / unloading.** Loading is the procedure of moving animals onto a vehicle/vessel or into a container from the pre-loading site; unloading is the procedure of moving animals off a vehicle/vessel or container.

- **Pre-journey period.** The period during which animals are identified, and often assembled for the purpose of loading them.

- **Post-journey period.** The period between unloading and recovery from the effects of the journey.

- **Space allowance** is the measure of the floor area and height on a vehicle/vessel, allocated per individual or body weight of animal transported.

- **Stocking density** is the number or body weight of animals per unit area on a vehicle/vessel.

- **Staging point.** A place where the journey is interrupted to rest, feed or water the animals; the animals may remain in the vessel or be unloaded.

- **Transport.** The procedures associated with the carrying of animals for commercial purposes from one location to another by land, sea or air.

- **Transporter.** The person licensed by the Competent Authority to transport animals.

- **Travel.** The movement of a vehicle/vessel or container carrying animals from one location to another.

- **Vehicle/vessel** includes any train, truck, or ship that is used for carrying an animal(s).
GUIDELINES FOR THE TRANSPORT OF ANIMALS BY SEA

Article 1

Responsibilities

Once the decision to transport animals by sea has been made, the welfare of animals during their transport is paramount 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 document.

The roles of each of those responsible are defined below:

- **Exporters**, owners of animals and managers of facilities are jointly responsible for the general health of the animals and their fitness for the journey.

- 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 competent for the species being transported. The exporter is also responsible for ensuring compliance of the animals with any required veterinary certification and, in the case of animals for export, any other requirements of the importing and exporting countries.

- 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.

- Animal handlers are responsible for the humane handling and care of animals, especially during loading and unloading. To carry out these responsibilities, they should have the authority to take prompt action.

- 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:
  - choosing appropriate vessels and ensuring that competent animal handlers are available for loading and caring for animals throughout the journey,
  - developing and keeping up to date contingency plans to address emergencies (including adverse weather conditions) and minimise stress during transport,
  - correct loading of the ship, regular inspections during the journey and for appropriate responses to problems arising
  - disposal of carcases according to international law.

- To carry out these responsibilities, the people involved should be competent regarding transport regulations, equipment usage, humane handling and the care of animals.
Managers of facilities during loading of the animals are responsible for:
- providing suitable premises for loading the animals,
- providing competent animal handlers to load the animals in a manner that causes minimum stress and injury,
- providing appropriate facilities for emergencies,
- providing facilities and veterinarians or competent animal handlers capable of performing euthanasia or urgent slaughter when required.

Managers of facilities at the end of the journey are responsible for:
- 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,
- providing competent animal handlers to unload the animals with minimum stress and injury,
- minimising the opportunities for disease transmission while the animals are in the facilities,
- providing appropriate facilities for emergencies,
- providing facilities and veterinarians or competent animal handlers capable of performing euthanasia or urgent slaughter when required.

The responsibilities of the Competent Authority of the exporting country include:
- establishing minimum standards for animal welfare, including requirements for inspection of animals before and during their travel, and for certification and record keeping,
- approving facilities, containers, vehicles/vessels for the holding and transport of animals,
- setting competence standards for animal handlers and managers,
- ensuring that the vessel transporting animals meets the required standards, including those of the importing country,
- implementation of the standards, including through accreditation of / interaction with other organisations and competent authorities,
- monitoring and evaluating health and welfare performance, including the use of any veterinary medications.

The responsibilities of the Competent Authority of the importing country include:
- establishing minimum standards for animal welfare, including requirements for inspection of animals after their travel, and for certification and record keeping,
- approving facilities, containers and vehicles for the unloading, holding and transport of animals,
- setting competence standards for animal handlers and managers,
implementation of the standards, including through accreditation of / interaction with other organisations and competent authorities,

- ensuring that the exporting country is aware of the required standards for the vessel transporting the animals,

- monitoring and evaluating health and welfare performance, including the use of any veterinary medications.

- Veterinarians are responsible for the humane handling and treatment of 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.

**Article 2**

**Competence**

- All people handling animals or who are otherwise responsible for animals during journeys, should be competent according to their responsibilities listed in Article 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.

- This competence should be demonstrated through a current certificate in one of the OIE official languages from an independent body.

- Assessment of competence for animal handlers should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:

  - responsibilities for animals during the journey,

  - sources of advice and assistance,

  - animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation,

  - relevant authorities and applicable transport regulations, and associated documentation requirements,

  - general disease prevention procedures, including cleaning,

  - appropriate methods of animal handling during transport and associated activities such as assembling, loading, and unloading,

  - methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies,

  - species-specific aspects of animal handling and care, including feeding, watering and inspection,

  - appropriate record keeping and journey log.
Appendix XXVI (contd)

Appendix F (contd)

Appendix IV (contd)

- Assessment of competence for exporters should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:
  - planning a journey, including appropriate space allowances, and feed, water and ventilation requirements,
  - relevant authorities and applicable transport regulations, and associated documentation requirements,
  - appropriate methods of animal handling during transport and associated activities such as cleaning and disinfection, assembling, loading, and unloading,
  - species-specific aspects of animal handling and care, including appropriate equipment and medication,
  - sources of advice and assistance,
  - appropriate record keeping and journey log.

- Managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies

Article 3

Documentation

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

- The documentation accompanying the consignment should include:
  - journey travel plan,
  - time, date and place of loading,
  - the journey log – a daily record of inspection and important events which includes records of morbidity and mortality, climatic conditions, food and water consumed, medication provided, mechanical defects,
  - time, date and place of arrival and unloading,
  - veterinary certification, when required,
  - animal identification to allow traceback of individual animals to the premises of departure, and where possible to the premises of origin,
  - details of animals at risk,
  - number of animal handlers on board, and their competencies,
  - stocking density estimate for each load in the consignment.

- Veterinary certification should accompany consignments of animals and address:
  - cleaning and disinfection of the vessel,
  - fitness of the animals to travel,
  - animal identification (description, number, etc.),
  - health status including tests, treatment and vaccinations carried out, if required.
Article 4

Planning the journey

General

- Adequate planning is a key factor affecting the welfare of animals during a journey.
- Before the journey starts, plans should be made in relation to:
  - type of transport vessel required,
  - route, taking into account distance, expected weather and sea conditions,
  - nature and duration of journey,
  - daily care and management of the animals,
  - avoiding the mixing of animals from different sources in a single pen group.
  - provision of appropriate equipment and medication for the numbers and species carried
  - emergency response procedures
- Preconditioning may be required, e.g. for dry food, and unfamiliar methods of supply of feed and water.
- Potential for spread of infectious disease
  - 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.
- 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.
- 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.
- 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.
- 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.
Appendix XXVI (contd)

Appendix F (contd)

Appendix IV (contd)

Vessel and container design and maintenance

- 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 also be taken into account.

- Vessels should be designed to permit thorough cleaning and disinfection, and the management of faeces and urine.

- Vessels should be maintained in good mechanical and structural condition.

- 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 when the vessel is stationary and the air flow should be adjustable.

- 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.

- 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.

- Stowage of feed and bedding should be carried out in such a way to ensure protection from the elements and sea water

- 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.

- The above principles apply also to containers used for the transport of animals.

Special provisions for transport in road vehicles on roll-on/roll-off vessels or for containers

- 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.

- 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.

- 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.

Space allowance

- 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.
• 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.

• Calculations for the space allowance for each animal should be carried out, using the figures given in these guidelines or, in their absence, in a relevant national or international document. The size of pens will affect the number of animals in each.

• The same principles apply when animals are transported in containers.

**Ability to observe animals en route**

• Animals should be positioned to enable them to be observed regularly during the journey to ensure their safety and good welfare.

• 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.

**Emergency response procedures**

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

**Article 5**

**Pre-journey period**

**General**

• Before each journey, vessels should be thoroughly cleaned and 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.

• In some circumstances, animals may require pre-journey assembly. In these circumstances, the following points should be considered:
  
  o 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.
  
  o 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.

• Pre-journey holding areas should be designed to:
  
  o securely contain the animals,
  
  o maintain an environment safe from hazards, including predators and disease,
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:
  - Animals of different species should not be mixed unless they are judged to be compatible,
  - Animals of the same species can be mixed unless there is a significant likelihood of aggression; aggressive individuals should be segregated,
  - Young or small animals may need to be separated from older or larger animals, with the exception of nursing mothers with young at foot,
  - Animals with horns or antlers should not be mixed with animals lacking horns or antlers,
  - 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.

Fitness to travel

- Animals should be inspected before travel and those found unfit to travel by farm staff, animal handlers or veterinarians should not be loaded onto a vessel.
- 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.
- Animals that are unfit to travel include:
  - Those that are sick, injured, weak, disabled or fatigued,
  - Those that are unable to stand unaided and bear weight on each leg,
  - Those that are blind in both eyes,
  - Those that cannot be moved without causing them additional suffering,
  - Newborn with an unhealed navel,
  - Females travelling without young which have given birth within the previous 48 hours,
  - Pregnant animals which would be in the final 10% of their gestation period at the planned time of unloading.
- 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.
Animals at risk, and requiring better conditions and additional attention during transport include:

- very large or obese individuals,
- very young or old animals,
- excitable or aggressive animals,
- animals which have had little contact with humans,
- females in the last third of pregnancy or in heavy lactation.

Hair or wool length needs consideration in relation to the weather conditions expected.

Article 6

Loading

Experienced supervision

- Loading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.
- Loading should be supervised by the Competent Authority and managed 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.
- 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.

Facilities

- 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.
- 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.

Goads and other aids

- The following principles should apply:
  - Goads ( aids for encouraging animals to move) should not be used on animals that have little or no room to move.
  - 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.
  - Un suitable 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.
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 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.

The use of well trained dogs to help with the loading of some species may be acceptable.

Manual lifting is permissible for young animals that may have difficulty negotiating ramps, but the lifting of animals by their tail, head, horns, ears, limbs, wool or hair should not be permitted.

Article 7

Travel

Inspections

• Competent 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 hours.

• Adjustments should be made to the stocking density within 48 hours of departure and as appropriate during the journey.

• 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.

• Adequate access to suitable feed and water should be ensured for all animals in each pen.

Sick and injured animals

• Sick or injured animals should be segregated/isolated.

• Sick or injured animals should be treated promptly and appropriately, and veterinary advice should be sought if necessary. All drugs and products should be used in accordance with the manufacturer’s recommendations.

• A record of treatments carried out and their outcomes should be kept.

• 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 the Chapter on humane killing of animals for disease control purposes.

Cleaning and disinfection

• 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.
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.

Where cleaning or disinfection is necessary during travel, it should be carried out with the minimum stress to the animals.

**Article 8**

**Unloading and post-journey handling**

**General**

- The required facilities and the principles of animal handling detailed in Article 6 (Loading) apply equally to unloading, but consideration should be given to the likelihood that the animals will be fatigued.

- Unloading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.

- 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.

- The accompanying veterinary certificate and other documents should meet the requirements of the importing country. Veterinary inspections should be completed as quickly as possible.

- Unloading should be supervised by the Competent Authority and managed by a competent animal handler(s). The animal handlers should ensure that animals are unloaded quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.

**Facilities**

- 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.

- All unloading 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.

- 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.

**Sick and injured 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 vessel.

- 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, appropriate facilities and treatments should be provided for sick or injured animals.
Appendix XXVI (contd)

Appendix F (contd)

Appendix IV (contd)

Article 9

Actions in the event of a refusal to allow the import of a shipment

• The welfare of the animals should be the first consideration in the event of a refusal to import.

• 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:
  o the Competent Authority of the importing country should provide urgently in writing the reasons for the refusal,
  o 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
  o the Competent Authority of the importing country should provide access to allow continued assessment of the ongoing health and welfare situation,
  o if the matter cannot be promptly resolved, the Competent Authority of the exporting and importing countries should call on the OIE to mediate.

• In the event that the animals are required to remain on the vessel, the priorities should be:
  o the Competent Authority of the importing country should allow reprovision of the vessel with water and feed as necessary,
  o 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,
  o the Competent Authority of the importing country should provide access to allow continued assessment of the ongoing health and welfare situation,
  o if the matter cannot be urgently resolved, the Competent Authorities of the exporting and importing countries should call on the OIE to mediate.

• 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.
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 *Bos 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. 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.

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...
The OIE ad hoc Group on the Humane Killing of Animals for Disease Control Purposes held its second meeting at the OIE Headquarters from 2 to 4 November 2004.

The members of the OIE ad hoc Group and other participants are listed in Appendix I. The Agenda adopted is given in Appendix II. Dr J. Galvin was absent due to a sudden illness.

On behalf of Dr B. Vallat, Director General of the OIE, Dr D. Wilson, Head of the International Trade Department, welcomed the members of the ad hoc Group and thanked them for their willingness to continue working on the new mandate of the OIE for animal welfare.

The ad hoc Group discussed current international issues in animal welfare as a background to their work. In revising the recommendations from their first meeting, the ad hoc Group took into account the outcomes of the OIE Global Animal Welfare Conference and the meeting of the Working Group on Animal Welfare. It also took into account the recommendations of the OIE ad hoc Group on the slaughter of animals for human consumption and harmonised its approach to the extent possible. Dr H. Blokhuis noted that the discussion at the Conference would have been improved had the reports of the ad hoc Group meetings been circulated more widely and Dr Wilson advised that this was now the OIE policy.

The ad hoc Group addressed comments received from Member Countries on the report of its first meeting. It noted the comment on priorities but was of the view that animal welfare standards for the killing of wild and feral animals should be done by a separate ad hoc Group, subject to the work being given priority by the Working Group. With regard to a proposal that killing by intrathoracic haemorrhage be included in its recommendations, the ad hoc Group considered that further work was required on this technique, especially regarding time periods before death.

While noting that the animal welfare aspects of disease control procedures needed to be addressed within broader constraints, including those posed by human safety and biosecurity considerations, the ad hoc Group advised that its recommendations regarding the advantages and disadvantages of various methods did not take in to account the cost of equipment nor relative human health and safety issues. The ad hoc Group confined its considerations to the procedures that needed to occur from the time that the decision is taken to kill animals for diseases control purposes, until the animals are dead, and to the killing of cattle, sheep, goats, pigs and poultry.
Appendix XXVI (contd)

Appendix G (contd)

The *ad hoc* Group addressed the general principles of humane killing, organisational structure, the responsibilities and competencies of personnel working on affected premises, planning the humane killing of animals, and recommended various killing methods. The recommendations do not contain detailed, specific operating procedures as these are available elsewhere in emergency disease control plans and equipment manufacturer recommendations. The draft guidelines are at Appendix III.

The *ad hoc* Group also recognised that the draft guidelines may also be applicable for the killing of animals following natural disasters and in emergency slaughter situations.
SECOND MEETING OF THE OIE AD HOC GROUP ON
HUMANE KILLING OF ANIMALS FOR DISEASE CONTROL PURPOSES

Paris, 2-4 November 2004

List of participants

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OIE Terrestrial Animal Health Standards Commission/January 2005
SECOND MEETING OF THE OIE AD HOC GROUP ON HUMANE KILLING OF ANIMALS FOR DISEASE CONTROL PURPOSES

Paris, 2-4 November 2004

Agenda adopted

1. Introduction
   1.1. Discussion on the report of the recent meeting of the OIE Working Group on Animal Welfare
   1.2. Discussion on the outcomes of the OIE Global Conference on Animal Welfare
   1.3. Discussion on the OIE 72nd General Session (Animal Welfare)
   1.4. Comments from Member countries

2. Development of specific guiding principles and standards

3. Work programme

4. Conclusions
DEFINITIONS

Stockmanship
good stockmanship means a professional and positive response to an animal’s welfare requirements.

Animal handler
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 welfare requirements, results in effective management and good welfare. Their competence should be demonstrated through independent assessment and certification.

Stunning
any mechanical, electrical, chemical or other procedure which causes immediate loss of consciousness which lasts until death;

Death
means irreversible loss of brain activity as demonstrated by loss of brain stem reflexes.

RMS
root mean square – a means of calibrating alternating current to a direct current signal

Neonate
a young animal, from birth to four weeks
GUIDELINES FOR THE HUMANE KILLING OF ANIMALS
FOR DISEASE CONTROL PURPOSES

Article 1

General principles of humane killing

1) 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.

2) Disease control strategies should also address the animal welfare issues that may result from animal movement controls.

3) The following principles apply after a decision to kill the animals has been made.

4) All personnel involved in the humane killing of animals should have the relevant skills and competencies.

5) As necessary, operational procedures should be adapted to the specific circumstances operating on the premises and should address, apart from animal welfare, operator safety and biosecurity.

6) 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.

7) The handling and movement of animals should be minimised and when done, it should be done in accordance with the guidelines described below.

8) 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.

9) 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.

10) 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.

11) There should be continuous monitoring of the procedures to ensure they are consistently effective with regard to animal welfare, operator safety and biosecurity.

12) 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.

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

14) These general principles should also apply when animals need to be killed for other purposes such as after natural disasters.
Article 2

Organisational structure

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 biosecurity 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 fulfill more than one function. Each team should contain a veterinarian.

In considering the animal welfare issues associated with killing animals, the key personnel, their responsibilities and competencies required are described in Article 3.
Article 3

Responsibilities and competencies of the specialist team

Team leader

- Responsibilities
  - plan overall operations on an affected premises
  - determine and address requirements for animal welfare, operator safety and biosecurity
  - 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
  - determine logistics required
  - monitor operations to ensure animal welfare, operator safety and biosecurity requirements are met
  - report upwards on progress and problems
  - provide a written report at the conclusion of the killing, describing the practices adopted and their effect on animal welfare

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

Veterinarian

- Responsibilities
  - determine and implement the most appropriate killing method to ensure that animals are killed without avoidable pain and distress
  - determine and implement the additional requirements for animal welfare, including the order of killing
  - minimise the risk of disease spread within and from the premises through the supervision of biosecurity procedures
  - continuously monitor animal welfare and biosecurity procedures
  - 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

- Competencies
  - ability to assess animal welfare, especially the effectiveness of stunning and killing and to correct any deficiencies
  - ability to assess biosecurity risks
Animal handlers

- Responsibilities
  - review on-site facilities in terms of their appropriateness
  - design and construct temporary animal handling facilities, when required
  - move and restrain animals

- Competencies
  - good stockmanship
  - awareness of animal behaviour
  - experience of animal handling in emergency situations and in close confinement

Slaughterers

- Responsibilities
  - ensure humane killing of animals through effective stunning and killing

- Competencies
  - when required by regulations, licensed to use necessary equipment or licensed to be slaughterers
  - competent to use and maintain relevant equipment
  - competent to use techniques for the species involved
  - competent to assess effective stunning and killing

Carcase disposal personnel

- Responsibilities
  - ensure efficient carcase disposal to ensure killing operations are not hindered

- Competencies
  - competent to use and maintain available equipment and apply techniques for the species involved

Farmer / owner / manager

- Responsibilities
  - assist when requested

- Competencies
  - specific knowledge of his/her animals and their environment
Article 4

Operational guidelines

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:

- Minimising handling and movement of animals
- 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 Chapter on slaughter of animals for human consumption should be followed.
- The species, number, age and size of animals to be killed, and the order of killing them
- Methods of killing the animals, and their cost
- Housing and location of the animals
- The availability and effectiveness of equipment needed for killing of the animals
- The facilities available on the premises that will assist with the killing
- Biosecurity issues
- The health and safety of personnel conducting the killing
- 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
- 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 5

**Table summarising killing methods***

<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>
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</thead>
<tbody>
<tr>
<td>Cattle</td>
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<tr>
<td></td>
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<td>injection of barbiturates and others</td>
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<td>non-lethal dose, pain associated with injection site</td>
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*OIE Terrestrial Animal Health Standards Commission/January 2005*
### Table summarising killing methods* (contd)

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Table summarising killing methods* (contd)

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

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

Article 6

Free bullet

Introduction

A free bullet is a projectile fired from a shotgun, rifle, handgun or purpose-made humane killer.

The most commonly used firearms for close range use are:

- humane killers (specially manufactured/adapted single-shot weapons)
- shotguns (12, 16, 20, 28 bore and .410)
- rifles (.22 rimfire)
- handguns (various calibres from .32 to .45)

The most commonly used firearms for long range use are:

- rifles (.22, .243, .270 and .308)

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 licensed marksmen.

Requirements for effective use

- The marksman should take account of human safety in the area in which he/she is operating
- 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
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

**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.

![Diagram of a cow head with lines indicating shooting position]

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

![Diagram of a sheep head with lines indicating shooting position]

**Figure 3.** The optimum shooting position for heavily horned sheep and horned goats is behind the poll.

![Diagram of a goat head with lines indicating shooting position]
The optimum shooting position for pigs is just above the eyes and directing the shot down the line of the spinal chord.

- 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.
- Shot animals should be checked to ensure the absence of brain stem reflexes.

**Advantages**
- Used properly, it provides a quick and effective method for killing.
- It requires minimal or no restraint and can be use to kill from a distance.
- It is suitable for killing agitated animals in open spaces.

**Disadvantages**
- Potentially dangerous to humans and other animals in the area.
- Potential for non-lethal wounding.
- Destruction of brain tissue may preclude diagnosis of some diseases.
- Leakage of bodily fluids may present a biosecurity risk.
- Legal requirements may preclude or restrict use.
- Limited availability of competent personnel.

**Conclusions**
- A suitable method for cattle, sheep and goats, pigs and poultry, including large animals in open spaces.
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

Article 7

Penetrating captive bolt

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.

Requirements for effective use

- 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
- Captive bolt guns should be frequently cleaned and maintained in good working condition
- 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
- Animals should be restrained; at a minimum they should be penned for cartridge powered guns and in a race for compressed air guns
- The operator should ensure that the animal's head is accessible
- 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)
- To ensure the death of the animal, pithing or bleeding should be performed as soon as possible after stunning
- Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes

Advantages

- Mobility of cartridge powered equipment reduces the need to move animals
- Immediate onset of a sustained period of unconsciousness

Disadvantages

- Poor gun maintenance and misfiring, and inaccurate gun positioning and orientation may result in poor animal welfare
Post stun convulsions may make pithing difficult and hazardous

Difficult to apply in agitated animals

Repeated use of a cartridge powered gun may result in over-heating

Leakage of bodily fluids may present a biosecurity risk

Destruction of brain tissue may preclude diagnosis of some diseases

Conclusion

A suitable method for cattle, sheep, goats and pigs (except neonates), when followed by pithing.

Article 8

Captive bolt - non-penetrating

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.

Requirements for effective use

• 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.

• Captive bolt guns should be frequently cleaned and maintained in good working condition.

• 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.

• 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.

• The operator should ensure that the animal's head is accessible.

• The operator should fire the captive bolt at right angles to the skull in the optimal position.

• To ensure death in non-neonate mammals, bleeding should be performed as soon as possible after stunning.

Figure 5. The optimum shooting position for chickens.
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

- Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes

Advantages

- Immediate onset of unconsciousness, and death in birds and neonates
- Mobility of equipment reduces the need to move animals

Disadvantages

- As consciousness can be regained quickly in non-neonate mammals, they should be bled as soon as possible after stunning
- Laying hens in cages have to be removed from their cages and most birds have to be restrained
- Poor gun maintenance and misfiring, and inaccurate gun positioning and orientation may result in poor animal welfare
- Post stun convulsions may make bleeding difficult and hazardous
- Difficult to apply in agitated animals
- Repeated use of a cartridge powered gun may result in over-heating
- Bleeding may present a biosecurity risk

Conclusions

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

Article 9

Maceration

Introduction

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

Requirements

- Maceration requires specialised equipment which should be kept in excellent working order
- 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

Advantages

- Procedure results in immediate death
- Large numbers can be killed quickly
Disadvantages

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

Conclusion

A suitable method for killing neonatal poultry and embryonated eggs.

**Article 10**

**Electrical – two stage application**

**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.

**Requirements for effective use**

- The stunner control device should generate a low frequency (30 – 60 Hz) current with a minimum voltage of 250 volts true RMS under load
- Appropriate protective clothing (including rubber gloves and boots) should be worn
- Animals should be restrained, at a minimum free-standing in a pen, close to an electrical supply
- 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
- 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
- Electrodes should be cleaned regularly and after use, to enable optimum electrical contact to be maintained
- Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes
Advantages

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

Disadvantages

- Requires a reliable supply of electricity
- The electrodes must be applied and maintained in the correct positions to produce an effective stun and kill
- 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)
- The procedure may be physically demanding, leading to operator fatigue and poor electrode placement

Conclusion

- A suitable method for calves, sheep and goats, and especially for pigs (over one week of age, see table footnote)

Article 11

Electrical – single application

Introduction

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.

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 shackles and, when sufficient current is applied, poultry will be simultaneously stunned and killed.

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).

Method 1

Requirements for effective use

- The stunner control device should generate a low frequency (30 – 60 Hz) current with a minimum voltage of 250 volts true RMS under load
- Appropriate protective clothing (including rubber gloves and boots) should be worn
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.

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.

Electrodes should be cleaned regularly between animals and after use, to enable optimum electrical contact to be maintained.

Water or saline may be necessary to improve electrical contact with sheep.

An effective stun and kill should be verified by the absence of brain stem reflexes.

Advantages

- Stuns and kills simultaneously.
- Minimises post-stun convulsions and therefore is particularly effective with pigs.
- A single team member only is required for the application.
- Non-invasive technique minimises biosecurity risk.

Disadvantages

- Requires individual mechanical animal restraint.
- The electrodes must be applied and maintained in the correct positions to produce an effective stun and kill.
- Requires a reliable supply of electricity.

Conclusions

- A suitable method for calves, sheep, goats, and pigs (over 1 week of age).

Method 2

Requirements for effective use

- A mobile waterbath stunner and a short loop of processing line are required.
- A low frequency (30-60 Hz) current applied for a minimum of 3 seconds is necessary to stun and kill the birds.
- 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.
- 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
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

A higher current is required for wet birds

- An effective stun and kill should be verified by the absence of brain stem reflexes

**Advantages**

- Stuns and kills simultaneously
- Capable of processing large numbers of birds reliably and effectively
- Non-invasive technique minimises biosecurity risk

**Disadvantages**

- Requires a reliable supply of electricity
- Handling, inversion and shackling of birds are required

**Conclusion**

A suitable method for large numbers of poultry.

**Method 3**

**Requirements for effective use**

- The stunner control device should generate sufficient current (more than 300 mA/bird) to stun
- Appropriate protective clothing (including rubber gloves and boots) should be worn
- Birds should be restrained, at a minimum manually, close to an electrical supply
- 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)
- Electrodes should be cleaned regularly and after use, to enable optimum electrical contact to be maintained
- Birds should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes

**Advantages**

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

**Disadvantages**

- Requires a reliable supply of electricity
- The electrodes must be applied and maintained in the correct position to produce an effective stun
Conclusion
Suitable for small numbers of birds

Article 12

CO₂ / air mixture

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.

Method 1

Requirements for effective use in a container or apparatus

- Containers or apparatus should allow the required gas concentration to be maintained and accurately measured
- 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
- 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
- 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
- Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other

Advantages
- CO₂ is readily available
- Application methods are simple

Disadvantages
- The need for special equipment
- The aversive nature of high CO₂ concentrations
- No immediate loss of consciousness
- The risk of suffocation due to overcrowding
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

- Difficulty in verifying death while the animals are in the container or apparatus.

Conclusion

Suitable for use in poultry and neonatal sheep, goats and pigs

Method 2

Requirements for effective use in a poultry house

- Prior to introduction of the CO₂, the poultry house should be appropriately sealed to allow control over the gas concentration
- The house should be gradually filled with CO₂ so that all birds are exposed to a concentration of >40% until they are dead; a vaporiser may be required to prevent freezing
- Devices should be used to accurately measure the gas concentration at the highest level of birds

Advantages

- Applying gas to birds *in situ* eliminates the need to manually remove live birds
- CO₂ is readily available
- Gradual raising of CO₂ concentration minimises the aversiveness of the induction of unconsciousness

Disadvantages

- Difficulty in determining volume of gas required to achieve adequate concentrations of CO₂ in some poultry houses
- Difficulty in verifying death while the birds are in the poultry house.

Conclusion

Suitable for use in poultry in closed-environment sheds

Article 13

Nitrogen/inert gas mixed with CO₂

Introduction

CO₂ 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 CO₂ 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$_2$ strongly aversive, and a mixture of nitrogen or argon with $\leq 30\%$ CO$_2$ by volume and $\leq 2\%$ O$_2$ by volume can be used for killing poultry and neonatal sheep, goats and pigs.

**Requirements for effective use**

- Containers or apparatus should allow the required gas concentrations to be maintained, and the O$_2$ and CO$_2$ concentrations accurately measured
- 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
- 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
- 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
- Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other

**Advantages**

- Low concentrations of CO$_2$ cause little aversiveness and, in combination with nitrogen or an inert gas, produces a fast induction of unconsciousness

**Disadvantages**

- Need for a properly designed container or apparatus
- Difficulty in verifying death while the animals are in the container or apparatus
- No immediate loss of consciousness
- Exposure times required to kill are considerable

**Conclusion**

A suitable method for poultry and neonatal sheep, goats and pigs.

**Article 14**

**Nitrogen and/or inert gasses**

**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, as it doesn’t induce any signs of respiratory distress prior to loss of consciousness.
Requirements for effective use

- Containers or apparatus should allow the required gas concentrations to be maintained, and the O₂ concentration accurately measured.
- 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.
- Animals should be introduced into the container or apparatus after it has been filled with the required gas concentrations (with ≤2% O₂), and held in this atmosphere until death is confirmed.
- 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.
- Containers or apparatus should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

Advantages

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

Disadvantages

- Need for a properly designed container or apparatus.
- Difficulty in verifying death while the animals are in the container or apparatus.
- No immediate loss of consciousness.
- Exposure times required to kill are considerable.

Conclusion

A suitable method for poultry and neonatal sheep, goats and pigs.

Article 15

Lethal injection

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.

Requirements for effective use

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

Advantages
• The method can be used in all species
• Death can be induced smoothly

Disadvantages
• Restraint and/or sedation may be necessary prior to injection
• Some combinations of drug type and route of administration may be painful, and should only be used in unconscious animals
• Legal requirements may restrict use to veterinarians

Conclusion
A suitable method for killing small numbers of cattle, sheep, goats, pigs and poultry

Article 16
Addition of anaesthetics to feed or water

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

Requirements for effective use
• Sufficient quantities of anaesthetic need to be ingested rapidly for effective response
• Intake of sufficient quantities is facilitated if the birds are fasted or water is withheld
• Must be followed by killing (Article 17) if birds are anaesthetised only

Advantages
• Handling is not required until birds are anaesthetised
• May be biosecurity advantages in the case of large numbers of diseased birds

Disadvantages
• Non-target animals may accidentally access the medicated feed or water when provided in an open environment
Appendix XXVI (contd)

Appendix G (contd)

Appendix III (contd)

- Dose taken is unable to be regulated and variable results may be obtained
- Animals may reject adulterated feed or water due to illness or adverse flavour
- May need to be followed by killing
- 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

Conclusion

A suitable method for killing large numbers of poultry in houses.

Article 17

Killing methods in unconscious animals

Method 1 Cervical dislocation (manual and mechanical)

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.

Requirements for effective use

- 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
- Consistent results require strength and skill so team members should be rested regularly to ensure consistently reliable results
- Birds should be monitored continuously until death to ensure the absence of brain stem reflexes

Advantages

- It is a non-invasive killing method
- Can be performed manually on small birds.

Disadvantages

- Operator fatigue
- The method is more difficult in larger birds

Conclusion

This method is suitable for killing unconscious poultry.
Method 2 Decapitation

Introduction
Decapitation results in death by cerebral ischaemia using a guillotine or knife.

Requirements for effective use
• The required equipment should be kept in good working order

Advantages
• The technique is effective and does not require monitoring

Disadvantages
• Contamination of the working area with body fluids

Conclusion
This method is suitable for killing unconscious poultry.

Method 3 Pithing

Introduction
Pithing is a method of killing animals which have been stunned by a penetrating captive bolt. 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.

Requirements for effective use
• Pithing cane or rod
• Access to the head of the animal and to the brain through the skull
• Animals should be monitored continuously until death to ensure the absence of brain stem reflexes

Advantages
• The technique is effective in producing immediate death

Disadvantages
• Delayed and/or ineffective pithing due to convulsions
• Contamination of the working area with body fluids

Conclusion
This method is suitable for killing unconscious animals which have been stunned by a penetrating captive bolt.
Method 4 Bleeding

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.

Requirements for effective use

- Sharp knife
- Access to the neck or chest of the animal
- Animals should be monitored continuously until death to ensure the absence of brain stem reflexes

Advantages

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

Disadvantages

- Delayed and/or ineffective bleeding due to convulsions
- Contamination of the working area with body fluids

Conclusion

This method is suitable for killing unconscious animals.
### Animal Welfare Working Group 2004 work programme

<table>
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<th>Implementation</th>
<th>Status at December 2004</th>
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<td>Guiding principles</td>
<td>To be submitted for adoption by International Committee</td>
<td>To revise text on ‘scientific basis for guidelines’ by end April (Fraser)</td>
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<td>3. Humane slaughter for human consumption</td>
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<td>4. Killing for disease control</td>
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<td>5. Aquaculture animal welfare</td>
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<td>6. Transport by air</td>
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<td>Identification of possible expertise (centres of expertise and individual experts)</td>
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<td>Chair of Working Group to present paper and respond to questions from Member Country delegates</td>
<td>May 2004 (Bayvel)</td>
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<td>Inclusion of AW in veterinary curricula and CPD</td>
<td>Encourage uptake of WSPA Concepts programme</td>
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<td>continuing (All)</td>
<td>many examples</td>
</tr>
<tr>
<td>Working Group members to utilise OIE Regional conferences, and other relevant conferences</td>
<td>continuing (All)</td>
<td>CVA Australasian/Oceania conference in PNG; OIE Regional Conferences in Spain and Panama; many other examples supplanted by OIE Web site</td>
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<tr>
<td>OIE to develop animal welfare CD-ROM for Working Group members and Delegate use</td>
<td>end 2004 (Maria Zampaglione)</td>
<td>to be completed</td>
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<tr>
<td>OIE and the WTO to draft a document clarifying the international legal issues associated with animal welfare and international trade</td>
<td>end April (Thiermann) (Bayvel)</td>
<td>Bayvel speaking; OIE attending</td>
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<tr>
<td>To liaise with CIWF re March 2005 conference re speaker opportunity</td>
<td>Continuing (All) (Gavinelli) (Bayvel) (All)</td>
<td>completed</td>
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<tr>
<td>To liaise with governments and international organisations re animal welfare topics at upcoming conferences:</td>
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<tr>
<td>- Netherlands conference, December 2004</td>
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<tr>
<td>- WVA conference, July 2005</td>
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<tr>
<td>Working Group members to provide stakeholder information for use by OIE</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>
<td>proceeding on schedule</td>
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<tr>
<td>Membership</td>
<td>Member drawn from animal industries with an interest in animal transport, production and slaughter.</td>
<td>Director General to write to relevant international organisations</td>
<td>correspondence with IFAP, IDF and IMS; IFAP attended December meeting as observer</td>
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</table>
### Animal Welfare Working Group 2005 work programme

<table>
<thead>
<tr>
<th>Decision of Working Group</th>
<th>Implementation</th>
<th>Status at December 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further work on adopted standards</td>
<td>Review outcomes of General Session regarding future meetings of <em>ad hoc</em> groups</td>
<td>AHGs to meet in first half 2005, under chairmanship of Prof Hastein</td>
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<tr>
<td></td>
<td>Address outstanding species specific issues</td>
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<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>
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<tr>
<td>Expertise database</td>
<td>Identification of possible expertise (centres of expertise and individual experts)</td>
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<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>May 2005 (Bayvel)</td>
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<tr>
<td>Improved animal welfare awareness within veterinary profession</td>
<td>Coordinate with WVA / CVA activities</td>
<td>Continuing (Rahman)</td>
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<td></td>
<td>OIE Collaborating Centre at Teramo</td>
<td>discuss role of Centre and relationship with WG (Gavinelli/ Wilson)</td>
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<tr>
<td>Inclusion of animal welfare in veterinary curricula and CPD</td>
<td>Encourage uptake of WSPA Concepts programme</td>
<td>Continuing (Rahman/Wilkins)</td>
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<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>
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<td>Working Group members to utilise OIE Regional conferences, and other relevant conferences</td>
<td>Continuing (All)</td>
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<td>OIE and the WTO to draft a document clarifying the international legal issues associated with animal welfare and international trade</td>
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Animal Welfare Working Group 2005 work programme

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<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) Proceeding on schedule</td>
</tr>
<tr>
<td>Membership</td>
<td>Member drawn from animal industries with an interest in animal transport, production and slaughter.</td>
<td></td>
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<tr>
<td>Coordination with other international organisations</td>
<td>FAO IDFF/IMS IFAP AATA/IATA/WAZA</td>
<td>Director General to continue to discuss membership with relevant international organisations eg IDFF/IMS/IFAP 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>wildlife and zoo animal welfare harvesting/culling</td>
<td>Collaborating Centre to review existing information (Masiga/Wilkins/Rahman)</td>
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<td></td>
<td>laboratory animal welfare housing animals used in regulation and diagnostic testing (including on vaccines) alternatives to animal use</td>
<td>Collaborating Centre to review existing information (Bayvel)</td>
</tr>
<tr>
<td></td>
<td>terrestrial animal welfare – housing/production generic housing systems</td>
<td>Collaborating Centre to review existing information (Fraser/Aidaros)</td>
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</table>
GUIDELINES FOR THE SLAUGHTER OF ANIMALS FOR HUMAN CONSUMPTION

See Appendix XXIII of this report.
REPORT OF THE THIRD MEETING OF THE OIE WORKING GROUP ON ANIMAL PRODUCTION FOOD SAFETY

Paris, 1-2 April 2004

The OIE Working Group on Animal Production Food Safety held its third meeting at the OIE Headquarters in Paris from 1 to 2 April 2004.

The members of the OIE Working Group and other participants are listed in Appendix A; apologies were received from Dr A. Randell. As Dr J. Schlundt (World Health Organization [WHO]) was unavailable, Dr P. Ben Embarek participated in his place. The Agenda adopted is given in Appendix B. The report of the previous meeting was adopted unchanged.

Introduction

Dr Bernard Vallat, Director General of the OIE, welcomed the members of the Working Group and the other participants to the OIE Headquarters. The Director General noted that one of the major responsibilities of the Working Group was coordination of the OIE’s work on food safety with that of the Codex Alimentarius. He indicated that he was aware of the challenges facing both organisations in this joint work, partly due to their different cultures and procedures in adopting standards. Working efficiently with the WHO was also critical. As a result, the OIE had decided to enlarge the Working Group and, in this regard, it had invited to the meeting experts from Codex Alimentarius and the Food Safety Department of the WHO; their membership of the Working Group will be presented for formal endorsement by the OIE International Committee in May 2004. Furthermore, to assist the output of the Working Group, the OIE had increased the Headquarters resources working on food safety.

The Director General pointed to traceability and antibiotic resistance as two areas where coordination was important to achieve the necessary progress to enable Member Countries to set up national regulations. The presence of guidelines would minimise differences among the regulations of Member Countries. He also noted the two draft papers developed by members of the Working Group and considered as a useful exercise the proposed revision of the bovine tuberculosis chapter of the OIE Terrestrial Animal Health Code (hereafter referred to as the Terrestrial Code).

Cooperation with Codex and WHO

Dr S. Slorach indicated that his intention was to continue the current high level of Codex cooperation with the OIE to ensure appropriate input into the standards of each organisation.
Appendix XXVII (contd)

Both Dr Slorach and Dr Vallat agreed that the two organisations needed to ensure that their work together was transparent to their members, and that the members were encouraged to circulate information as broadly as possible within their countries. Dr Vallat indicated that the OIE was fully open to a formal agreement with Codex; he noted that revised agreements with the parent organisations were in the process of being adopted the following month. He also indicated the importance of the decisions to be taken by the Codex Committee on General Principles on guidelines for cooperation with other intergovernmental organisations. The Working Group recognised that a different approach was warranted in the case of the OIE, in comparison to other international organizations, in order to emphasize the unique relationship between Codex and the OIE in the standard setting process under the WTO Agreement on the Application of Sanitary and Phytosanitary Measures.

Dr Slorach and the Chair reported on the most recent Codex meetings – Codex Committee on Meat Hygiene, Codex Committee on Food Import and Export Inspection and Certification Systems, and the Executive Committee of Codex. They noted agenda items listed for upcoming Codex meetings relevant to the work of the Working Group, including principles of risk analysis, antibiotic resistance, traceability, and guidelines for cooperation with other intergovernmental organisations. The outcomes of Codex Committees on Meat Hygiene, on Milk and Milk Products and the Codex task force on Animal Feeding have both included OIE input. There was general agreement that the greater level of OIE input into Codex standards had resulted from better tracking of Codex activities by the OIE.

Dr Ben Embarek informed the Working Group that the WHO was developing a database of national food safety authorities (for which comment from the OIE and Codex had been sought) and of the upcoming Global Forum for Food Safety Regulators (October 2004).

Revision of the Terrestrial Code chapters on bovine tuberculosis and bovine spongiform encephalopathy

The Chair updated the Working Group on the history of the revision of the tuberculosis chapter. He noted that a risk-based approach to the food safety aspects had been introduced, that there had been an attempt to differentiate animal health and public health objectives, and the concept of ‘competent authority’ had been introduced into the certification articles to address situations where responsibility for public health was not within Veterinary Administrations of the exporting country. There was discussion on the importance of a risk-based approach to standards development, but agreement that the measures recommended must be practicable and be able to be applied in Member Countries as a basis for international trade.

The President of the Code Commission explained that comments from Member Countries on the revised tuberculosis chapter would be reviewed just prior to the OIE General Session and, if comments were minor and positive, the revised chapter may be put for adoption. If not, it would be returned to the Code Commission for further work. He advised that the Code Commission was, for all disease chapters, trying to identify the risks (both animal and public health) presented by a commodity and to compose specific measures to address those risks. Where the risks are common to animal and public health, a reference would be made to the fact that the particular measure serves both animal and public health objectives.

The Working Group recommended that the OIE adopt a broader view of ‘competent authority’ in the Terrestrial Code to incorporate veterinary administrations and other authorities with the relevant responsibilities. There was also a need to cross reference Codex texts on certification. This would assist an integrated approach to animal health and public health risks. The Working Group noted that these comments on ‘competent authorities’ were also relevant to the BSE Chapter of the Terrestrial Code.

Coordination of OIE and Codex standards development

The Working Group noted the proposal from the Joint FAO/OIE/WHO Workshop on Non-human Antimicrobial Resistance (held in Oslo in March 2004) to establish an OIE/Codex Task Force to develop risk management options in this area. The matter will be discussed at the next session of the Codex Alimentarius Commission to be held at the end of June 2004.
The Working Group recommended that the OIE and Codex collaborate closely while separately developing guidelines on traceability dealing with animals (OIE) and animal products (Codex).

The Working Group recommended that the OIE Aquatic Animal Health Standards Commission be mindful of food safety issues in developing or revising its standards.

In view of the value of cross-referencing the standards of the two organisations, the Working Group recommended that, in their future work, the OIE and Codex continue to introduce visible linkages between standards, especially those addressing horizontal issues.

The Working Group considered that it may be useful for Codex and OIE regional officials to be involved in the work of the other organisation, to improve understanding and encourage a greater level of understanding both at national and regional level.

**Paper on ‘Role and functionality of veterinary services in food safety through the food chain’**

The Chair noted that the paper had been written primarily to provide Veterinary Services with a bridge between the work of OIE and Codex where there was a need to meet both animal and public health objectives and was to serve as a background paper for the Director General of the OIE. The Working Group discussed several issues in the development of subordinate papers, including the inclusion of risk analysis in standards development and the inclusion of references to other disciplines.

The Chair indicated that he would take into account comments from Member Countries in finalising the document, and send it to the Director General of the OIE to serve as a guide for OIE work on food safety.

**Development of principles on traceability/traceback as a precursor to guidelines/standards**

The Working Group noted that ‘animal identification’ was an agenda item at the OIE General Session and that a draft resolution identified traceability as an OIE priority. It also noted that a draft paper was due to be discussed at the Codex Committee on General Principles. The Working Group acknowledged the importance of the issue and encouraged both organisations to coordinate closely to ensure consistency in developing systems to facilitate traceback to farms, animals and animal feed for public and/or animal health reasons. At least, there should be agreement on the principles and basic definitions.

The Working Group noted that there may be problems of cost and feasibility (regardless of need) associated with the implementation of traceability systems in developing countries and considered that it would be useful to involve Regional Commissions to help achieve the widest possible application.

Adopting a risk based approach would determine the need and extent of trace back systems required in specific Member Countries. Countries should be able to implement trace back systems according to their own situation.

**Good farming practices**

Dr Isabelle Chmitelin submitted the paper and indicated that this paper was designed as guidelines and adopted a farm-level animal production approach to address public health risks at the farm, at this stage generically, with the opportunity to add specific references later to address particular issues or situations in specific regions or countries. The paper was directed at veterinary administrations and other competent authorities to promote and implement good farming practices (as appropriate) within their countries as a component of the overall animal health system and, as such, would cover all farm activities but would refer to relevant documents from other organisations.
Appendix XXVII (contd)

The Working Group acknowledged that the ‘guidelines’ described what might be ideal in specific farming situations but might not necessarily be seen as applying to all situations in all Member Countries where risks might be different and animal husbandry practices varied.

The Working Group discussed whether the paper should be published as a joint FAO/WHO/OIE publication or as an OIE document with FAO and WHO input. It was decided that the OIE would continue with the development of this paper, but would invite WHO, FAO and the Codex to contribute. The Group felt that this approach presented fewer difficulties and that other organizations would later be encouraged to cross-reference this document, as the Codex Committee on Meat Hygiene had done with other OIE documents.

The Working Group agreed that a revised version of the paper would be reviewed by the Bureau of the Code Commission in July, before circulation to Member Countries for comment. Letters would be sent to WHO and FAO seeking input. The paper is at Appendix C.

Framework document on ‘Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection’

The Chair presented the paper and explained that the paper addressed one of the priorities identified by the Working Group arising from the paper on the role and functionality of veterinary services in food safety. The paper was intended as a framework covering this important area where Veterinary Services serve both animal and public health needs, and would need further development.

The Working Group discussed various aspects of the paper (including whether it could serve as a stand alone document with some modification) and agreed that the Chair would revise the paper for confirmation by Working Group members before review by the Bureau of the Code Commission in July. The Working Group recommended that the OIE then progress the development of specific guidelines, through an ad hoc Group. The paper is at Appendix D.

Work programme for 2004

The Working Group discussed issues identified at the previous meeting and which still needed to be addressed at some stage in the work programme. The following priorities for 2004 were agreed:

1) Horizontal issues
   a) Traceability
   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

2) OIE texts
   a) Terrestrial Code chapter on bovine tuberculosis – underway
   b) Terrestrial Code chapter on bovine brucellosis – the Working Group recommended that the OIE commence scientific review, pending International Committee approval of the approach adopted for bovine tuberculosis
   c) Salmonellosis – take into account Codex and WHO work

3) OIE input into Codex texts
   a) Upcoming Codex meetings on animal feeding, veterinary drugs and milk and milk products
b) Improvement of the current level of OIE input into Codex texts and development of a method for the most effective utilisation of Codex expertise in the work of OIE ad hoc Groups

4) Antimicrobial resistance

5) Development of other documents
   a) good farming practices
   b) framework document on ‘Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection’.

**Resolutions and recommendations for the 72nd General Session (2004)**

These would be developed from the presentation of the Chair to the OIE International Committee.

**Next meeting**

The Working Group agreed that its next meeting should be held at a time to enable review of Member Countries’ comments on the outcomes of the current meeting and prior to the Code Commission’s January 2005 meeting.
THIRD MEETING OF THE OIE WORKING GROUP ON ANIMAL PRODUCTION FOOD SAFETY

Paris, 1-2 April 2004

List of participants

<table>
<thead>
<tr>
<th>MEMBERS OF THE OIE WORKING GROUP</th>
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<tbody>
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<td>Dr Stuart Slorach</td>
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</tbody>
</table>

OTHER PARTICIPANTS
Appendix XXVII (contd)

Appendix A (contd)

**OIE HEADQUARTERS**

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<tr>
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OIE Terrestrial Animal Health Standards Commission/January 2005
THIRD MEETING OF THE OIE WORKING GROUP ON
ANIMAL PRODUCTION FOOD SAFETY
Paris, 1-2 April 2004

Agenda

1) Update from the Director General of the OIE and the Chair of the CAC
2) Report of the previous Working Group meeting
3) Reports from recent relevant CAC meetings
4) Revised chapters on bovine tuberculosis and BSE proposed by the Terrestrial Animal Health Standards Commission
5) Discussion
   a) Coordination of OIE and Codex standards development
   b) ‘Role and functionality of Veterinary Services in food safety through the food chain’
   c) Development of principles on traceability/traceback as a precursor to guidelines/standards
   d) Development of guidelines on ‘good farming practices’ as a joint publication of OIE/FAO/WHO
   e) Framework document on 'ante- and post-mortem activities in the production of meat to reduce hazards of public and animal health significance'
6) Work programme for 2004
7) Resolutions and recommendations for the 72nd General Session (2004)
8) Other issues.
INTRODUCTION

These guidelines are intended to help competent authorities and stakeholders, especially farmers, to fully assume their responsibilities at the first stage of the food chain to optimise the food safety control of products of animal origin offered to consumers.

The recommendations in these guidelines complement the responsibilities of the competent authorities at the farm level, and in particular of the Veterinary Services.

Food safety is now universally recognised as a public health priority. It requires a global approach, from production to consumption, which is so aptly conveyed by the expressions “from the stable to the table” and “from the field to the plate”.

As far as animal products and products of animal origin are concerned, this inevitably means controlling the health status of the animals from which these food products are derived. These status must of course be assessed with regard to any infectious (bacteria and viruses) or parasitic agents, and especially zoonotic agents, that they could be carrying at the primary production stage. The possibility of the animals having ingested and possibly accumulated chemical (drug residues, pesticides, heavy metals, etc.) or physical contaminants (radioactive elements, foreign bodies, etc.) during their lifetime must also be addressed.

Any such biological, chemical and physical agents present in the body of the live animal may then contaminate animal products (milk, meat, fish, eggs, etc.) at levels considered unacceptable in terms of public health. Controlling the safety of food of animal origin at the primary production stage therefore involves all the measures to be implemented at the farm or production unit level necessary to ensure that these contaminants do not end up in animal products, or, if they do, that their levels do not exceed the maximum permissible levels, notably the maximum residue limits (MRL) and microbiological criteria set by the Codex Alimentarius Commission.

The tools for controlling food safety, namely the codes of hygienic practice and the HACCP system (Hazard Analysis and Critical Control Point), have proved their effectiveness at the secondary production and distribution stages. It is clearly appropriate to try to apply them wherever possible at the primary production stage of animal products, in other words at the farm or production unit level, whenever an appreciable improvement in the level of the control of food safety may result.

SCOPE

The present document addresses all those hazards whose control at farm level can have a beneficial or even decisive effect on the food safety of products of animal origin (including: milk and milk products, meat and meat products, eggs and egg products, honey and apiculture products).

It does not address the processing of products at the farm level which comes within the scope of specific standards in the Codex Alimentarius.
Appendix XXVII (contd)

Appendix C (contd)

It does not address animal welfare aspects of farm production.

The hazards identified at the farm level are as follows:

1. **BIOLOGICAL HAZARDS:**

The biological agents of the most common and/or dangerous diseases that can be transmitted to humans via foodstuffs of animal origin are: *Salmonella*, *Campylobacter*, verotoxinogenic *Escherichia coli* (VTEC), including *Escherichia coli* O157:H7, *Listeria monocytogenes*, *Toxoplasma*, *Leptospira*, *Coxiella Burnetii* (Q fever), *Brucella*, *Mycobacterium* (tuberculosis), *Yersinia enterocolitica*, prions (BSE agent, etc.), and parasites such as *Taenia solium*, *Taenia saginata* and *Trichinella spiralis*.

While these pathogens arouse the greatest concern among consumers and governments in terms of food safety, the diseases they cause are also the most difficult to prevent at the farm level as they can also be transmitted by warm-blooded animals, such as birds, crawling or flying insects and even by water or the soil.

2. **CHEMICAL AND PHYSICAL HAZARDS:**

These hazards chiefly consist of drug residues (notably antibiotics), growth promoters (some unauthorised hormones, substances having a thyrostatic action and anabolic substances), residues of chemical products used on the farm (pesticides, disinfectants, etc.), environmental contaminants (dioxins, PCBs, PAHs, heavy metals, radioactive isotopes, etc.) as well as foreign bodies (needles, fragments of glass, pieces of plastic or metal, etc.).

In the majority of cases, the action needed at the farm level to reduce or eliminate the risk presented by these chemical and physical contaminants is, in comparison to that needed to control biological risks, easier to implement.

The remainder of this document considers the various hazards that need to be taken into account at the primary production level and in each case recommends actions to reduce the risks that their occurrence poses for public health.

Eight areas of primary production in which these preventive actions can usefully be implemented are dealt with in turn:

I – Buildings and other facilities: surroundings and environmental control

II – Health conditions for introduction of animals into the farm

III – Animal feeding

IV – Animal watering

V – Veterinary drugs

VI – Farm management

VII - Preparation of animals for slaughter

VIII - Common measures

**SECTION I – BUILDINGS AND OTHER FARM FACILITIES: SURROUNDINGS AND ENVIRONMENTAL CONTROL**

**Hazards:** These consist of pathogenic biological agents (*e.g.* *leptospirosis*, *salmonellosis*, *trichinosis*, *legionellosis*, etc.), chemical agents (*e.g.* dioxins, pesticides, hydrocarbons, etc.) or physical agents (*e.g.* radioisotopes) which can be a direct (air-borne or feed-borne) or indirect (notably via water and feedstuffs) source of contamination for animals.
Appendix XXVII (contd)

Appendix C (contd)

1) coming from farm's immediate surroundings

GGFP recommendations:

- Avoid conducting farming activities close to industrial activities likely to be a source of pollution (e.g. domestic waste incineration plant releasing dioxins, surface processing plant releasing solvents or heavy metals, etc.) or in an environment susceptible to air-borne pollution (e.g. near a road with heavy motor traffic – emissions of lead and hydrocarbons), soil pollution (former industrial site or site where dumping of toxic substances has taken place) or the proliferation of pests (e.g. open municipal rubbish tip),

- Site farm buildings or other facilities (e.g. in the case of extensive husbandry) so that they are independent of private buildings (residential accommodation), sufficiently far away from areas where waste materials are stored, and so that access by visitors can be effectively controlled (direction signs or "access prohibited" signs where necessary).

- Site farm buildings or other facilities away from buildings used for purposes on neighbouring farms which could increase the risk of disease transfer.

- If necessary, seek the advice of the relevant competent authorities (e.g. Veterinary Services, Environmental Services, etc.).

2) coming from failure to control the environment in livestock buildings

GGFP recommendations:

Design farm buildings and other livestock facilities:

- adequate in size and correctly ventilated,

- with a rational arrangement of the premises (separation of clean and soiled areas, absence of any intersection of production chains, separation of working areas and storage areas from animal production areas),

- allowing animals to be dealt with in single groups (poultry, pigs) and newly arrived (quarantine) or sick animals (observation pen) to be satisfactorily isolated,

- allowing easy, complete and effective cleaning and disinfection,

- correctly isolated from pests and from wild or stray animals, and from other domestic animals as appropriate,

- allowing easy, rational and effective evacuation of excreta,

- suitably equipped for the collection of farm effluents and wastewater,

- keeping the immediate surroundings clear and free from stagnant water and anywhere that could harbour pests, and arranged so as to allow easy disinfection of areas used by professional visitors (veterinarian, animal or feed deliverers, milk or egg collectors, carcass disposal agents, etc.),

- so as to make access difficult for unauthorised persons or vehicles (barriers, fences, signs),
Appendix XXVII (contd)

Appendix C (contd)

- taking into account the risk of natural disasters (flooding, landslides, heat waves, prolonged freezing conditions, earthquake, etc.),
- using inert construction and surface materials that cannot be a potential source of contamination (e.g. prohibit the use of lead paint),
- if necessary, seek the advice of a veterinarian, para-veterinarian or an official with the relevant competent authority.

SECTION II – HEALTH CONDITIONS FOR INTRODUCTION OF ANIMALS INTO THE FARM

Hazards: These consist of biological agents (pathogenic bacteria, viruses, parasites,…) of herds/flocks arising from animals introduced without all the necessary health guarantees.

GGFP recommendations:

- Introduce into the farm only animals from farms at which the present GGFP has been implemented,
- Introduce only animals of known health status (for example regarding tuberculosis, brucellosis, leptospirosis, vibriosis, salmonelloses and cryptosporidiosis), in accordance with the provisions adopted by the competent authority (Veterinary Services),
- Ensure that all the animals introduced are correctly identified (tagged or marked) and that their identification does indeed correspond to the accompanying health documents,
- Obtain from the seller full details of the route taken by the animals being introduced, from the hatchery, apiary, herd or flock of origin to their destination,
- Control the sanitary conditions under which the introduced animals are transported: ensure that the deliverer has a suitable vehicle and implements an effective cleaning and disinfection programme for the vehicle, so as to reduce the risk of transmitting pathogens between production units or farms,
- Obtain a declaration from the seller regarding any chemical residues that might be present due to the introduced animal's having recently been treated,
- Refuse any introduction of animals presenting suspicious clinical signs on delivery, and if necessary inform the competent authority (Veterinary Services) if a contagious disease is suspected,
- Record full details of the purchased animals: description, identification, sex, age, health status, date of introduction, name and address of the seller and of the attending veterinarian, etc.,
- Isolate the newly introduced animal(s) for a suitable surveillance and acclimatisation period,
- Arrange for a veterinarian or para-veterinarian to perform any necessary biological tests when the animals are introduced and isolated, and do not bring these animals into contact with other animals on the farm until the results of these tests are known and have proved satisfactory.

SECTION III – ANIMAL FEEDING

Hazards: These consist of biological agents (bacteria, viruses, prions, parasites, antibiotics, promoters, phytotoxins or mould toxins), chemical agents (farm chemicals (pesticides), dioxins, heavy metals, environmental contaminants,…) or physical agents (foreign bodies,…) which could be present in animal feed, and consequently in animal products (milk, meat, fish, egg products, etc…). Risks may also result from an overdosage of certain components, notably medication, in animal feed.
**GGFP recommendations:**

The use of veterinary drugs as supplements in animal feeding should be done in accordance with section V.

**Grassland and pasture**

- Carry out a risk assessment when livestock are put out to pasture outside the farm: in particular, ensure that the land where the animals are put out to pasture is not exposed to potential sources of chronic contamination (e.g. main road with heavy traffic, domestic waste incineration plant), is not polluted with chemical residues (e.g. pesticides, dioxins, heavy metals) at an unacceptable level and is not known to harbour animal pathogens (bacteria: e.g. anthrax spores; parasites: e.g. flukes),
- Ensure that the fields surrounding the pasture are not sprayed with substances that have not been shown to be safe, and that the animals cannot have access to potentially contaminating material on the perimeter of the pasture (e.g. unauthorised dumping, stocks of herbicides, posts coated with aluminium paint),
- Carefully follow the manufacturer's instructions shown on the label before spreading any chemical product on fields, pastures or in grain silos,
- Respect the recommended waiting times before animals are put out to pasture after the pasture or neighbouring pieces of land have been treated with agricultural chemicals,
- Comply with recommendations of the use of animal by-products for agricultural reclamation/spreading,
- Prevent livestock entering pastures containing toxic plants,
- When purchasing pasture or other land, require certification for the land in question regarding previous use of agricultural inputs or any chemical pollution (resulting for example from dumping of industrial waste). Where necessary, have a soil study carried out to detect the presence of any toxic chemicals.

**Use of commercial feed**

- Require that all the animal feed purchased is free of chemical residues and complies with regulatory requirements (obtain, if this is not stated on the label, a certificate guaranteeing that it complies with the regulations),
- Check that the feed delivered is correctly labelled (manufacturer's name, composition, manufacturing date, use-by date, instructions for use and precautionary measures to be followed, batch number, etc.) and that the packaging is intact and without any defect that might have affected the contents,
- Control the quality of the feed delivered in terms of appearance (visual examination) and keep a written record of this control,
- Refuse, treat appropriately or destroy any feed presenting traces of contamination by mould,
- Ensure that feed for ruminants is free from any trace of animal by-products prohibited by the regulations and eliminate any risk of accidental cross-contamination,
- Keep samples of purchased feed for any subsequent analytical testing should a problem of residues be identified at the farm production level,
Appendix XXVII (contd)

Appendix C (contd)

– Store feed in a clean area, protected from humidity and pests (insects and rodents),
– If storage conditions are not optimal, prefer more frequent deliveries of smaller quantities,
– Keep an up-to-date register of feed delivered and used (batch numbers, date used and destination),
– Seek advice if there is the slightest doubt as to the quality of the feed given to animals,
– When a problem exists, immediately inform the supplier and, if necessary, the competent authorities.

Manufacture of animal feed on the farm

– Control the quality of the raw materials delivered in terms of their appearance (visual examination, to rule out any risk of macroscopic contamination) and keep a record of this control,
– Ensure that all the raw materials of plant origin used as ingredients for animal feed have been grown, stored and treated using validated procedures,
– Keep an up-to-date register of the raw materials delivered and used (batch numbers, dates used, batch numbers of the feed in which they were used),
– Store the raw materials in a clean area, protected from humidity and pests (insects and rodents),
– Eliminate raw materials presenting traces of contamination with mould,
– Ensure that the water used is potable,
– Comply with the recommendations regarding storage (in a safe place) and the use of additives and feed supplements (always follow the recommendations on the label regarding dosage and withdrawal periods),
– Ensure uniform mixing of the different components,
– Eliminate any risk of cross-contamination, at all stages (production, storage and distribution),
– Have clearly defined written procedures for the manufacture of feed, fixing precisely the formulation, production stages, and in particular making provision for mixers to be purged between the production of two types of feed with different ingredients,
– Regularly control and calibrate weighing machines,
– Plan corrective actions to be implemented in the event of a formulation error and actions to deal with substandard batches that might constitute a hazard,
– Keep, and file for as long as necessary, up-to-date manufacturing records specifying the dosage and batch number(s) of each of the raw materials used,
– Keep samples of manufactured feed for subsequent analytical testing should a problem of residues be identified at the farm production level,
– Set a use-by date for each batch of manufactured feed, taking into account the use-by dates of each of the ingredients and the packaging and storage conditions,
– Correctly label the sacks or hoppers containing the manufactured feed (date of manufacture, feed type, batch number, use-by date),

– Store the manufactured feed in a clean place, protected from humidity and pests (insects and rodents),

– In the case of bulk feed, do not mix two batches of feed in the same container (separate hoppers),

– Have the composition of the manufactured feed controlled at least once a year (correct dosages of the various ingredients, presence of any contaminants),

– Keep an up-to-date register of feed delivered and used (batch numbers and dates of use),

– Seek advice if there is the slightest doubt as to the quality of the manufactured feed,

– When a problem occurs that could affect the safety of animal products, inform the competent authorities immediately.

**General recommendations on animal feeding:**

– Avoid overfilling the animals’ feeding troughs (fill them twice rather than once, adapt the quantity of feed to the specific requirements of the animals),

– Remove any unused feed from the troughs before refilling,

– Clean the troughs and automatic feeders regularly,

– Ensure animals are fed with feed suitable for the species.

**SECTION IV – ANIMAL WATERING**

**Hazards:** These are basically of two types: microbiological and chemical.

**Microbiological hazards**

These consist of:

– pathogenic bacteria which include toxic strains of *Escherichia coli* (e.g. *E. coli* O157:H7), Salmonella spp., *Vibrio cholerae* and *Shigella* spp,

– viruses which include small round structured viruses (SRSV or Norwalk virus) and the hepatitis A virus,

– parasites which include pathogenic protozoa such as *Cryptosporidium parvum*, *Giardia lamblia* and *Cyclospora cayetanensis*, and eggs and larvae of nematoda, cestoda and trematoda.

Microbiological hazards are most frequently caused by human waste and animal excreta, which may contaminate the water supply used for livestock.

**Chemical hazards**

These consist of farm chemicals (e.g. pesticides, nitrates/nitrites), industrial contaminants (e.g. dioxins, PAHs, heavy metals), or the water supply network itself (e.g. lead piping).
These chemical agents may eventually be found in animal products (milk, meat, egg products, aquaculture products, apiculture products, etc.) as a result of the animals' drinking this water.

GGFP recommendations:

- The use of veterinary drugs as supplements in animal watering should be done in accordance with section V,
- Prevent, by means of barriers or fences, domestic or wild animals approaching safe water reserves or watering points and polluting them,
- Prevent, by means of barriers or fences, livestock approaching polluted water reserves or watering points and contaminating themselves,
- Protect water reserves from contamination by undesirable substances, and specifically:
  - Use chemicals and organic substances with great care (comply with doses and minimum distance requirements), notably near water collection points, streams and ditches,
  - Always follow the manufacturer's instructions (see label) for the use of any chemical product for spraying or fumigating (how to apply, dosage and waiting time),
  - Avoid using pesticides and herbicides anywhere where there is a possibility of contaminating the water table or nearby water collection points,
  - Avoid cleaning spraying equipment or chemical product containers in places where any remaining substances and the flushing water can re-enter the water supply network,
  - Avoid spreading slurry, manure or dairy effluents where there is any possibility of their contaminating the water table or nearby water collection points,
  - Avoid human and animal effluent being a source of contamination.
- Monitor compliance of, maintain and regularly clean water distribution systems. Use closed-circuit systems whenever possible, so as to reduce access by other animals,
- Have the bacteriological and physico-chemical quality of water regularly tested, where appropriate (e.g. bore-hole), and ask to receive the results of analyses conducted on water in the local water supply network,
- Seek advice and test the water resources if there is the slightest doubt about the safety of water used for animals.

SECTION V – VETERINARY DRUGS

Hazards: These consist of inappropriate use of both veterinary drugs, which may induce presence of residues in food products, and antibiotics, which may induce creation of multi-resistant bacterial strains, which can pose a major threat to public health.

GGFP recommendations:

- Any therapeutic treatment should only be undertaken when the diagnosis is precise and certain, and should be based on the dual principle of maximum efficacy and minimum risk,
Appendix XXVII (contd)

Appendix C (contd)

– Use only drugs that are authorised for the treatment of the particular species, and use antimicrobials only on veterinary prescription and as prescribed,

– Use drugs in accordance with the species, uses and doses indicated on the label, and in accordance with the instructions on the label or on the advice of a veterinarian well acquainted with the animals and the production site,

– Use only drugs that are known to be effective for the intended use and in strict compliance with the recommendations on the label or the veterinarian's prescription,

– Do not use veterinary drugs beyond their expiry date,

– Use weighing machines, animal measuring tape or other suitable measuring instrument to evaluate the weight of the animals and adjust the dose to be administered (avoid any overdosage),

– Wherever possible, isolate sick animals from healthy animals, so as to avoid the transfer of resistant bacteria, and treat animals individually,

– Strictly observe the recommended withdrawal periods so as to guarantee that residue levels in food of animal origin do not present any risk to the consumer, on the understanding that any drug likely to result in residues must be prescribed by a veterinarian,

– Use the appropriate techniques and equipment to administer drugs, and avoid any accidental contamination of the product by thoroughly cleaning equipment, such as buckets. Change the syringe for each new drug and, if appropriate, the needle for each animal.

– In the event of the injection needle breaking in the animal's muscle tissue, place an indelible mark on the injection site, note the identification number of the animal and record the problem in a written document which will accompany the animal to the abattoir,

– Keep a written record of all treatments dispensed to the animals, and keep all the laboratory reports, including bacteriological tests and sensitivity tests,

– Keep up-to-date records of the use made of veterinary drugs on the farm, including the following information:
  ✓ name of the product or active substance, and the batch number,
  ✓ supplier's name,
  ✓ dates of administration and date of end of treatment,
  ✓ identification of the animal (or group of animals) to which the drug was administered,
  ✓ diagnosis or clinical signs treated,
  ✓ quantity of the drug administered and the administration route (if transcutaneous, state the injection site),
  ✓ withdrawal periods (dates from which milk, meat or any other animal product can be offered for human consumption),
  ✓ results of laboratory tests,
  ✓ effectiveness of the therapy,

and place them at the disposal of the competent authority (Veterinary Services),
Appendix XXVII (contd)

Appendix C (contd)

- Develop rational stock management procedures for drugs, in particular vaccines and medicated premixes (keep an up-to-date record of stock movements),
- Ensure that the conditions under which antimicrobials and other veterinary drugs are stored on the farm comply with the label and insert instructions (in particular provide a safe place (cabinet in a locked room), where they can be stored in the dark and at the recommended temperature),
- Safely dispose of all veterinary drugs past their expiry date, instruments and empty containers in an environmentally friendly manner.

SECTION VI – FARM MANAGEMENT

Hazards: These consist of pathogenic biological agents which can be introduced and proliferate on farm for lack of respect of basic rules in farm management. These can also consist of chemical contaminants. Both biological agents and chemical contaminants can induce subsequent contamination of animals and their products.

GGFP recommendations:

Training, conduct and health status of staff

- Provide suitable training for staff required to handle farm chemical inputs, manufacture feed on the farm, clean and disinfect premises and equipment and treat animals, which will give them a good knowledge of hazards present on the farm and methods of managing risks so as to guarantee the safety of food products of animal origin,
- Train staff in basic biosecurity principles and practices to minimize the likelihood of introducing or spreading pathogens,
- Insist on staff wearing suitable working attire (clothing and boots), kept clean or changed as often as necessary, and respecting sanitary measures (e.g. changing clothes, washing hands or showering) before they enter controlled areas,
- Ensure that staff are regularly monitored to detect any healthy carriers of bacterial or parasitic agents that could be transmitted to animals.

Maintenance, cleaning and disinfection of equipment, premises and immediate surroundings

- Develop and implement the appropriate procedures to maintain, clean and disinfect farm equipment, premises and immediate surroundings, respecting the manufacturer's instructions regarding the use of detergents and disinfectants (preparation of surfaces, dilution, contact period),
- Ensure that the procedures in place are effective (visual self-inspections with, if necessary, recourse to bacteriological analysis) and take any corrective measures that may be required,
- Use clean instruments so as to avoid spreading diseases.

Measures to control pests and stray animals and prevent unauthorised access

- Develop and implement a global plan to control pests (rodents, insects, spiders) within the farm, using licensed products in the appropriate manner,
- Ensure the effectiveness of this control plan (visual self-inspections) and take any corrective measures that may be required,
– Prevent domestic animals (cats and dogs) from roaming in and around livestock buildings,

– Put in place all the appropriate prevention and control measures, respecting the regulations currently in force in terms of protection of biodiversity, so as to minimise contact between livestock and wild animals,

– Ensure that no unauthorised person can enter the livestock buildings.

**Stock management (feed, drugs)**

– Ensure that there is a satisfactory turnover of stock, applying the FIFO (first in, first out) method, and disposing of any product that has passed its expiry date,

– Ensure that all containers (sacks or cans) are hermetically sealed,

– Ensure that storage conditions are appropriate and in particular that the recommended temperatures are respected.

**Management of waste materials, effluents and expired products**

– Ensure that the waste materials generated by the farm (excreta, feed remains, etc.) are regularly removed, in such a way that neither their transport to the storage site nor the conditions under which they are stored can be either a source of environmental contamination for the farm and its immediate surroundings or conducive to the proliferation of pests (rodents, insects),

– Ensure that products that have passed their expiry date (farm chemical inputs, veterinary drugs) and their packaging are disposed, of and effluents (wastewater, washing water) treated, in such a way that they cannot be a source of environmental pollution, and, indirectly, of contamination for the animals.

**Storage of chemical products**

– Store chemical products and equipment that may contain them safely out of reach of the animals.

**Production monitoring of animals**

– Ensure that the animals or groups of animals present on the farm are permanently identified and keep the farm records up-to-date,

– Minimise mixing of animals of different species,

– Conduct daily surveillance of the animals to detect any anomaly or suspicious symptom,

– Set up a system for monitoring the production performance of the animals and identify indicators that will allow the early detection of any anomaly.

**Health monitoring of animals and disease prevention programmes**

– Develop, in conjunction with the veterinarian in charge of the animals, an animal health and welfare plan including disease prevention measures to be implemented (e.g. mastitis programme, vaccination and deworming programmes, etc.),

– Implement this health plan, following the guidelines issued by the competent authority for animal disease control (Veterinary Services), with the advice of a veterinarian or para-veterinarian,
Appendix XXVII (contd)

Appendix C (contd)

– Treat animals regularly against gastrointestinal parasites,
– Seek professional advice in the event of unusual clinical signs suggestive of a disease in the herd/flock or if there is an unexpected drop in the yield or quality of animal products,
– Establish written standardised operational procedures for the detection and management of animal diseases, and for the use of veterinary products,
– Inform the veterinarian responsible for monitoring the health of the animals of any problems of disease recurrence or relapses,
– Take advantage of all the information obtained at the abattoir during ante-mortem inspections of animals and post-mortem inspection of meat and offal by official veterinarians, relating to specific pathologies for which corrective measures can be taken at the farm level (parasitism, muscular degeneration, melanosis, presence of foreign bodies [e.g. cactus spines], etc.),
– Determine whether fallen stock and dead animals need to be tested as part of an official surveillance programme.

Animal movements

– Ensure that any isolated or seasonal movement of animals outside the farm (transhumance, grazing on mountain pasture, etc.) does not expose them to an excessive risk of chemical or microbiological contamination, whether by air-borne route, digestive route or direct or indirect contact with wild animals.

Isolation of sick animals and their products

– Separate sick or potentially sick animals from healthy animals, so as to avoid the transfer of pathogenic agents and resistant bacteria,
– Comply with hygiene regulations relating to contacts between persons (veterinarians, livestock producers, owners, children) and animals undergoing treatment,
– Ensure that products from sick animals cannot be used for human consumption or for animal feed.

Storage and disposal of dead animals

– Isolate the dead animals prior to their collection or destruction, and store them in a suitable place (easy access and disinfection) so as to avoid any contact with livestock or their environment,
– Ensure that the dead animals that have died on the farm are rapidly disposed of and ensure that their removal by a carcass disposal firm cannot be a source of pathogens for the farm.

SECTION VII – PREPARATION OF ANIMALS FOR SLAUGHTER

Hazards: These consist of numerous potentially dangerous agents for humans which are present in the digestive tube, excreta, and on the hides and skins of cattle and sheep or the plumage of birds in good health. These agents include E. coli, Salmonella and Campylobacter, which can cause food poisoning in humans.

Stress caused by grouping animals together, loading them and transporting them to the abattoir can promote the passage of these pathogenic bacteria from the intestine into muscle tissue.

Moreover, the greater the amount of faecal soiling of hides, skins and feathers, the higher the risk of any pathogenic bacteria they may contain contaminating meat during the dressing or defeathering of carcasses at the abattoir.
GGFP recommendations:

General measures

- Ensure animals are fit for slaughter,
- Prevent animals from becoming soiled, by keeping the enclosures, gangways, and loading and unloading areas clean, avoiding overcrowding, increasing the quantity of litter and resolving any problems of effluent disposal,
- Give animals raised in livestock buildings free access to straw, hay and silage with a high dry matter content for 48 hours prior to slaughter,
- Avoid any abrupt changes in diet at the end of the production cycle,
- Give animals free access to watering points up to their departure for the abattoir, and withdraw feed from animals for the 24 hours prior to slaughter,
- Handle animals humanely and do not subject them to undue stress, given that stressed animals are more likely to release pathogenic bacteria, and especially *E. coli* O157:H7, in their excreta,
- Check the state of the animals' identification marks and bands several days before they are due to leave so as to avoid having to tag the animals immediately before they are transported to the abattoir,
- Ensure that the conditions under which the animals are transported to the abattoir are not a source of stress and are not conducive to substantial soiling of their hides, skins or plumage.

Extensively grazed livestock

Weather conditions prior to departure (e.g: heavy rainfall) and the absence of any special measures to avoid watering points becoming a quagmire, can lead to considerable soiling of ruminants (cattle, sheep, goats) and omnivores (pigs) before their departure to the abattoir. Furthermore, gathering animals together prior to their transport is an operation that causes stress, especially for animals that have ranged freely all year round in the open and are unused to the presence of humans.

It is therefore important to ensure that:

- animals at the end of the fattening phase are placed in pastures that are the least prone to the effects of inclement weather, with watering points that are sufficient in number and arranged in such a way as to avoid the animals becoming soiled with mud,
- the animals are brought together a sufficient length of time before their departure to the abattoir, in an enclosure, preferably covered, or other suitable area, so as to minimise the risk of major soiling of their hides, skins, wool or plumage.

Livestock housed on slatted flooring

The correct stocking density of feedlots and enclosures (density per square metre) throughout the fattening phase is an important consideration, as overcrowding, like under-population, prevents the satisfactory evacuation of excreta between the slats.
Appendix XXVII (contd)

Appendix C (contd)

It is therefore important to ensure:

– that the correct stocking density is maintained for as long as possible during the fattening phase (the density depends on the size and nature of the stalls, as well as on the age of the animals),

– that the slatted flooring is kept satisfactorily clean and that the housing is correctly ventilated,

– that particular attention is given to the cleaning operations conducted just before the departure of the animals for the abattoir,

– that, wherever possible, cattle are kept on straw bedding for 1 to 20 days before slaughter.

Livestock housed on litter

The density of animals housed on litter has a significant effect on the cleanliness of the hides. The addition of extra litter will not counteract the adverse effects of over-stocking. The amount of litter required depends on factors such as the density of animals, their weight and the design of the building.

It is therefore important:

– to avoid over-stocking,

– to provide an adequate supply of clean litter as often as is necessary,

– to ensure that the premises are adequately ventilated and correctly arranged for the evacuation of effluent and cleaning water.

Health measures

– Isolate sick animal in suitable premises, treat them and wait until they have fully recovered before sending them to the abattoir,

– Check the treatment records of all the animals before they leave so as to ensure that the withdrawal periods or pre-slaughter confinement periods have indeed been respected.

– Withdraw from the batch being sent to the abattoir any animal of whose health status is in doubt or is still in the withdrawal period following the administration of medication.

SECTION VIII – COMMON MEASURES

An identification and traceability system for animals, their feed and products leaving the farm, can assist:

– to identify the true source of a problem of contamination of products of animal origin,

– and to implement measures to eliminate, or at least limit, any harmful consequences (such as by the targeted withdrawal of the products in question).

A complete and reliable system of recording procedures, actions and controls implemented on the farm can assist genuine and effective control of the risks that primary production represents for food safety. It can also assist livestock owners to prove that they have fully carried out their public health responsibilities.
GGFP recommendations:

Traceability of animals, animal feed and animal products:

- For each animal or group of animals, require and keep all commercial and health documents enabling their exact itinerary to be traced, from their farm or establishment of origin to their final destination (other farm or abattoir),
- Establish a data recording system that can be used to ascertain exactly which batches of commercial feed the farm's livestock were fed with, and what raw materials were used in feed manufactured on the farm and given to the animals. Keep samples of all the feed used,
- Establish a data recording system that can be used to ascertain the exact origin (animal batch) and destination of animal products produced by the farm,
- Keep all these documents and records and place them at the disposal of the competent authority (Veterinary Services).

Record keeping:

- Keep a record of all persons entering the farm: visitors, service staff and farm professionals (veterinarian, milk tester, inseminator, feed deliverer, carcass disposal agent, etc.),
- Keep the medical certificates of persons working in contact with animals and any document certifying their qualifications and training,
- Keep, for each animal or group of animals, all documents relating to the treatment and veterinary actions it has undergone (castration, calving, caesarean section, dehorning, debeaking, administration of medication, etc.),
- Keep all laboratory reports, including bacteriological tests and sensitivity tests (data to be placed at the disposal of the veterinarian responsible for treating the animals ),
- Keep all documents proving that the bacteriological and physico-chemical quality of the water given to the animals is regularly tested,
- Keep all records of all feed manufacture procedures and manufacturing records for each batch of feed,
- Keep detailed records of any application of chemical products to fields, pastures and grain silos, as well as the dates that animals are put out to grass and on which plots of land,
- Keep all the records relating to the cleaning and disinfection procedures used in the farm (including data sheets for each detergent or disinfectant used), as well as all the records showing that these procedures have effectively been implemented (job sheets, self-inspection checks on the effectiveness of the operations),
- Keep documents relating to the pest control plan (including the data sheets for each raticide and insecticide used), as well as all the records showing that the control plan has effectively been implemented (plan showing the location of baits and insecticide diffusers, self-inspection checks on the effectiveness of the plan),
- Keep all the documents relating to self-inspections (by the livestock producer) and controls (by the authorities and other official bodies) relating to the proper management of the farm and the sanitary and hygienic quality of the animal products leaving it,
Appendix C (contd)

- Keep all documents sent by the official inspection services, the quality control departments of food-processing firms or distributors, relating to anomalies detected at the abattoir, dairy, processing plant or during the distribution phase in products (meat, eggs, milk, fish, etc.) derived from the farm's animals,

- Ensure that all these documents are kept long enough to enable any subsequent investigations to be carried out to determine whether contamination of food products detected at the secondary production or distribution stage was due to a dysfunction at the primary production level,

- Place all these documents and records at the disposal of the competent authority (Veterinary Services) when it conducts farm visits.

ANNEX: INTERNATIONAL STANDARDS AND REFERENCES

**OIE Terrestrial Animal Health Code** (year 2003), and in particular the following sections:

- 1.1. dealing with GENERAL DEFINITIONS AND NOTIFICATION OF ANIMAL DISEASES

and, in particular, definitions of the following terms: disease, disinfection, disinfestation, establishment, infection, laboratory, official control programme, official veterinary control, Veterinary Administration, Veterinary Authority, and Veterinary Services.

- 1.3. dealing with IMPORT RISK ANALYSIS

Chapter 1.3.3. Evaluation of Veterinary Services

Chapter 1.3.4. Guidelines for the evaluation of Veterinary Services

- 3.4. dealing with HEALTH CONTROL AND HYGIENE IN ESTABLISHMENTS

APPENDIX 3.4.1. Hygiene and disease security procedures in poultry breeding flocks and hatcheries

APPENDIX 3.4.2. Hygiene and disease security procedures in apiaries

APPENDIX 3.4.3. Hygiene precautions, identification, blood sampling and vaccination

- 3.6. dealing with INACTIVATION OF PATHOGENS AND VECTORS

APPENDIX 3.6.1. General recommendations on disinfection and disinfestation

- 3.7. dealing with TRANSPORT OF ANIMALS

APPENDIX 3.7.1. Principles applicable to all forms of transport

APPENDIX 3.7.2. Principles applicable to specific forms of transport

- 3.9. dealing with ANTIMICROBIAL RESISTANCE

APPENDIX 3.9.1. Guidelines for the harmonisation of antimicrobial resistance surveillance and monitoring programmes

APPENDIX 3.9.2. Guidelines for the monitoring of the quantities of antimicrobials used in animal husbandry

APPENDIX 3.9.3. Guidelines for the responsible and prudent use of antimicrobial agents in veterinary medicine
Codes and standards of *Codex Alimentarius*, and in particular:

- General principles of food hygiene, including the appendix on HACCP and the guidelines for implementing the system;
- Code of hygienic practice for meat hygiene (in the process of adoption);
- Codes of hygienic practice for food products of animal origin (fresh meat, milk and milk products, poultry, egg products);
- Individual standards for food products of animal origin
  - milk and milk products,
  - meat products,
  - fish and fishery products;
- Code of practice of good animal feeding (under review);
- Recommended international code of practice for control of the use of veterinary drugs;
- Codex general standard for contaminants and toxins in foods (under review);
- Codex maximum residue limits (MRL) for veterinary drugs in foods, for pesticides in foods;
- Code of practice for the reduction of aflatoxin B1 in raw materials and supplemental feedingstuffs for milk-producing animals;
- Code of practice for source directed measures to reduce contamination of food with chemicals;
- Draft Code of practice for aquaculture.

Guide on good practices in primary production


Manual on implementing the HACCP system

- A training manual on food hygiene and the FAO Hazard Analysis and Critical Control Point (HACCP) system (Food Quality and Safety Systems).
CONTROL OF HAZARDS OF PUBLIC HEALTH AND ANIMAL HEALTH IMPORTANCE THROUGH ANTE- AND POST-MORTEM MEAT INSPECTION

Andrew McKenzie and Steve Hathaway
New Zealand Food Safety Authority

Background

Food-borne disease is generally recognised as an important public health problem and an important cause of decreased economic productivity in both developed and developing countries. Similarly, transmission of hazards of animal health importance via the food chain 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. Consequently, control 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 the potential for transmission of diseases of animal health importance via the food chain. In a global regulatory environment that is more and more intent on placing primary responsibility on industry for ensuring food safety and biosecurity in relation to animal health, government veterinary services must exercise these responsibilities in a cost-effective, transparent and interdisciplinary manner.

Scope of this paper

Increased collaboration between 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 provides a discussion paper on which to base future development of an OIE text through the APFS WG. It is complementary 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 will be discussed at the OIE General Session in May 2004.

International standards

International organisations involved with public and animal health include the World Trade Organisation (WTO), Food and Agriculture Organisation (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.
Appendix XXVII (contd)

Appendix D (contd)

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". The activities of Task Forces functioning outside of 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 production. National competent authorities are increasingly adopting this approach.

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 infectious agents and diseases pathogenic to animals and humans into an importing country during trade.

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 decided 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 all pathogens and contaminants that are dangerous for humans for inclusion into the Terrestrial Animal Health Code and the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.

Veterinary public health issues addressed by OIE to date include: inspection regimes for 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 and residues of veterinary drugs; and good veterinary practice at farm level. All these activities contribute to meat hygiene.

Where the OIE develops standards for zoonoses, the unavailability of risk assessment information for the whole food chain prevents inclusion of "appropriate level of protection" (ALOP) concepts. The Terrestrial Animal Health Code also does not generally differentiate measures intended to safeguard animal health compared to measures to safeguard human health.

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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\(^3\) is currently being developed by the Codex Committee on Meat Hygiene (CCMH) and is at Step 6 of the Codex process. It is expected to be finalised in 2005. 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.

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

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 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"\(^4\). 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.

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.

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\(^3\) Draft Code of Hygienic Practice for Meat. ALINORM 04/27/16. FAO 2004

Appendix XXVII (contd)

Appendix D (contd)

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 authorities. 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 delivery. 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.

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

- Risk assessment
- Establishment of policies and standards
- Design and management of inspection programmes to deliver public and animal health objectives
- Assurance and certification of appropriate delivery of inspection and compliance activities
- Dissemination of information throughout the food chain
- Conformance with WTO obligations
- 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. Wherever possible, inspection procedures should be designed according to a risk-based approach and management systems should reflect international norms.

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7 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.
8 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
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 standards. National competent authorities are facing increased demands for technical expertise to develop domestic standards on this basis, while at the same time endeavouring to meet risk analysis obligations as assumed under international trading agreements.

Risk assessment in meat hygiene

Ante- and post-mortem inspection programmes contribute to 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 chemical 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.

There is only limited scientific evidence linking 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 according to level of risk.

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.

Risk assessment in animal health

The OIE Terrestrial Animal Health Code contains detailed provisions on import risk analysis. Regionalisation and monitoring of animal health 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 based on human health risk assessments per se.

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 (see below).

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Generic framework for managing public health and animal health risks

Although public and animal health sectors have developed a different history and usage of risk analysis, many aspects are common to all sectors\(^{11}\). Application of a generic framework provides a systematic and consistent process for managing biosecurity risks while accommodating different risk assessment methodologies as appropriate. This framework generally consists of four components:

- Preliminary risk management activities
- Assessment of risk management options
- Implementation
- Monitoring and review.

Veterinary involvement in risk assessments

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 standards is essential. In this respect, the trend toward institutional approaches that bridge the animal and public health sectors / disciplines involved is increasingly apparent 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 and the optimisation of scarce technical resources in developing countries.

Establishment of policies and standards

Safety and suitability of meat

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"\(^ {12}\). 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 present.

Development of policies and standards for ante-and post-mortem inspection are predicated by these objectives. Technical justification, practicality and effectiveness of standards rely on veterinary public health inputs, as do establishment of competencies of inspection personnel and training requirements\(^ {13}\). The national competent authority(s) must also provide an appropriate institutional environment for Veterinary Services to develop such policies and standards.

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\(^{13}\) In the absence of a risk-based approach, inspection standards are prescribed according to long-standing practice: see Appendix I
Standards 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.\textsuperscript{14}

**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\textsuperscript{15}. In this context, organoleptic inspection of slaughter animals can provide an important sentinel function for zoonoses and diseases solely of animal health importance. Further diagnostic tests can be applied in the case of suspect animals.

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.

As for meat hygiene, policies and standards 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 standard for bovine spongiform encephalopathy (BSE)\textsuperscript{16}. 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 epizootic, direct control measures and monitor their effectiveness.

**Control of animal health**

In some situations, it may be necessary to identify and remove animals or their tissues that have the potential to infect other animals with non-zoonotic diseases via the food chain. This may be via inadvertent exposure to meat that has been passed as fit for human consumption e.g. transmission of exotic diseases by feeding of meat scraps to animals, or via meat with a designated non-human end-use e.g. uncooked petfood.

\textsuperscript{14} Where scientific information is uncertain or incomplete, the WTO SPS Agreement provides for precautionary food safety measures to be applied. Routine rejection of tissues with abnormalities at post-mortem inspection without further recourse to detailed organoleptic inspection or tests is one manifestation of a precautionary approach.

\textsuperscript{15} OIE Terrestrial Animal Health Code

Appendix XXVII (contd)

Appendix D (contd)

Other activities

Increasingly, veterinarians are developing multidisciplinary skills that extend their activities well beyond the farm and initial processing of meat. Also, veterinary activities associated with meat production systems extend beyond public and animal health. Ensuring adequate animal welfare and preventing degradation of the environment by contamination with animal wastes and animal products are two such activities.

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 prevent duplication of effort and unnecessary costs.

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

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". 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".

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, 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.


18 Report of the 10th Session of the Codex Committee on Meat Hygiene. ALINORM 04/27/16. FAO, Rome
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 production 19.

Quality 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 customers 20. Consequently, these stakeholders are increasingly demanding inspection by competent authorities that is consistent and of high-quality.

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 21. 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" 22.

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 23. In Australia, these systems are based on HACCP principles, are nationally uniform and extend from “production to consumption”. Through a 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 24.

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19 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
An OIE questionnaire of Member countries identified that personnel other than veterinarians were involved in ante-mortem inspection of poultry and red meat animals in 37% and 31% of countries respectively. Personnel other than veterinarians were involved in post-mortem inspection of poultry and red meat animals in 60% and 59% of countries respectively25.

Assurance and certification

Assurance and certification of appropriate delivery of inspection and compliance activities26 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.

Organisation 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.

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
Appendix XXVII (contd)

Appendix D (contd)

**Recommendations**

It is recommended that the OIE Animal Production Food Safety Working Group use this discussion paper as a basis for:

1. Agreeing on a work programme to formulate principles and guidelines on the role of *veterinary services* in design and application of systems for ante- and post-mortem inspection of slaughter animals, for establishment as an OIE guideline text.

2. Discussing the usefulness of appending examples of routine ante- and post-mortem inspection programmes for application in situations where risk assessment information is inadequate or unavailable.

3. Ensuring that this work is harmonised with guideline texts being developed by other international bodies e.g. Codex Draft Code of Practice on Hygiene of Meat, FAO Manual of Meat Inspection.

4. Incorporating linkages to other OIE and Codex texts that describe detailed aspects of possible veterinary inputs e.g. Principles for Food Import and Export Inspection and Certification (CAC/GL 20 - 1995).
Appendix XXVII (contd)

Appendix D (contd)

Appendix I

Post-mortem inspection procedures

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:

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

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

3) 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.

4) 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.

5) 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.

6) 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</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td>Submaxillary lymph nodes</td>
<td>V, I ²</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 ²</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 ²</td>
<td>V, P, I</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Other</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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

---

a  Notwithstanding post-mortem inspection for animal health purposes, the head may be discarded if brains and tongues are not collected for human consumption
b  Incision of lymph nodes of the head is not necessary in calves
c  Palpation of the tongue is not necessary in calves
d  The muscles of mastication should be incised according to the potential for infestation with cysts of *Taenia* pp.
e  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(^d)</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><strong>Lungs</strong></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><strong>Oesophagus</strong></td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td><strong>Trachea</strong></td>
<td>V</td>
<td>V</td>
<td>—</td>
<td>V</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Bronchial lymph nodes</strong></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><strong>Mediaastinal lymph nodes</strong></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><strong>Heart</strong></td>
<td>V, P, I(^c)</td>
<td>V, P, I(^c)</td>
<td>V, P</td>
<td>V, P, I</td>
<td>V, P</td>
<td>V</td>
</tr>
<tr>
<td><strong>Pericardium</strong></td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td><strong>Liver</strong></td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V, P</td>
<td>V</td>
</tr>
<tr>
<td><strong>Portal lymph nodes</strong></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><strong>Gall bladder</strong></td>
<td>V, I(^d)</td>
<td>—</td>
<td>V, P</td>
<td>—</td>
<td>V, P</td>
<td>—</td>
</tr>
<tr>
<td><strong>Kidneys</strong></td>
<td>V</td>
<td>P</td>
<td>V</td>
<td>V(^e)</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td><strong>Renal lymph nodes</strong></td>
<td>V</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td><strong>Spleen</strong></td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>—</td>
</tr>
<tr>
<td><strong>Gastrointestinal tract</strong></td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td><strong>Mesenteric lymph nodes</strong></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><strong>Genital organs</strong>(^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.
REPORT OF THE MEETING OF THE OIE AD HOC GROUP ON DISEASES / PATHOGENIC AGENT NOTIFICATION ON A NEW OIE LIST OF TERRSESTRIAL ANIMAL DISEASES

Paris 3-5 November 2004

The OIE ad hoc Group on diseases / pathogenic agent notification dealing with the new OIE disease list (“The ad hoc Group”) met at the OIE Headquarters from 3-5 November 2004.

The agenda and the members of the ad hoc Group and other participants are listed in Appendix I and II respectively.

Dr Bernard Vallat, Director-General of the OIE, opened the meeting, welcoming the participants and thanking them for assisting the OIE. He pointed out that the creation of unified disease list had far-reaching consequences in terms of disease surveillance policies and procedures; member countries would ideally have to be able to monitor and report on all diseases on the list. The OIE reporting system had needed an overhaul, and periodic reports would have to include more detail on the organization and resources of national veterinary services. The annual questionnaire was one of these reports, and alterations would have to be negotiated with both FAO and WHO.

The ad hoc Group began its work by considering all diseases formerly in Lists A and B for inclusion in the single list. The decision-making model for disease inclusion worked well for nearly all formerly listed diseases, although not in all instances. For instance, in the case of diseases such as the tsetse-borne trypanosomoses, where disease distribution is limited largely by vector distribution, the consideration of proven international spread as a criterium for inclusion seemed irrelevant. Nevertheless, where diseases such as trypanosomoses and others were of such obvious importance for the production systems in which they occurred, the ad hoc Group decided that they should remain on the list.

The ad hoc Group adhered for the most part very strictly to the decision-making model it had elaborated in its first meeting in September 2003. Established diseases were first evaluated in terms of their potential for international spread; a disease passing this test had then to show zoonotic potential with severe consequences or a high impact at country or zonal level to be included. Emerging diseases had to show zoonotic potential in order to be included.

The ad hoc Group exercised care in deleting some diseases from the list, and has given detailed justification for all deletions.

During the discussions, the need for internationally accepted definitions of all listed diseases became apparent. The Group recommends that such definitions be decided upon and included in each disease chapter of the Terrestrial Code.
Listeriosis, while recognised as a highly important disease from the food safety point of view, did not meet the criteria for inclusion in the list. It was recognised that Listeria spp are but one of many food-borne contaminants. The Group felt that this should be referred to the Food Safety Working Group to work out a modus operandi for recording and reporting these feed and food-related pathogens and diseases.

1. Summary of key discussions

Anthrax – The potential for international spread is possible through hides and bone meal. More than three countries are free, New Zealand, most Caribbean countries, Greenland and others. Though the disease is normally sporadic, it always has the capability for significant outbreaks involving many animals on multiple farms. The zoonotic potential is important. The disease should be kept on the list.

Enterovirus encephalomyelitis (Teschen/Talfan disease) – The clinical form (Teschen disease) does not seem to occur anymore. Talfan and Teschen viruses are indistinguishable from other type 1 enteroviruses which are very common in the pig population. Serological cross-reactions occur. The morbidity and mortality are not significant. The disease should be excluded from the list.

Bovine genital campylobacteriosis – There are several countries that have eradicated the disease. The disease does not have significant mortality but may have significant morbidity, especially due to transmission through semen. The disease is retained.

Vesicular stomatitis – The disease is limited to the Americas, the rest of the world is free. There is no evidence of international spread, the distribution and transmission is related to sandflies and unidentified wildlife reservoirs. The disease remains on the list because numerous countries are free and since the disease may have significant morbidity in naïve populations.

Horse mange – Although there is potential for international spread, the disease does not meet any of the other criteria, therefore it is excluded from the list.

Contagious equine metritis – Although there is evidence of international spread and several countries are free, the disease is not zoonotic and there is no significant mortality but may have significant morbidity in breeding animals. The disease is retained on the list.

Scrapie – There is proven spread and several countries are involved in proving disease freedom. There is significant morbidity. The disease is retained on the list.

Echinococcosis/hydatidosis – There are free countries United Kingdom, Sweden, Ireland, Norway and the zoonotic potential is important. The disease is retained on the list.

Leptospirosis – Several countries report freedom, and countries may be free from specific serovars. The disease is retained on the list essentially due to its important zoonotic implications.

Q fever – There is potential for international spread and it is zoonotic. The disease may cause massive abortions in ewes and cows. The disease is retained on the list.

Paratuberculosis – Several countries have instituted eradication programs. There is a suspected link to Crohn’s disease in humans, although it is yet to be conclusively demonstrated. Morbidity in animals can be significant. The disease is retained on the list.

Bovine cysticercosis – The disease is not of cattle health concern. Although it is a zoonosis, the consequences in humans do not meet the criteria for inclusion and the disease can be excluded from the list.
Tsetse-transmitted trypanosomosis – The potential for international spread exists if the vector is not controlled. The disease will not spread internationally where the vector is not present. It is a zoonotic disease and has significant morbidity and mortality in affected countries. The disease is retained on the list.

Dermatophilosis – Does not meet any of the criteria. The disease will be deleted from the list.

Malignant catarrhal fever – The sheep-associated type occurs worldwide, but incidence is sporadic. The wildebeest-associated type is endemic to certain parts of Africa and can be spread internationally by movement of wildebeest to free countries. The disease is not transmitted by cattle, therefore the risk for spread through international trade of cattle has not been recorded. The disease is deleted from the list.

Brucellosis – To improve the accuracy of the data collected, the OIE disease names should be changed to: “Brucellosis due to Brucella melitensis”, “Brucellosis due to Brucella abortus” and “Brucellosis due to Brucella suis” respectively. All three may infect more than one species, therefore moved to the multi-species group.

Epizootic lymphangitis – The disease has no significant international spread, though there are numerous free countries. Significant morbidity in horses is questionable. Horses are not considered a high-risk source for humans. The zoonotic impact is considered minor. Therefore, the zoonotic criterion is not met. Thus, the disease is deleted.

Eastern and Western equine encephalitis – The diseases should be dealt with as separate entities. For both diseases, the horse is the terminal host and does not develop a viraemia sufficient to infect vectors. Both meet the criteria for zoonotic impact and have high mortality in horses. The two diseases are retained on the list.

Horse pox – There are only two countries that reported the disease since 1996. According to some references the disease is rare, usually benign, occurs only in Europe and does not spread extensively. According to additional sources, there are other diseases called "horse pox", including Equine coital exanthema (Handistatus disease code C571), caused by equine herpesvirus type 3 (EHV3); contagious pustular stomatitis; and "Canadian Horsepox" with possible involvement of Corynebacterium pseudotuberculosis. The group felt the disease should be deleted from the list; however, in view of the conflicting terminologies, especially with Equine coital exanthema, consultation with the International Equestrian Federation (IEF) and other horse experts is advisable.

Atrophic rhinitis – Does not meet any of the criteria and should be deleted from the list.

Avian tuberculosis – It is ubiquitous and has no significance for international spread. The morbidity and mortality are not significant in birds. Human infections may occur under exceptional circumstances, but natural infection in humans is rare. It should be deleted from the list.

Ovine pulmonary adenomatosis – No significant morbidity or mortality, although most countries do not report the occurrence. The disease is deleted.

Japanese encephalitis – The disease affects equids and pigs, and is a significant human disease. The disease is moved to the multi-species group; countries should report on its incidence in both equids and pigs.

Duck viral enteritis – There is no evidence of international spread, it is not notifiable in most countries, including those in which duck production is important. The disease is not zoonotic and should be removed from the list.

Fowl cholera - There is no evidence of international spread. The disease is not notifiable in most countries. It is not zoonotic. The disease should be removed from the list.
Appendix XXVIII (contd)

*Fowl pox* – Does not meet any of the criteria and should be deleted from the list.

*Tularemia* – should be retained on the list but included under diseases affecting multiple species.

*Leishmaniosis* – in spite of the lack of data for international spread, the disease is a significant zoonosis and dogs travelling to endemic areas can get infected.

Bee diseases will be referred to an expert group.

2. **Proposal for the inclusion of new diseases**

*Listeria* – criteria for inclusion in the animal disease list not fulfilled (see further).

The group considered the inclusion of feed- and food-borne diseases. The criteria for inclusion of diseases do not fully apply for food-borne pathogens. The group needs clarification on the vision of the OIE in food safety and asks that the Food Safety Working Group jointly with the Disease Notification Ad hoc Group develop appropriate criteria.

Animal diseases and food borne diseases could be reported separately. Information related to food-borne pathogens in animal products (such as *Listeria*) is usually a Veterinary Administration responsibility in member countries.

*Nipah virus encephalitis* – It has occurred in diverse geographical regions. It is a zoonotic disease that has caused several human deaths. The disease should be included in the list.

*West Nile fever* – It is an emerging disease in the Western hemisphere; it is zoonotic and has caused multiple human cases and several deaths. The disease is included in the list.

*Bovine viral diarrhoea* – There has been proven spread internationally, several countries are free from the disease or close to eradication. The disease has significant morbidity. The disease should be included in the list.

*Hendra virus disease* – Occurred only once several years ago and has not reoccurred. There was no international spread and although it is a zoonotic disease it should not be listed. If new cases should occur, their reporting is covered by emergency criteria and its status may be reconsidered at a future date.

*Crimean Congo hemorrhagic fever* – It is an important zoonotic disease and infected animals do not show clinical signs. It is a tick-borne disease; it occurs where suitable ticks are present. There is no evidence of international spread, but there are several countries free from the disease. The disease should be included in the list.

*Menangle virus infection* – Caused by a paramyxovirus transmitted by bats. A single occurrence of disease in Australia in 1997 causing abortion in pigs and flu-like signs in 2/250 potentially exposed humans. The disease does not meet the criteria for inclusion and should not be listed. If new cases should occur, their reporting is covered by emergency criteria and its status on the list may be reconsidered at a future date.

*Mycoplasma synoviae infection* – Several countries have eradication schemes, the disease has significant morbidity. The disease should be included.

*Turkey rhinotracheitis* – There has been proven international spread and the disease has significant morbidity and mortality. The disease should be included.

*Porcine dermopathic nephropathy syndrome* (PDNS) – It is likely that the agent porcine circovirus 2 is widespread, the disease is expressed under certain management conditions. The disease meets the criterion for an emerging disease. There was no consensus within the group on the inclusion of the disease on the list. Additional expert opinion should be sought, including supporting evidence on the occurrence of the infection/disease in the world.
Camelpox – Fits the criteria for inclusion in terms of international spread, free countries and significant morbidity, it should be included on the list.

The inclusion of "other transmissible spongiform encephalopathies (TSEs)" will be considered in the future. "Other", for the purpose of this item, means other TSEs than BSE and scrapie, e.g., Chronic wasting disease, Mink encephalopathy, Feline spongiform encephalopathy.

3. Definitions

The new proposed Definitions are listed in Appendix V.

.../Appendices
OIE AD HOC GROUP ON
TERRESTRIAL ANIMAL DISEASE / PATHOGENIC AGENTS NOTIFICATION
Paris, 3-5 November 2004

Agenda

• Review diseases of the former lists A and B according to the approved criteria for inclusion of diseases in the OIE single list and select diseases that meet the said criteria to be listed in the OIE-list;

• Examine, in the light of the approved criteria, if other diseases proposed by Member Countries should be included in the new OIE list of diseases;

• Propose a new OIE-list of diseases;

• Revise a selection of definitions from Chapter 1.1.1 of the Terrestrial Animal Health Code and propose new definitions in relation with the new notification system.
OIE AD HOC GROUP ON
TERRESTRIAL ANIMAL DISEASE / PATHOGENIC AGENTS NOTIFICATION

Paris, 3-5 November 2004

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Appendix XXVIII (contd)

Appendix II (contd)

OIE CENTRAL BUREAU

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### OUTCOME OF RE-CLASSIFICATION OF DISEASES

#### TABLE I: DISEASES OF FORMER LISTS A AND B

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criterion for including an OIE-listed disease</th>
<th>International Spread</th>
<th>++ countries with disease absence OIE reports</th>
<th>Zoonotic potential</th>
<th>Significant spread in naive populations(27)</th>
<th>Significant mortality</th>
<th>Significant morbidity</th>
<th>Outcomes Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot and mouth disease</td>
<td>Proven spread on three occasions or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Y</td>
</tr>
<tr>
<td>Rift valley fever</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Newcastle disease</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Vesicular stomatitis</td>
<td>X</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Swine vesicular disease</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
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<tr>
<td>Rinderpest</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Y</td>
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<tr>
<td>Peste des petit ruminants</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Contagious bovine pleuropneumonia</td>
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<td></td>
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<td>Lumpy skin disease</td>
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<td></td>
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<td>Bluetongue</td>
<td>X</td>
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<tr>
<td>Sheep pox and goat pox</td>
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<td></td>
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<td>African Horse Sickness</td>
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<tr>
<td>African swine fever</td>
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<tr>
<td>Classical swine fever</td>
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<tr>
<td>Highly pathogenic avian influenza</td>
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<td></td>
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<td></td>
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<tr>
<td>Aujeszky's disease</td>
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<td></td>
<td></td>
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<tr>
<td>Anthrax</td>
<td>X</td>
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<td>Y</td>
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<tr>
<td>Bovine spongiform encephalopathy</td>
<td>X</td>
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<td></td>
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<td>Y</td>
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<tr>
<td>Pullorum disease</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Bovine genital campylobacteriosis</td>
<td>X</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

\(27\) Worst case scenario

\(\ast\) Some reports of zoonosis might be known; but not severe

\(\ast\) Some, but not all HPAI, have zoonotic potential

\(28\) Only likely if infection spread via semen.
### Appendix XXVIII (contd)

### Appendix III (contd)

<table>
<thead>
<tr>
<th>Disease</th>
<th>International Spread</th>
<th>Criterion for including an OIE-listed disease</th>
<th>Outcomes Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proven spread on three occasions or</td>
<td>3 countries free / impending free or</td>
<td>++ countries with disease absence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OIE reports</td>
</tr>
<tr>
<td>Horse mange</td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Contagious equine metritis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varroosis</td>
<td>X</td>
<td></td>
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<tr>
<td>Scrapie</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Echinococcosis/Hydatidosis</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Heartwater</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>X(^{31})</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Q fever</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rabies</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Paratuberculosis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New world screwworm (Cochliomyia hominivorax)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old world screwworm (Chrysomya bezziana)</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Trichinellosis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bovine anaplasmosis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bovine babesiosis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brucellosis due to Brucella abortus</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bovine tuberculosis</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bovine cysticercosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatophiilosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enzootic bovine leukemia</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemorrhagic septicaemia</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Infectious bovine rhinotracheitis/infectious 
  pustular vulvovaginitis                      | X                    |                                                |                           |                      |                                                                 |
| Theileriosis                                 | X                    |                                                |                           |                      |                                                                 |
| Trichomonosis                                | X                    |                                                |                           |                      |                                                                 |

\(^{29}\) Worst case scenario  
\(^{30}\) As above  
\(^{31}\) For certain serovars  
\(^{32}\) Link postulated to Crohn’s Disease  
\(^{33}\) If spread via semen is included
## Appendix XXVIII (contd)

### Appendix III (contd)

<table>
<thead>
<tr>
<th>Disease</th>
<th>International Spread</th>
<th>+ + countries with disease absence OIE reports</th>
<th>Zoonotic potential</th>
<th>Significant spread in naïve populations$^{34}$</th>
<th>Significant mortality</th>
<th>Significant morbidity</th>
<th>Outcomes Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trypanosomosis (tsetse–transmitted)</td>
<td>X$^{35}$</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
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<tr>
<td>Malignant catarrhal fever$^{36}$</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Brucellosis due to Brucella ovis</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Brucellosis due to Brucella melitensis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Caprine arthritis/encephalitis</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Contagious agalactia</td>
<td>X</td>
<td>X</td>
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<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Contagious caprine pleuropneumonia</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Enzootic abortion of ewes due to Chlamydia phila abortus</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Salmonellosis due to Salmonella abortus ovis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Maedi–visna</td>
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<tr>
<td>Ovine pulmonary adenomatosis</td>
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<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Nairobi sheep disease</td>
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<td>X</td>
<td></td>
<td></td>
<td></td>
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<td>Y</td>
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<tr>
<td>Dourine</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Epizootic lymphangitis</td>
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<td></td>
<td></td>
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<tr>
<td>Eastern Equine encephalomyelitis</td>
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<td>Y</td>
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<tr>
<td>Western Equine encephalomyelitis</td>
<td>X</td>
<td>X</td>
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<td></td>
<td></td>
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<td>Y</td>
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<tr>
<td>Venezuelan Equine encephalomyelitis</td>
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<tr>
<td>Equine infectious anaemia</td>
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<td>Equine influenza</td>
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<tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Glanders</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

---

$^{34}$ Worst case scenario

$^{35}$ International spread likely to occur if the vector is not held in check

$^{36}$ Wildebeest-associated MCF: spread via wildbeest, not via cattle. Sheep-associated MCF endemic and sporadic, does not meet criteria
### Appendix III (contd)

#### Criterion for including an OIE-listed disease

<table>
<thead>
<tr>
<th>Disease</th>
<th>International Spread</th>
<th><strong>++</strong> countries with disease absence OIE reports</th>
<th>Zoonotic potential</th>
<th>Significant spread in naïve populations</th>
<th>Outcomes Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horsepox (Equine coital exanthema?)</td>
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<tr>
<td>Equine viral arteritis</td>
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<tr>
<td>Japanese encephalitis</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Surra (Trypanosoma evansi)</td>
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<td>Atrophic rhinitis of swine</td>
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<tr>
<td>Porcine cysticercosis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Brucellosis due to Brucella suis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Y</td>
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<tr>
<td>Porcine reproductive and respiratory syndrome</td>
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<td></td>
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<tr>
<td>Transmissible gastro-enteritis</td>
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<td>Enterovirus encephalomyelitis (Teschen, Taifan)</td>
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<td>Avian infectious bronchitis</td>
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<td>Avian infectious laryngotracheitis</td>
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<tr>
<td>Avian tuberculosis</td>
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</tr>
<tr>
<td>Duck virus hepatitis</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Duck virus enteritis</td>
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<td>Fowl cholera</td>
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<tr>
<td>Fowl pox</td>
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</tr>
<tr>
<td>Fowl typhoid</td>
<td>X</td>
<td></td>
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<tr>
<td>Infectious bursal disease (Gumboro disease)</td>
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<td>Marek's disease</td>
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<tr>
<td>Avian mycoplasmosis (M. gallisepticum)</td>
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<td>Avian chlamydiosis</td>
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<td>Myxomatosis</td>
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<td>Tularemia</td>
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</tr>
<tr>
<td>Rabbit haemorrhagic disease</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

---

37 Worst case scenario
38 infection widespread, last reported case 1980
<table>
<thead>
<tr>
<th>Disease</th>
<th>International Spread</th>
<th>Significant spread in naïve populations</th>
<th>Outcomes Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acarapisosis of honey bees</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>American foulbrood of honey bees</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>European foulbrood of honey bees</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
<td></td>
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</tr>
<tr>
<td>Varroosis of honey bees</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
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</tr>
<tr>
<td>Tropilaelaps infestation of honey bees</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
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</tr>
<tr>
<td>Leishmaniosis</td>
<td>X&lt;sup&gt;40&lt;/sup&gt;</td>
<td>X</td>
<td>Y</td>
</tr>
</tbody>
</table>

<sup>39</sup> Worst case scenario

<sup>40</sup> Despite the lack of reliable data, the disease should be included due to its importance as a zoonosis.
# OUTCOME OF RE-CLASSIFICATION OF DISEASES

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criterion for including a OIE-listed disease</th>
<th>International spread</th>
<th>Zoonotic potential</th>
<th>Significant spread in naïve populations</th>
<th>Outcome Listed Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proven spread on three occasions or</td>
<td>3 countries free/impending free or</td>
<td>3 countries with disease absence OIE reports</td>
<td>Significant mortality or</td>
<td>Significant morbidity</td>
</tr>
<tr>
<td>Nipah virus encephalitis</td>
<td>Emerging</td>
<td>X</td>
<td>(emerging)X</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>West Nile fever</td>
<td>Emerging</td>
<td>X</td>
<td>(emerging)X</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Bovine viral diarrhoea</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>Small hive beetle (Aethina tumida)</td>
<td>Proposed by the ad hoc group on bee diseases in July 2003</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Listeriosis</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Hendra virus disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Crimean Congo hemorrhagic fever</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Menangle virus infection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Nosemosis</td>
<td>Proposed to delete by the ad hoc group on bee diseases in July 2003</td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Mycoplasm synoviae infection(industry)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Turkey Rhinotracheitis (industry)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Swine erysipelas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Porcine dermopathic nephropathy syndrome (PDNS) (Circovirus 2)</td>
<td>Emerging disease - Refer to experts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Camelpox | X | | X | Y | **TABLE II: PROPOSED DISEASES TO BE LISTED ON THE OIE DISEASE LIST**

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41 Occurred only once, no longer regarded as important  
42 Disease distribution usually limited to tick (Hyalomma) distribution  
43 One occurrence in 1997, no longer regarded as important  
44 provisional  
45 provisional
Final Form of Single Disease List for Terrestrial Animals

CHAPTER 1.1.2.

OIE-LISTED A AND LIST B DISEASES

Article 1.1.2.1.

The following diseases are to be included in the OIE List

1. Multiple animal species diseases:
   - Anthrax
   - Aujeszky’s disease
   - Bluetongue
   - Brucellosis (*Brucella abortus*) **
   - Brucellosis (*Brucella melitensis*) **
   - Brucellosis (*Brucella suis*) **
   - Crimean Congo haemorrhagic fever *
   - Echinococcosis/hydatidosis
   - Foot and mouth disease
   - Heartwater
   - Japanese encephalitis
   - Leptospirosis
   - New world screwworm (*Cochliomyia hominivorax*)
   - Old world screwworm (*Chrysomya bezziana*)
   - Paratuberculosis
   - Q fever
   - Rabies
   - Rift Valley fever
   - Rinderpest
   - Trichinellosis
   - Tularemia
   - Vesicular stomatitis
   - West Nile fever *
2. Cattle diseases:
   - Bovine anaplasmosis
   - Bovine babesiosis
   - Bovine cysticercosis
   - Bovine genital campylobacteriosis
   - Bovine spongiform encephalopathy
   - Bovine tuberculosis
   - Bovine viral diarrhoea *
   - Contagious bovine pleuropneumonia
   - Dermatophilosis
   - Enzootic bovine leukosis
   - Haemorrhagic septicaemia
   - Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis
   - Lumpy skin disease
   - Malignant catarrhal fever
   - Rinderpest
   - Theileriosis
   - Trichomonosis
   - Trypanosomosis (tsetse-transmitted)

3. Sheep and goat diseases:
   - Caprine arthritis/encephalitis
   - Contagious agalactia
   - Contagious caprine pleuropneumonia
   - Enzootic abortion of ewes (ovine chlamydiosis)
   - Ovine epididymitis (*Brucella ovis*)
   - Ovine pulmonary adenomatosis
   - Nairobi sheep disease
   - Salmonellosis (*S. abortusovis*)
   - Scrapie
   - Maedi-visna
   - Peste des petits ruminants
   - Sheep pox and goat pox.
4. Equine diseases:
   - African horse sickness.
   - Contagious equine metritis
   - Dourine
     - Epizootic lymphangitis
   - Equine encephalomyelitis (Eastern) **
   - Equine encephalomyelitis (Western) **
   - Equine infectious anaemia
   - Equine influenza
   - Equine piroplasmosis
   - Equine rhinopneumonitis
   - Equine viral arteritis
   - Glanders
     - Horse mange
     - Horse pox
   - Surra (Trypanosoma evansi)
   - Venezuelan equine encephalomyelitis

5. Swine diseases:
   - African swine fever
     - Atrophic rhinitis of swine
   - Classical swine fever
     - Enterovirus encephalomyelitis
   - Nipah virus encephalitis *
   - Porcine cysticercosis
   - Swine vesicular disease
   - Transmissible gastroenteritis
   - Porcine reproductive and respiratory syndrome

6. Avian diseases:
   - Avian chlamydiosis
   - Avian infectious bronchitis
   - Avian infectious laryngotracheitis
   - Avian mycoplasmosis (M. gallisepticum)
   - Avian mycoplasmosis (M. Synoviae) *
     - Avian tuberculosis
     - Duck virus enteritis
   - Duck virus hepatitis
     - Fowl cholera
Appendix XXVIII (contd)

Appendix IV (contd)

- Fowl pox
- Fowl typhoid
- Highly pathogenic avian influenza
- Infectious bursal disease (Gumboro disease)
- Marek's disease
- Newcastle disease
- Pullorum disease
- Turkey rhinotracheitis *

7. Lagomorph diseases:
   - Myxomatosis
   - Tularemia
     - Rabbit haemorrhagic disease

8. Bee diseases: (Proposed by the ad hoc group on bee diseases in July 2003)
   - Acarapisosis of honey bees
   - American foulbrood of honey bees
   - European foulbrood of honey bees
   - Nosemosis of bees
     - Small hive beetle infestation (*Aethina tumida*) *
   - Varroosis of honey bees
     - Tropilaelaps infestation of honey bees *

9. The following disease is included within the category of other diseases:
   - Leishmaniosis
   - Camelpox *

* Added disease

** Changed name
Revision of Definitions

Chapter 1.1.1 General Definitions

Case

means an individual *animal* infected by a pathogenic agent listed by the OIE, with or without clinical signs.

Emerging disease

means a new *infection* resulting from the evolution or change of an existing pathogenic agent, a known *infection* spreading to a new geographic area or *population*, or a previously unrecognized pathogenic agent or *disease* diagnosed for the first time and which has a significant impact on animal or public health.

Epidemiological Unit

A group of animals with a defined epidemiological relationship that share approximately the same likelihood of exposure to a pathogen. This may be because they share a common environment (e.g. animals in a pen), or because of common management practices. Usually, this is a herd or a flock. However an epidemiological unit may also refer to groups such as animals belonging to residents of a village, or animals sharing a communal dipping tank system. The epidemiological relationship may differ from disease to disease, or even strain to strain of the pathogen.

Notifiable disease

means a *disease* listed by the Veterinary Administration, and that, as soon as detected or suspected, must be brought to the attention of the Veterinary Authority, in accordance with national regulations.

Outbreak of disease or infection

means the occurrence of one or more cases of the disease or an infection listed by the OIE in an establishment, breeding establishment or premises, including all buildings and all adjoining premises, where animals are present epidemiological unit. Where it cannot be defined in this way, the outbreak shall be considered as occurring in the part of the territory in which, taking local conditions into account, it cannot be guaranteed that both susceptible and non-susceptible animals have had no direct contact with affected or suspected cases in that area.

For example, in the case of certain parts of Africa, an outbreak means the occurrence of the disease within a sixteenth square degree; the occurrence is still referred to as an outbreak even though the disease may occur in several places within the same sixteenth square degree.