



Organisation Mondiale de la Santé Animale

World Organisation for Animal Health

Organización Mundial de Sanidad Animal

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## **REPORT OF THE SEVENTH MEETING OF THE OIE WORKING GROUP ON ANIMAL PRODUCTION FOOD SAFETY**

**Paris, 6–8 November 2007**

The OIE Working Group on Animal Production Food Safety (hereinafter referred to as the Working Group) met for the seventh time at the OIE Headquarters from 6 to 8 November 2007.

The members of the Working Group and other participants are listed at [Annex A](#). The Agenda adopted is provided at [Annex B](#).

The Director General of the OIE, Dr B. Vallat, welcomed working group members and Dr Claude Mosha, Chairperson of the Codex Alimentarius Commission, to the seventh meeting of the Working Group. He emphasised the importance of this Working Group for furthering the important collaboration between the OIE and Codex, and for the OIE's coordination with other international organisations, and noted the excellent progress that has been achieved since the creation of the Working Group. Dr Vallat made reference to several important food safety issues on the Working Group's agenda, in particular the issue of antimicrobial resistance and encouraged the Working Group to maintain its focus on these issues. Dr Vallat commented on the interest of the OIE in developing a closer formal relationship with Codex and mentioned the discussion at the 29<sup>th</sup> Session of the Codex Alimentarius Commission, where it was agreed that the OIE, FAO and WHO would explore the possibilities of making a formal agreement allowing to build a stronger basis for the establishment of OIE/Codex joint standards.

Dr Vallat also joined the Working Group on the final day of the meeting for a discussion of the Working Group's conclusions. Dr Vallat outlined the ongoing concerns of the OIE about international policies on the use of antimicrobials. In particular, an extreme position opposing the use in livestock of all antimicrobials used in humans would have a very harmful effect on animal production and food security, animal proteins being a relevant input for public health. On the topic of genetically modified vaccines, Dr Vallat indicated that the use of these vaccines is of critical importance to the OIE's work on the control of animal diseases, food security and international trade and is also important to animal welfare and the reduction of use of antimicrobial products. The Working Group will continue to closely monitor subsequent developments relating to these issues.

### **Agenda Item 1. Report of the Sixth Working Group Meeting November 2006**

The Working Group reviewed the report of the sixth meeting. In regard to item 10: Use of the term 'risk based', it was noted that Codex had deferred further work on this topic until 2009 and it was agreed the Working Group would continue to monitor developments in this area. The report of the sixth meeting of the Working Group was adopted unchanged.

## **Agenda Item 2. Update on OIE, Codex, FAO and WHO activities**

Dr K. Miyagishima provided an outline of some recent and ongoing work by the Codex Alimentarius Commission and its subsidiary bodies that was relevant to the OIE.

The 30<sup>th</sup> Session of the Codex Alimentarius Commission, in July 2007, adopted a number of documents including the food safety risk analysis principles for application by governments as well as several other guidance documents addressing specific categories of food of animal origin. The Commission also adopted its Strategic Plan for 2008-2013 which recognises the importance of cooperation and coordination with the OIE.

Dr Miyagishima also reported on ongoing or completed work regarding the Guidelines for food safety assessment of recombinant-DNA animals; a Model Export Certificate for Milk and Milk Products; revision of the Guidelines for the Design and Implementation of National Regulatory Food Safety Assurance Programmes Associated with the Use of Veterinary Drugs in Food Producing Animals; the Guidelines for the Control of *Campylobacter* and *Salmonella* spp. in Chicken Meat. New work was being contemplated for: further guidance on traceability/product tracing; a generic template for health certificates; guidance on risk assessment and risk management of antimicrobial resistance in foodborne pathogens; and a Code of Hygienic Practice for *Vibrio* spp. in seafood.

Dr Miyagishima expressed his appreciation for the active participation of the OIE in the Codex process and its positive contribution to Codex work. He looked forward to further collaboration between Codex and the OIE in areas of common interest, in order to avoid duplication of work and ensure consistency between international standards set by these bodies.

More details of relevant Codex work were provided under specific Agenda Items.

Dr J. Schlundt provided the following update on relevant WHO activities.

In a recent revision of the structure at HQ WHO, the Department of Food Safety, Zoonoses and Foodborne Diseases has been moved into a new Cluster of Health Security and the Environment.

As a follow up to the WHO meeting on critically important antimicrobials in Canberra, Australia, 2005, WHO convened the second WHO Expert Meeting on Critically Important Antimicrobials for Human Medicine in Copenhagen, Denmark, from 29 to 31 May 2007. The meeting was intended to prioritise agents within the critically important category, to enable the allocation of resources for agents, for which management of the risks from antimicrobial resistance are needed most urgently. A more detailed application of the two original criteria was used for this process than that used to develop the Canberra list. Participants considered drugs of greatest priority for which comprehensive risk management strategies are needed most urgently to be: quinolones, 3rd/4th generation cephalosporins and macrolides.

It was noted that for the first time a microbiological risk assessment model has been released on the web. The model enables comparison of different preparation and testing schemes with respect to how they influence the final reduction of the risk of *Enterobacter sakazakii* in powdered infant formula. This is the first example of such use of international risk assessments, enabling full use of this work at country level. FAO and WHO intend to continue this development for other pathogen/product combinations. The model is available at: [www.mramodels.org/esak](http://www.mramodels.org/esak)

Dr J. Domenech provided the following update on relevant FAO activities.

Due to restriction of budgets in FAO, the replacement of officers who left AGAH and AGAP Services was delayed. The veterinary public health group dealing with zoonotic diseases and food safety at the production level has been reactivated and the new leader, Dr Katinka DeBalogh, is in place. A new programme on food safety along the food chain, from farm to fork, is being prepared with the assistance of an expert consultant and in strong partnership between the FAO Animal Production and Health Division and the Nutrition and Consumer Protection Division. FAO has the unique opportunity to put together the live animal level (production and health), the products level and socio-economic and environmental group of experts. This will allow FAO to address the food safety issue with a multidisciplinary and holistic approach and to bring together its partners OIE, WHO and Codex. This is a new programme and its activities will be reported to the Working Group next year.

Dr A. Thiermann provided an update on activities of OIE relevant to this group since the previous meeting.

### **Agenda Item 3. Role of Veterinary Services in Food Safety**

The Chair introduced this paper, noting that it had been reviewed and endorsed by the Terrestrial Code Commission at its meeting held 17-29 September, 2007. Dr Kahn explained that the OIE's intention is to include this text in the Code, in the context of providing guidance to OIE Member Countries and Territories.

In the background section of the paper some Members queried whether the term 'uniquely equipped' was too exclusive in relation to the role of other professionals in food safety. Concerns were raised that the paper may send a message that only veterinarians are qualified to work in food safety. Several members made comments in support of the original text in relation to the uniqueness of the veterinary qualification.

The Members agreed to modify this section to clarify the role of other professionals and to make some minor changes to improve the clarity of the text. The amended text is shown in [Annex C](#).

### **Agenda Item 4. Guide to Good Farming Practices**

The Working Group discussed the document prepared by the *ad hoc* Group in detail. Dr Domenech commended the *ad hoc* Group on the Guide to Good Farming Practices and made some comments on behalf of the FAO which had been represented in the *ad hoc* Group by Dr D. Battaglia. The Working Group agreed that the Guide should address the issue of cost-effectiveness, and consideration to the socioeconomic and cultural contexts of the farming systems in developing countries and to the particular health situation in the section on Implementation.

The Working Group agree to delete 'all' and replace utilise with use, in the sentence 'Farmers and farm managers should actively seek and ~~use utilise all~~ relevant training opportunities...' (Section 1.5 Training).

Some members recommended that more guidance be provided on compliance of practices (such as the use of antimicrobials and the prevention of chemical residues) with relevant international standards and guidelines.

The Working Group agreed to amend the section on Hazards to recognise that some of the listed hazards had impacts on food safety only indirectly. It also recommended that radionuclides be grouped together with chemical hazards, for the purpose of this document.

The Working Group agreed that there was some redundancy and duplication in the document and recommended that it be restructured as follows. In sections 2, 3, 4, 5 and 6, the first sub-point should be 'Common Measures', followed by sub-points entitled 'Measures to address biohazards', 'Measures to address chemical hazards' and 'Measures to address physical hazards'. The same measures are recommended for several risks and grouping these measures together under the heading 'Common Measures' will help to reduce duplication.

The Working Group noted that risks associated with animal manure and other wastes had not been adequately addressed and proposed the following text for consideration:

'While the use of animal manure, animal slurry and human sewage sludge for fertiliser purposes is becoming increasingly common, enabling higher crop yields as well as sensible waste management, these processes may facilitate the transmission of food safety related diseases within or between herds or directly to humans. Therefore systems for animal or human waste usage for fertiliser purposes should take into consideration relevant treatment methods as well as specific holding times before animals are allowed onto treated pastures. Suggested holding times are directly related to climatic conditions in the region in question (die-off of pathogens is faster at higher temperatures). As a general rule neither animal nor human waste, which has not been appropriately treated, should be used on plants intended for direct human consumption.'

The Working Group recommended that the OIE and FAO support developing countries in their efforts to raise awareness and provide training to farmers and other stakeholders to assist them in complying with the Guide to Good Farming Practices. In particular, resources should be made available through international projects directed to developing countries with the goal of improving the infrastructure of the food production sectors and the performance of veterinary services.

The Working Group also proposed a number of other changes. The amended text is shown in [Annex D](#).

The Working Group recommended that the OIE/FAO *ad hoc* Group revisit this document electronically taking into account the Working Group's recommendations. In order to expedite the finalisation of the document, a revised version should be circulated electronically to the Working Group.

The Working Group noted that the GGFP will serve as a guide for Members and as such it does not contain detailed technical recommendations. More specific guidelines will be developed, in particular for developing countries, e.g. specific species or farming systems. These will be prepared by technical agencies such as FAO with the objective of making applicable the implementation of good farming practices in these socioeconomic and cultural contexts.

#### **Agenda Item 5. Animal Identification and Traceability**

The Working Group noted the work completed by the *ad hoc* Group on Animal Identification and Traceability and did not propose any additional amendments to the proposed text. The Working Group expressed its wish to be involved in further developments on this topic.

Bearing in mind potential future standard-setting work of Codex on product traceability the Working Group recommended that OIE and Codex maintain close collaboration on this topic.

Dr Kahn advised members of the OIE's intention to hold an International Conference on Animal Identification and Traceability in early 2009, in technical collaboration with Codex, as a mechanism to provide countries with technical information on systems for identification and traceability. The Working Group recommended that the OIE Director General accept collaboration with the FAO.

#### **Agenda Item 6. Terrestrial Animal Feed**

The Working Group reviewed the revised draft document Guidelines for the Control of Hazards of Animal Health and Public Health Importance in Animal Feed, which contained the comments of OIE Members and the Terrestrial Code Commission meeting held 17-29 September 2007. The Working Group addressed the revised Guidelines from a food safety perspective, bearing in mind the need to maintain consistency with the Codex Code of Practice on Good Animal Feeding. Therefore, the Working Group did not address all of the Member comments made on the draft.

The Working Group noted the Terrestrial Code Commission's proposed modification of the scope and suggested that the intention be clarified as the new text could generate some confusion as to whether terrestrial animals other than livestock (e.g. pet animals) were covered. In addition, the reference to 'food' in the sentence 'These guidelines deal with *food* or feed for terrestrial animals (ie livestock and poultry)' was felt to be confusing and the Working Group recommended to delete the word *food*.

The Working Group then reviewed the Definitions section and proposed a number of modifications, as follows. An alternative to the definition of 'hazard', was proposed, based on an amendment that had been proposed by an OIE Member. It was of the opinion that the wording 'or a condition of' (as found in the Codex definition of hazard) was not relevant to animal feed. The revised definition supported by the Working Group was:

***Hazard:** means a biological, chemical or physical agent in feed or a feed ingredient with the potential to cause an adverse effect on animal or public health.*

The Working Group recommended to delete the definition of 'undesirable substance' as this term is not used in the Guidelines.

The Working Group noted that the term 'feed additive' (in the definition of 'contamination') should be replaced by the term 'feed ingredient'.

Under the section on General Principles, the Working Group recommended changing the placement of the text on contingency plans and the addition of text to clarify the intent. The proposed revised text is as follows:

'Appropriate contingency plans should be in place to enable tracing and recall of non-compliant products.'

The Working Group reviewed the revised text on labeling, in light of Codex recommendations on this point.

In relation to contamination, the Working Group recommended that attention should be focused on contamination in general with reference to cross contamination only where necessary. For this reason the Working Group supported the change in the definition of contamination and amended the relevant text as follows:

to remove the word 'cross' from the expression 'cross contamination' and from the first sentence of this text (but to maintain the reference to cross contamination in the final sentence under this title).

The Working Group also made some other minor amendments to the text. The amendments are shown in Annex E. Amendments made by the Terrestrial Code Commission are shown in the usual manner as double underline and ~~strikeout~~. Amendments made at this meeting (November 2007) are shown with a coloured background to distinguish them from those made previously by the Terrestrial Code Commission.

#### **Agenda Item 7. Aquatic Animal Feed**

The Working Group discussed this item in light of its discussion on Agenda Item 6. Members considered that the food safety issues associated with feeding aquatic animals should be addressed and agreed that it would review any further text covering food safety that might be produced through the OIE procedure.

The Working Group recommended that the two guidelines (on terrestrial and aquatic animal feed) should be as closely aligned as possible, for example in relation to contamination and cross-contamination.

The Working Group recommended that OIE expert(s) further review the Guidelines on Feeding Terrestrial Animals, in addition to Codex guidance on animal feeding and FAO publications on aquaculture, with a view to developing text on the food safety implications of aquatic animal feeds. In addition to the Codex and FAO publications referenced in the draft Guidelines for the Control of Aquatic Animal Health Hazards in Aquatic Animal Feeds, the expert(s) should examine recommendations relevant to feed in texts recently developed by the Codex Committee on Residues of Veterinary Drugs in Foods and the Codex Committee on Fish and Fishery Products (section on aquaculture feed).

The Working Group recommended the OIE should continue to closely monitor developments on aquatic animal feed in Codex.

#### **Agenda Item 8. Revision of OIE Model Veterinary Certificates**

The Working Group discussed the report of the *ad hoc* Group on Model Veterinary Certificates, the comments of OIE Members and the text modifications proposed by the Terrestrial Code Commission at its meeting held 17-29 September 2007.

The Working Group recommended that the amendment of Article 1.2.1.1. proposed by the Terrestrial Code Commission be modified to read : 'Safe *international trade*...', which seemed to be the normal OIE usage.

The Working Group recommended that the order of Article 1.2.2.3. and Article 1.2.2.4. be swapped.

The Working Group recommended that the OIE and Codex (specifically CCFICS) ensure that their recommendations on international veterinary certification are as closely aligned as possible.

The Working Group also recommended that the OIE take steps to encourage the use of electronic certification, where possible, and other systems helpful in preventing fraud which is a key consideration for safe international trade. With this in mind, the *ad hoc* Group on Model Veterinary Certificates should, at its February 2008 meeting, review the Codex Guidelines for Design, Production, Issuance and Use of Generic Official Certificates (CAC/GL 38-2001), as revised in 2007.

The Working Group noted the good collaboration between OIE and Codex on matters relating to international health certification and encouraged both organisations to continue their efforts to harmonise approaches.

### **Agenda Item 9. Salmonellosis**

The Working Group discussed the draft Guidelines on the Detection, Control and Prevention of *Salmonella* Enteritidis and *S. Typhimurium* in Poultry Producing Eggs for Human Consumption, which had been prepared by an OIE *ad hoc* Group, and the comments of OIE Members on this draft document. The Working Group noted that the *ad hoc* Group will meet again on 4-7 February 2008 and recommended that the Group should review Codex recommendations on this topic (CAC/RCP 15-1976), as revised in 2007.

The Working Group noted that the OIE recommendations provided specific advice on measures to be taken on farm (including in relation to hygienic collection, handling and storage of eggs) which complement the Codex recommendations that address the entire food chain including the measures to be taken post-farm (including hygienic handling, transport and storage of eggs). Therefore, the Working Group urged the OIE and Codex to ensure that recommendations are consistent wherever possible and that any unnecessary duplication is eliminated.

The Working Group recommended that the *ad hoc* Group clarify what is meant by environmental sampling in Article 3.10.2.7 and review Article 3.10.2.8. to make the recommendations more operational and clearly differentiate between what is common practice and what are clear recommendations, in particular the section on Vaccination.

The Working Group recommended that the OIE develop a definition for 'pest' – either for use in this Appendix or for use generally in the Code.

The Working Group provided comment on some of the general food safety related issues raised by Members and made a number of recommendations to modify the text, including the addition of certain definitions from the Codex Code of Practice, as shown in Annex F.

The Working Group reviewed the terms of reference for the *ad hoc* Group that will be convened to develop recommendations on salmonella detection, prevention and control in broiler chickens and made several recommendations, which are shown in Annex G.

### **Agenda Item 10. Tuberculosis**

The Working Group discussed the report of the Terrestrial Code Commission and noted the amendments proposed by the Commission, most of which were not directly relevant to food safety.

### **Agenda Item 11. Brucellosis**

The Working Group noted the status report on this item.

### **Agenda Item 12. Antimicrobial Resistance**

Dr T. Ishibashi, Deputy Director of the OIE Scientific and Technical Department, joined the Working Group meeting for this item. Dr Ishibashi reported on progress in the area of antimicrobial resistance over the last year. She explained that the OIE has finalised its list of Critically Important Antimicrobials which will be made available on the OIE website. The fourth joint FAO/WHO/OIE Meeting on Critically Important Antimicrobials, to be held on 26 November 2007, will be an important forum to discuss the appropriate balance between animal health needs and public health concerns in the use of antimicrobial products. There will also be an associated stakeholders meeting. The Chair thanked Dr Ishibashi for this update.

The Working Group also noted that, in addition to the work being undertaken by FAO/WHO/OIE and FAO/OIE meetings, the Codex Task Force has started work in 3 areas: risk assessment policy, risk management measures and risk profiling. The new Codex work would have due regard to the existing work by the OIE/FAO/WHO.

The Working Group will continue to follow this important issue with interest.

### **Agenda Item 13. Biotechnology**

The Working Group noted the status of work in Codex regarding biotechnology. As mentioned in the report of the 7<sup>th</sup> Session of the Codex Ad Hoc Intergovernmental Task Force on Foods Derived from Biotechnology (ALINORM 08/31/34), the Codex Draft Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Animals is at Step 5/8 of the Codex procedure. This guideline identifies the health status of the recombinant animal as one of the factors that is relevant to the safety assessment of recombinant-DNA animals. It was understood that the assessment of animal health status fell within the OIE mandate and was not covered by the Codex guideline.

The Working Group noted the report of the 12-14 June 2007 meeting of the OIE Biotechnology *ad hoc* Group and noted that this Group will next meet on 26-29 November 2007. In response to the recommendations of an FAO/WHO expert group, the status of foods derived from animals treated with recombinant DNA vaccines will be addressed. The Working Group accepted the invitation for Dr Slorach to be present at this meeting and he will report back to the next Working Group meeting.

### **Agenda Item 14. Work Programme for 2008**

The Working Group reviewed the work program for 2007 and updated it, based on the progression of relevant texts in the past 12 months and the discussion at this meeting.

Priorities for 2008 include:

- Biotechnology
  - identification and tracing of animals and animal products that have resulted from biotechnological intervention;
  - food safety implications of the use in food producing animals of vaccines derived from recombinant biotechnology.
- Animal feed
  - food safety implications of feeds for aquatic animals .
- Identification and traceability
  - OIE International Conference on the Identification and Traceability of Animals and Animal Products to be held in technical collaboration with Codex in Buenos Aires in early 2009.
- Disease specific texts
  - Salmonellosis in broilers
  - Campylobacteriosis in broilers – on work programme for 2009 pending progress in Codex
  - Cysticercosis .

The Work Programme for 2008 is at [Annex H](#).

**Agenda Item 15. Revised version of WHO publication' Terrorist Threats to Food'**

Dr Schlundt briefly summarised the amendments made to the publication. He indicated that WHO's intention is to publish the revised publication as soon as possible. The Working Group noted the publication.

**Agenda Item 16. Date of Next Meeting**

4-6<sup>th</sup> or 11-13<sup>th</sup> November 2008

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.../Annexes

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**Paris, 6–8 November 2007**

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**Agenda**

**Welcome from the OIE Director General**

**Adoption of the Agenda**

- 1. Report of the previous Working Group Meeting – November 2006**
- 2. Update on OIE / Codex / FAO / WHO activities**
  - 2.1. OIE Contribution to 30th Session of Codex
  - 2.2. Codex
- 3. Role of Veterinary Services in Food Safety**
- 4. Guide to Good Farming Practices**
  - 4.1. Extract from Draft Report of the Terrestrial Code Commission
  - 4.2. Report of the *ad hoc* Group meeting
  - 4.3. Future work
- 5. Animal Identification and Traceability**
  - 5.1. Report of the *ad hoc* Group meeting
  - 5.2. Extract from Draft Report of the Terrestrial Code Commission
  - 5.3. Comments received from Members'
  - 5.4. Future work and International conference
- 6. Terrestrial Animal Feed**
  - 6.1. Extract from Draft Report of the Terrestrial Code Commission
  - 6.2. Comments received from Members'
  - 6.3. Future work
- 7. Aquatic Animal Feed**
  - 7.1. Extract from Draft Report of the Aquatic Animals Commission
  - 7.2. Report of the *ad hoc* Group meeting on Aquatic Animal Feeds
  - 7.3. Future work

Annex B (contd)

**8. Revision of OIE Model Veterinary Certificates**

- 8.1. Extract from Draft Report of the Terrestrial Code Commission
- 8.2. Comments received from Members'
- 8.3. Future work

**9. Salmonellosis**

- 9.1. Extract from Draft Report of the Terrestrial Code Commission
- 9.2. Comments received from Members'
- 9.3. Future work on salmonellosis and campylobacteriosis

**10. Tuberculosis**

- 10.1. Extract from Draft Report of the Terrestrial Code Commission
- 10.2. Comments received from Members'
- 10.3. Future work

**11. Brucellosis**

- 11.1. Extract from Draft Report of the Terrestrial Code Commission

**12. Antimicrobial resistance – status report**

- 12.1. VICH press release

**13. Biotechnology**

- 13.1. Report of the *ad hoc* Group meeting
- 13.2. Future Work

**14. Work Programme for 2008**

**15. Any other business**

- 15.1. Revised version of WHO publication 'Terrorist Threats to Food'

**16. Next meeting**

## THE ROLE OF THE VETERINARY SERVICES IN FOOD SAFETY

The purpose of this paper is to provide guidance to OIE Members in regard to the role and responsibilities of *Veterinary Services* in food safety, to assist them in meeting the food safety objectives laid down in national legislation and the requirements of importing countries.

### Definitions

The following definitions, from the *Terrestrial Animal Health Code* (the *Code*) (1), are relevant to this paper. Throughout the paper, terms that are defined in the *Code* appear in italics.

*Veterinarian* means a person registered or licensed by the relevant *veterinary statutory body* to practice veterinary medicine/science in that country.

*Veterinary Services* means the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and guidelines in the OIE Terrestrial Animal Health Code (*Terrestrial Code*) and Aquatic Animal Health Code (*Aquatic Code*) in the country. The *Veterinary Services* are under the overall control and direction of the *Veterinary Authority*. Private veterinary organisations are normally accredited or approved to deliver functions by the *veterinary authority*.

*Veterinary Authority* means the governmental authority of a Member Country, comprising *veterinarians*, other professionals and paraprofessionals, having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and guidelines in the *Terrestrial Code* in the whole country.

The *Veterinary Statutory Body* is an autonomous authority regulating *veterinarians* and veterinary paraprofessionals.

*Zoonosis* means any disease or infection that is naturally transmissible from animals to man.

### Background

Historically, the *Veterinary Services* were set up to control livestock diseases at the farm level. There was an emphasis on prevention and control of the major epizootic diseases of livestock and of diseases that could affect man (zoonotic diseases). As countries begin to bring the serious diseases under control, the scope of official animal health services normally increases to address production diseases of livestock, where control leads to more efficient production and/or better quality animal products.

The role of the *Veterinary Services* has traditionally extended from the farm to the slaughterhouse, where *veterinarians* have a dual responsibility – epidemiological surveillance of animal diseases and ensuring the safety and suitability of meat. The education and training of *veterinarians*, which includes both animal health (including zoonoses) and food hygiene components, makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of animal origin. As described below, in addition to *veterinarians*, several other professional groups are involved in supporting ensuring integrated food safety approaches throughout the food chain. For this reason, in many countries the role of the *Veterinary Services* has been further extended to include also later subsequent stages of the food chain from in the “farm to fork” continuum (2, 3).

## **Approaches to food safety**

### **The concept of the food production continuum**

Food safety and quality are best assured by an integrated, multidisciplinary approach, considering the whole of the food chain. Eliminating or controlling food hazards at source, i.e. a preventive approach, is more effective in reducing or eliminating the risk of unwanted health effects than relying on control of the final product, traditionally applied via a final 'quality check' approach. Approaches to food safety have evolved in recent decades, from traditional controls based on good practices (Good Agricultural Practice, Good Hygienic Practice, etc), via more targeted food safety systems based on hazard analysis and critical control points (HACCP) to risk-based approaches using food safety risk analysis (4).

### **Risk-based management systems**

The development of risk-based systems has been heavily influenced by the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement"). This Agreement stipulates that signatories shall ensure that their sanitary and phytosanitary measures are based on an assessment of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by relevant international organizations. Risk assessment, the scientific component of risk analysis, should be functionally separated from risk management to avoid interference from economic, political or other interests. The SPS Agreement specifically recognises as the international benchmarks the standards developed by the OIE for animal health and zoonoses and by the Codex Alimentarius Commission for food safety. In recent decades there has also been a trend towards a redefinition of responsibilities. The traditional approach, whereby food operators were primarily held responsible for food quality while regulatory agencies were charged with assuring food safety, has been replaced by more sophisticated systems that give food operators primary responsibility for both the quality and the safety of the foods they place on the market. The role of the supervisory authorities is to analyse scientific information as a basis to develop appropriate food safety standards (both processing and end product standards) and monitoring to ensure that the control systems used by food operators are appropriate, validated and operated in such a way that the standards are met. In the event of non-compliance, regulatory agencies are responsible to ensure that appropriate sanctions are applied.

The *Veterinary Services* play an essential role in the application of the risk analysis process and the implementation of risk based recommendations for regulatory systems, including the extent and nature of veterinary involvement in food safety activities throughout the food chain, as outlined below. Each country should establish its health protection objectives, for animal health and public health, through consultation with stakeholders (especially livestock producers, processors and consumers) in accordance with the social, economic, cultural, religious and political contexts of the country. These objectives should be put into effect through national legislation and steps taken to raise awareness of them both within the country and to trading partners.

### **Functions of Veterinary Services**

The *Veterinary Services* contribute to the achievement of these objectives through the direct performance of some veterinary tasks and through the auditing of animal and public health activities conducted by other government agencies, private sector *veterinarians* and other stakeholders. In addition to *veterinarians*, several other professional groups are involved in ensuring food safety throughout the food chain, including analysts, epidemiologists, food technologists, human and environmental health professionals, microbiologists and toxicologists. Irrespective of the roles assigned to the different professional groups and stakeholders by the administrative system in the country, close cooperation and effective communication between all involved is imperative to achieve the best results from the combined resources. Where veterinary or other professional tasks are delegated to individuals or enterprises outside the *Veterinary Authority*, clear information on regulatory requirements and a system of checks should be established to monitor and verify performance of the delegated activities. The *Veterinary Authority* retains the final responsibility for satisfactory performance of delegated activities.

## At the farm level

Through their presence on farms and appropriate collaboration with farmers, the *Veterinary Services* play a key role in ensuring that animals are kept under hygienic conditions and in the early detection, surveillance and treatment of animal diseases, including conditions of public health significance. The *Veterinary Services* may also provide livestock producers with information, advice and training on how to avoid, eliminate or control food safety hazards (e.g. drug and pesticide residues, mycotoxins and environmental contaminants) in primary production, including through animal feed. Producers' organisations, particularly those with veterinary advisors, are in a good position to provide awareness and training as they are regularly in contact with farmers and are well placed to understand their priorities. Technical support from the *Veterinary Services* is important and both private *veterinarians* and employees of the *Veterinary Authority* can assist. The *Veterinary Services* play a central role in ensuring the responsible and prudent use of biological products and veterinary drugs, including antimicrobials, in animal husbandry. This helps to minimise the risk of developing antimicrobial resistance and unsafe levels of veterinary drug residues in foods of animal origin. Section 3.9.3 of the OIE *Terrestrial Code* contains guidelines on the use of antimicrobials.

## Meat inspection

Slaughterhouse inspection of live animals (*ante-mortem*) and the carcase (*post-mortem*) plays a key role in both the surveillance network for animal diseases and zoonoses and ensuring the safety and suitability of meat and by-products for their intended uses. Control and/or reduction of biological hazards of animal and public health importance by *ante-* and *post-mortem* meat inspection is a core responsibility of the *Veterinary Services* and they should have primary responsibility for the development of relevant inspection programmes.

Wherever practicable, inspection procedures should be risk-based. Management systems should reflect international norms and address the significant hazards to both human and animal health in the livestock being slaughtered. The Codex Alimentarius Code of Hygienic Practice for Meat (CHPM) (5) constitutes the primary international standard for meat hygiene and incorporates a risk-based approach to application of sanitary measures throughout the meat production chain. Section 3.10 of the *Terrestrial Code* contains guidelines for the control of biological hazards of animal health and public health importance through *ante-* and *post-mortem* meat inspection, which complement the CHPM.

Traditionally, the primary focus of the OIE Codes was on global animal health protection and transparency. Under its current mandate, the OIE also addresses animal production food safety risks. The Code includes several standards and guidelines aimed at protecting public health (such as Appendix 3.10.1 on the Control of Biological Hazards of Animal Health and Public Health Importance through Ante- and Post- Mortem Meat Inspection) and work is underway developing new standards to prevent the contamination of animal products by *Salmonella* spp. and *Campylobacter* spp. The OIE and Codex collaborate closely in the development of standards to ensure seamless coverage of the entire food production continuum. The recommendations of the OIE and the Codex Alimentarius Commission on the production and safety of animal commodities should be read in conjunction.

The *Veterinary Authority* should provide for flexibility in the delivery of meat inspection service. Countries may adopt different administrative models, involving degrees of delegation to officially recognised competent bodies operating under the supervision and control of the *Veterinary Authority*. If personnel from the private sector are used to carry out *ante-* and *post-mortem* inspection activities under the overall supervision and responsibility of the *Veterinary Authority*, the *Veterinary Authority* should specify the competency requirements for all such persons and verify their performance. To ensure the effective implementation of *ante-* and *post-mortem* inspection procedures, the *Veterinary Authority* should have in place systems for the monitoring of these procedures and the exchange of information gained. Animal identification and animal traceability systems should be integrated in order to be able to trace slaughtered animals back to their place of origin, and products derived from them forward in the meat production chain.

Annex C (contd)**Certification of animal products for international trade**

Another important role of the *Veterinary Services* is to provide health certification to international trading partners attesting that exported products meet both animal health and food safety standards. Certification in relation to animal diseases, including zoonoses, and meat hygiene should be the responsibility of the *Veterinary Authority*. Certification may be provided by other professions (a sanitary certificate) in connection with food processing and hygiene (e.g. pasteurisation of dairy products) and conformance with product quality standards.

**Other roles of the *Veterinary Services***

Most reported outbreaks of foodborne disease are due to contamination of foods with zoonotic agents, often during primary production. The *Veterinary Services* play a key role in the investigation of such outbreaks all the way back to the farm and in formulating and implementing remedial measures once the source of the outbreak has been identified. This work should be carried out in close collaboration with human and environmental health professionals, analysts, epidemiologists, food producers, processors and traders and others involved.

In addition to the roles mentioned above, *veterinarians* are well equipped to assume important roles in ensuring food safety in other parts of the food chain, for example through the application of HACCP-based controls and other quality assurance systems during food processing and distribution. The *Veterinary Services* also play an important role in raising the awareness of food producers, processors and other stakeholders of the measures required to assure food safety.

**Optimising the contribution of the *Veterinary Services* to food safety**

In order for *Veterinary Services* to make the best possible contribution to food safety, it is important that the education and training of *veterinarians* in the roles outlined in this paper meets high standards and that there are national programmes for ongoing professional development. The *Veterinary Services* should comply with the OIE fundamental principles of quality given in Section 1.3.3 of the *Terrestrial Code*. Guidelines for the evaluation of *Veterinary Services* are provided in Section 1.3.4 of the *Terrestrial Code* and in the OIE Tool for the Evaluation of Performance of *Veterinary Services* (the OIE PVS Tool).

There should be a clear and well documented assignment of responsibilities and chain of command within the *Veterinary Services*. The national *Competent Authority* should provide an appropriate institutional environment to allow the *Veterinary Services* to develop and implement the necessary policies and standards and adequate resources for them to carry out their tasks in a sustainable manner. In developing and implementing policies and programmes for food safety the *Veterinary Authority* should collaborate with other responsible agencies to ensure that food safety risks are addressed in a coordinated manner.

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## OIE-FAO GUIDE TO GOOD FARMING PRACTICES FOR ANIMAL PRODUCTION FOOD SAFETY

### Introduction

Food safety is universally recognised as a public health priority. It requires a holistic approach, from production to consumption.

These guidelines are intended to help competent authorities to assist stakeholders, including farmers, to fully assume their responsibilities at the first stages of the food chain to produce safe food of animal origin. Good farming practices should also address socio-economic, animal health and environmental issues in a coherent manner.

The recommendations in these guidelines complement the responsibilities of the competent authorities at the farm level, and in particular of the Veterinary Services. These guidelines are intended to assist in developing on-farm quality assurance systems for animal product food safety. This document also complements existing works from OIE, FAO and *Codex Alimentarius* aimed at addressing animal health and welfare, socio-economic and environmental issues related to farming practices. The bibliography lists the most relevant documents and publications.

To support the competent authorities an indication is given at the end of this document on the steps to be taken to implement these guidelines.

### Hazards

Many aspects of primary production are at risk of biological, chemical (including radionuclide), and physical ~~and radionuclide~~ agents. These may enter the animal, and thus the food chain, and may have impacts on the safety of animal feed and foods for human consumption, through a large variety of exposure points. It will not be possible to exhaustively list all hazards here, but the intention of these guidelines is to describe, in very broad terms, a set of generic good farming practices intended to minimise these hazards.

The measures to address the listed hazards will be considered under the following headings:

1. General farm management
2. Animal health management
3. Veterinary medicines and biologicals
4. Animal feeding and watering
5. Environment and infrastructure
6. Animal and product handling

The approach adopted will be to briefly outline, in tabular form, the hazards inherent in each of these, and then to address each heading in turn to describe a set of good practices to manage these hazards.

Annex D (contd)**Hazard Tabulation**

<b>Hazards</b>	<b>Control Points</b>
<b>Biohazards</b>	
Introduction of pathogens and contaminants	<ul style="list-style-type: none"> <li>• Sources of animals (horizontal and vertical transmission)</li> <li>• Sourcing of breeding stock</li> <li>• Breeding procedures</li> <li>• Semen and embryo quality</li> <li>• Bedding</li> <li>• Feed<sup>1</sup> and water</li> <li>• Records of acquisitions and animal movements</li> <li>• Health and hygiene of visitors and personnel</li> <li>• Contact with other animals (including wild life/rodents/insects etc.)</li> <li>• Vehicles/clothing/instruments/equipment</li> <li>• Infected/contaminated carcasses, tissues or secretions</li> </ul>
Transmission of pathogens and contaminants	<ul style="list-style-type: none"> <li>• Animal housing and population density</li> <li>• Disease diagnosis (horizontal and vertical transmission)</li> <li>• Health and hygiene of visitors and personnel</li> <li>• Vehicles/clothing/instruments/equipment</li> <li>• Infected/contaminated carcasses, tissues or secretions</li> <li>• Bedding management</li> <li>• <u>Insect or pest vectors</u></li> </ul>
Microbial and parasitic infections on pastures and paddocks	<ul style="list-style-type: none"> <li>• Pasture management</li> <li>• Microbial/parasite diagnosis</li> </ul>
Microbial load on skins	<ul style="list-style-type: none"> <li>• Environment of animals</li> <li>• Waste management</li> <li>• Bedding management</li> <li>• Population density</li> </ul>
Airborne infections and contaminations	<ul style="list-style-type: none"> <li>• Farm location</li> <li>• Animal housing and ventilation</li> <li>• Population density</li> </ul>
Carrier animals shedding pathogens	<ul style="list-style-type: none"> <li>• Animal management</li> <li>• Diagnosis</li> <li>• Population density</li> </ul>
Increased susceptibility to pathogens	<ul style="list-style-type: none"> <li>• Animal management (incl. transport)</li> <li>• Diagnosis</li> <li>• Population density</li> </ul>
Antimicrobial and parasiticide resistance	<ul style="list-style-type: none"> <li>• Diagnosis</li> <li>• Therapeutic regimes</li> <li>• Record-keeping</li> </ul>

<sup>1</sup> In this document, 'feed' includes all animal feedstuffs, ingredients, additives and supplements as defined in the *Codex Alimentarius* Code of Practice on Good Animal Feeding (CAC/RCP54 -2004).

Hazards	Control Points
<b>Biohazards (contd)</b>	
Feed borne infections and contaminations	<ul style="list-style-type: none"> <li>• Production, transport and storage</li> <li>• Feed quality</li> <li>• Feed equipment</li> <li>• Record keeping</li> </ul>
Water-borne infections and infestations	<ul style="list-style-type: none"> <li>• Water quality</li> <li>• Effluent management</li> <li>• Watering equipment</li> </ul>
Livestock not well adapted to conditions	<ul style="list-style-type: none"> <li>• Breeding selection</li> <li>• Record-keeping</li> </ul>
<b>Chemical hazards</b>	
Chemical contamination of environment, feed/water	<ul style="list-style-type: none"> <li>• Farm location</li> <li>• Animal movement</li> <li>• Use of agricultural chemicals</li> <li>• Feed and water quality</li> <li>• Equipment and building materials</li> <li>• Hygiene practices</li> </ul>
Toxins of biological origin (plants, fungi, algae).	<ul style="list-style-type: none"> <li>• Feed, pasture and water quality</li> <li>• Farm location</li> <li>• Animal movements</li> <li>• Feed production, storage and transport</li> </ul>
Residues of veterinary medicines and biologicals (incl. medicated feed and water)	<ul style="list-style-type: none"> <li>• Treatment of animals</li> <li>• Sales and prescription control</li> <li>• Record-keeping</li> <li>• Residue control</li> <li>• Quality of feed and water</li> </ul>
<u>Radionuclide pollution</u>	<ul style="list-style-type: none"> <li>• <u>Farm location</u></li> <li>• <u>Sources of feeds and water</u></li> </ul>
<b>Physical hazards</b>	
Broken needles and other penetrating bodies.	<ul style="list-style-type: none"> <li>• Treatment of animals</li> </ul>
Injuries	<ul style="list-style-type: none"> <li>• Farm location</li> <li>• Infrastructure</li> <li>• Population density</li> <li>• Animal handling</li> <li>• Construction and equipment</li> </ul>
Ingestion of dangerous/harmful objects	<ul style="list-style-type: none"> <li>• Farm location</li> <li>• Source of feeds and water</li> <li>• Record-keeping</li> <li>• Construction and equipment</li> <li>• Infrastructure</li> </ul>
<b>Radionuclides</b>	
Radionuclide pollution	<ul style="list-style-type: none"> <li>• <u>Farm location</u></li> <li>• <u>Sources of feeds and water</u></li> </ul>

## Recommended Good Practices

### 1. General farm management

A number of common threads run through all levels of farm management and recur often in the principles elaborated below. They are:

Annex D (contd)**1.1 Legal obligations**

Farmers should be aware of, and comply with all legal obligations relevant to livestock production e.g. disease reporting, record keeping, animal identification, carcase disposal.

**1.2 Record keeping**

When any form of problem arises in an enterprise, be it a disease, a chemical hazard issue or a physical safety matter, record-keeping is central to any effort to trace the problem and eliminate it. Hence, as far as is practicable, farmer should keep records of:

- Animal populations on the farm (groups or individuals as relevant)
- Movements of animals around the enterprise, changes to feeding or health regimes, and any other management changes that may occur
- Origin and use of all feeds, drugs, disinfectants, herbicides and other consumable items used on the farm
- Origin and destination of all animal movements to and from the farm
- Known diseases and deaths on the farm.

**1.3 Animal identification**

Animal identification and the ability to trace animals have become more important as tools to ensure food safety and improve management. Identification of animals may be on an individual or group basis, and connections between properties as a result of animal movements should be able to be deduced from good record keeping and animal identification.

Where a food safety incident occurs it should be possible to determine the source and to take appropriate action.

The ability to trace animals at least one step forward and one step back from the current holding is recommended.

**1.4 Hygiene and disease prevention**

Measures aimed at preserving cleanliness, preventing pathogen build-up and breaking possible pathways of transmission are essential in the management of any modern farming enterprise, regardless of species, and whether intensive or extensive.

Precautions should aim at:

- Reducing contact between potentially infected and healthy animals
- Maintaining hygiene and safety of all facilities
- Ensuring overall health of livestock through good nutrition and reducing stress
- Maintain an appropriate population density for the species and age group in question, following either locally enforceable measures, or obtaining appropriate advice from recognised experts.
- Keep records of populations in facilities/on farms under his/her control.

## 1.5 Training

Husbandry measures and techniques are ever-changing. Farmers, farm managers and farm personnel should have their knowledge and skills updated regularly through continuing education.

Competent authorities are encouraged to assess training needs amongst stakeholders and to promote necessary training. This would contribute to commitment to and effective execution of all practices described in this guide.

Farmers and farm managers should:

- Actively seek and ~~use~~ utilise all relevant training opportunities for themselves and their workers.
- Be aware of any training courses that may be compulsory in their countries and regions.
- Keep records of all training undergone.

## 2. Animal health management

### 2.1 Addressing biohazards

Owners or managers of livestock should:

- Establish a working relationship with a veterinarian to ensure that animal health and welfare, and disease notification issues are addressed.
- Seek veterinary assistance to immediately investigate suspicion of serious disease.
- Keep records of all diseases, diseased animals and mortalities as far as possible, giving details such as dates, diagnosis (where known), animals affected and treatments.
- Acquire animals (incl. breeding stock) only from sources with a known and safe health status, where possible with supporting health certificates from veterinarians.
- Ensure that movements of incoming animals are traceable to source and that animals are appropriately identified to ensure this.
- Keep records of all breeding stock, semen or embryos used on their premises, the animals upon which they were used, the breeding dates and outcomes.
- Keep records of all arrivals, including their identification marks or devices, origin and date of arrival.
- Comply with regulations concerning restrictions on animal movements.
- Keep new arrivals separate from resident stock for an appropriate period in order to monitor them for diseases and infestations in order to prevent transmission of such conditions.

Annex D (contd)

- Ensure that after arrival, animals are where necessary given time to adapt to new feeding regimes, are not overcrowded, and that their health is monitored.
- Source fresh or frozen semen, ova and embryos from safe sources, accredited by the competent authority of the country of origin, with appropriate health certification.
- Minimise contact between resident animals and professional or other visitors, and take all hygienic measures necessary to reduce possible introduction of pathogens and contaminants.
- Take all appropriate measures to prevent contamination by vehicles entering and traversing the property.
- Ensure the health of all workers on the farm and implementation of hygienic working procedures.
- Practice breeding and selection such that animals well suited to local conditions are raised and keep detailed breeding records.
- Separate diseased from healthy animals such that transmission of infection does not occur, and where necessary, cull diseased animals.
- Ensure that equipment and instruments used in animal husbandry are suitably cleaned and disinfected between uses.
- Effectively remove or dispose of dead and fallen stock where possible so that other animals cannot come in contact with carcasses and that carcasses do not contaminate the pasture or drinking water, and keep records of all such disposals.

As a general principle closed farming systems and all-in all-out systems are recommended from a food safety and ~~recognised as the safest from a biosafety~~ biosecurity point of view.

## **2.2 Addressing physical hazards**

Owners or managers of livestock should apply animal welfare practices in accordance with regulatory requirements, and in particular:

- Ensure that people working with animals are properly experienced and trained for the tasks they should perform.
- Ensure that facilities and equipment are properly designed and maintained to prevent physical injury.
- Ensure that animals are handled and transported appropriately.

## **3 Veterinary medicines and biologicals**

### **3.1 Addressing biohazards**

Owners or managers of livestock should:

- Use veterinary medicines and biologicals strictly in accordance with manufacturer's instructions or veterinary prescription, as appropriate.
- Use antimicrobials only in accordance with regulatory requirements and other veterinary and public health guidance.
- Keep detailed records of the origin and use of all medicines and biologicals, including batch numbers, dates of administration, doses, individuals or groups treated and withdrawal times. Treated individuals or groups should be clearly identified.
- Maintain required storage conditions for veterinary medicines and biologicals.
- Keep all treated animals on the farm until the relevant withdrawal times have expired (unless animals should leave the farm for veterinary treatment).
- ~~Ensure that products from treated animals are not used for human consumption until the withdrawal periods have elapsed.~~
- Use clean, sterilised or disposable instruments, syringes and needles for the treatment of animals.
- Dispose of used instruments (incl. needles) in a biosecure manner.
- Use only appropriate and correctly calibrated instruments for the administration of veterinary medicines and biologicals.

### **3.2 Addressing chemical hazards**

Owners or managers of livestock should:

- Be aware of and comply with restrictions on medicines or biologicals for use in livestock.
- Correctly observe all recommended dosage regimes ~~and withdrawal times~~ as specified by the manufacturer or attending veterinarian.
- Ensure that products from treated animals are not used for human consumption until the withdrawal periods have elapsed.

### **3.3 Addressing physical hazards**

Owners or managers of livestock should:

- Ensure that all treatments or procedures are carried out using instruments that are fit for purpose, and that animals are correctly and calmly handled and restrained.
- Ensure that all handling or treatments facilities are safe and appropriate to the species in question and that their construction is such that the likelihood of injury is minimised.

## **4 – Animal feeding and watering**

### **4.1 Addressing biohazards**

Owners or managers of livestock should:

Annex D (contd)

- Acquire feed from suppliers ~~manufacturers~~ who follow recognised good manufacturing practices such that feed contamination is minimised.
- Ensure that antibiotics are not be used in feed for growth promoting purposes in the absence of a public health safety assessment.
- Ensure that ruminant protein is not fed to ruminants.
- Where on-farm manufacture of feeds is practised, procedures designed to minimise contamination and prevent the inclusion of undesirable feed components are followed. Where necessary, expert assistance should be sought.
- Manage the feed chain (transport, storage and feeding) in such a way as to protect feed from contamination and minimise deterioration. Feeds should be used as soon as possible and, if applicable, in accordance with labelling instructions.
- Keep records of all feeds and dates of acquisition and feeding; where possible the animals/groups of animals fed should be clearly recorded. Self-mixed feeds should have their ingredients and mixes recorded, as well as dates of feeding and animals fed as specified above.
- Ensure that nutritional levels promote animal health, growth and production.
- Where appropriate, manage pastures by stocking rate and rotation to maintain healthy and productive livestock and reduce parasite burdens. Keep records of pasture rotation and other on-farm animal movements between pens, sheds, etc.
- Ensure that changes to feeding regimes are, where possible, gradual, and that the regimes are safe and nutritious by following acceptable feeding practices.
- Ensure that only water of known and acceptable biological quality (fit for animal consumption) is used for watering stock.
- Ensure that effluents are managed in such a way that drinking water sources are not contaminated.
- Regularly inspect and, when necessary, clean and disinfect feeding and watering facilities such as drinkers and troughs.
- Prevent animal access to places where feeds are stored

**4.2 Addressing chemical hazards**

Owners or managers of livestock should:

- Acquire feed from manufacturers who follow recognised good manufacturing practices such that the likelihood of undesirable chemical substances in the feed is minimised.
- Use herbicides and pesticides judiciously and according to manufacturer's instructions and applicable legislation such that animal exposure to these chemicals is minimised. Records of usage, including date and location of application should be kept.

- Ensure that only water of known and acceptable mineralogical quality (dissolved/suspended solids levels fit for animal consumption) is used for watering stock.
- Ensure that when feed additives are used, that manufacturer's instructions as to dosage levels and withdrawal periods are followed, and that records of usage of such feed additives are kept.
- Prevent animal access to places where hazardous chemicals are stored.

#### **4.3 Addressing physical hazards**

Owners or managers of livestock should:

- Ensure that feeds originate from trustworthy sources following good production practices.
- Ensure that animals are not kept in sheds, pens or pastures where they are likely to ingest foreign objects and that all facilities are kept clean and free from metal objects, pieces of wire, plastic bags, etc.
- Manage the feed chain (transport, storage and feeding) in such a way as to protect feed from contamination with foreign objects.

### **5. Environment and infrastructure**

#### **5.1 Addressing biohazards**

Owners or managers of livestock should:

- Locate farms in areas free from industrial and other pollution and sources of contamination and infection.
- Ensure that farm layout minimises livestock contact with visitors, vehicles and other potential sources of contamination and infection.
- Maintain adequate separation between clean and contaminated materials (e.g. feed and manure)
- Ensure that where animals are confined, the housing or corrals are constructed such that the basic needs of the animals are fulfilled especially with regard to ventilation, drainage and manure removal. Walking surfaces should be non-slip and easily cleaned and all surfaces should ideally be washable.
- Ensure that effluent disposal is effective and that facilities where animals are kept are an appropriate distance from any disposal points.
- Apply appropriate pest and vermin control measures, which may include the use of barriers such as nets or fencing, or the use of pest/vermin population control measures.
- Ensure that where used, bedding or litter is regularly renewed and used bedding or litter safely disposed of.

Annex D (contd)

- Ensure that buildings and perimeter fences are so constructed that contact with other livestock and wild animals is minimised.
- Ensure that farm layout and building construction provides for adequate separation of animals by production group as necessary.

**5.2 Addressing chemical hazards**

Owners or managers of livestock should:

- Use chemical disinfectants and cleansers strictly in accordance with proper instructions, ensuring that disinfected or cleaned surfaces and facilities are properly rinsed if necessary.
- Seek professional advice with regard to the use of disinfectants or cleansers.

**5.3 Addressing physical hazards**

Owners or managers of livestock should:

- Ensure that animal housing facilities do not bear any features likely to cause injury to animals, that flooring is non-slippery and that where possible surfaces are not uneven and/or poorly drained.
- Manage pastures such that livestock are not exposed to dangerous and impassable areas.

**6 – Animal and product handling****6.1 Addressing biohazards**

Owners or managers of livestock should:

- Ensure that all animals destined for slaughter are clean, healthy and fit to travel and have not had recent contact with diseased stock or infectious material.
- Apply short duration feeding regimes aimed to reduce the shedding of harmful bacteria in animals destined for slaughter.
- Ensure that contamination of animal products from animal and environmental sources during primary production and storage are minimised.
- Ensure that storage conditions maintain the quality of the products.
- Keep records of animals and animal products leaving the farm as well as the destination and the date of dispatch.

**6.2 Addressing chemical hazards**

Owners or managers of livestock should:

- Ensure full compliance with existing legislation such that applicable maximum residue levels are not exceeded.

- Ensure that all animals destined for slaughter have not been subjected to treatment for which the withdrawal period has not elapsed.

### 6.3 Addressing physical hazards

Owners or managers of livestock should:

- Ensure that mustering or catching and handling prior to loading is carried out in a safe and humane manner.
- Ensure that loading facilities are appropriately constructed.
- Take the necessary care during animal loading so as to minimise injury.
- Handle products in such a way as to prevent damage.

### Implementation

It is desirable that the competent authorities and relevant stakeholders agree on acceptable farm management measures (which may include codes of practice) for the various livestock industries in their countries, based on the principles elaborated in these guidelines.

Ideally, farmers should implement all measures recommended in this guide. In order to achieve this, these measures need to be adapted to specific production and farming systems from the subsistence small holder systems found in many developing countries to large industrial farm units.

Diagram 1 proposes a methodology for such implementation.

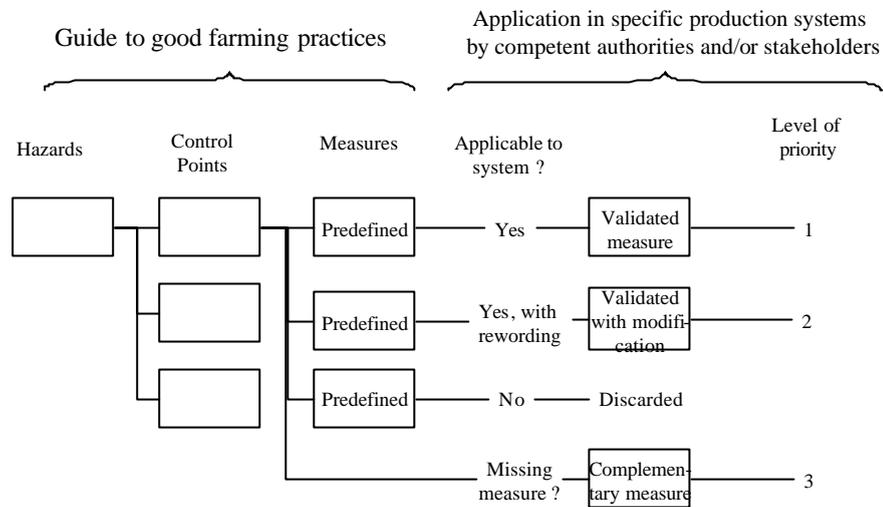
The OIE and FAO encourage member countries to develop their own measures or codes of practice based on these guidelines. Competent authorities should consult with the appropriate stakeholders to establish the cost effectiveness and the applicability of the measures recommended in this Guide. Competent authorities should take account of the particular health, socioeconomic and cultural situations in their countries as they proceed to apply this Guide.

Some measures could be adopted without change, while others will have to be adapted and their wording modified before being validated and integrated into a specific code of practice. Non relevant measures might even be discarded. Some complementary measures might have to be added to specific codes of practice in order to correctly address specific hazards.

Countries could decide what level of priority to assign to each of the measures in this guide in developing their own frameworks. Measures with the highest priority should be the minimum requirement for farmers, while measures of lower priority could be applied as circumstances dictate.

On-farm quality assurance should be supported by policies and programmes, including raising awareness and training of stakeholders. These activities are deemed essential to obtaining stakeholder commitment to the quality assurance process.

The Competent authorities in consultation with stakeholders should develop mechanisms to monitor the implementation of this Guide.

Annex D (contd)Diagram 1: **Implementation methodology for specific production and farming systems**

Priority levels :

1. Critical measure
2. Highly advisable measure
3. Recommended measure

# GUIDELINES FOR THE CONTROL OF HAZARDS OF ANIMAL HEALTH AND PUBLIC HEALTH IMPORTANCE IN ANIMAL FEED

## PART 1

### INTRODUCTION

Animal feed is a critical component of the food-chain that has a direct impact on animal health and welfare and also on food safety and public health.

Historically, the OIE primarily addressed animal feed as an important pathway for the entry and spread of contagious epidemic *diseases*, such as foot and mouth disease, swine vesicular disease and avian influenza. In recent years, the role of feed as a vector for *disease* agents, including zoonotic organisms, was a focus of standards development in regards to bovine spongiform encephalopathy. Animal feed and feed ingredients are widely traded internationally and trade disruptions have the potential to impact economies in both developed and developing countries. Since 2002 the OIE has expanded its zoonotic disease mandate to encompass animal production food safety, working in collaboration with the Codex Alimentarius Commission (CAC) and other international organisations. In 2006 the International Committee resolved that the OIE should develop guidance on foodborne zoonoses and animal feeding, complementing relevant CAC texts.

### **PURPOSE OBJECTIVE AND SCOPE**

The purpose objective of this OIE guideline is to provide guidance on animal feeding in relation to animal health and to complement the guidance provided by the Codex Code of Practice on Good Animal Feeding (CAC/RCP 54-2004) which deals primarily with food safety.

This guideline aims at ensuring the control of animal and public health hazards through adherence to recommended practices during the production (procurement, handling, storage, processing and distribution) and use of both commercial and on-farm produced animal feed and feed ingredients for food producing animals.

### **SCOPE**

This guideline applies to the production and use of all products destined for animal feed and feed ingredients at all levels whether produced commercially or on farm. It also includes grazing or free-range feeding, forage crop production and water for drinking. Swill feeding is a particular aspect of on-farm practice that is specifically addressed because of its recognised role in *disease* transmission.

~~This~~ These ~~Guidelines~~ deals with food or feed for terrestrial ~~food-producing~~ animals ~~other than aquatic animals~~ (i.e. livestock and poultry).

### **DEFINITIONS**

#### ***Hazard***

means a biological, chemical or physical agent in, or a condition of, feed or a feed ingredient an animal or animal product with the potential to cause an adverse effect on animal or public health.

Annex E (contd)**Feed**

means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial food-producing animals (except bees).

**Feed additives**

means any intentionally added ingredient not normally consumed as feed by itself, whether or not it has nutritional value, which affects the characteristics of feed, ~~or health of the animal~~ or and the characteristics of products. Microorganisms, enzymes, acidity regulators, trace elements, vitamins and other products fall within the scope of this definition depending on the purpose of use and method of administration. This excludes veterinary drugs.

**Medicated feed**

means any feed which contains a veterinary drug administered to food producing animals, for therapeutic or prophylactic purposes or for modification of physiological functions.

**Feed ingredient**

means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the animal's diet, including feed additives. Ingredients are of plant, or animal ~~or aquatic~~ origin, or other organic or inorganic substances.

**Undesirable substance**

~~means a contaminant or other substance material which is present in and/or on feed and feed ingredients and which constitute a risk whose presence is potentially harmful to animal or public health and/or is restricted under current regulations.~~

**Commercial feed**

means all materials that are sold and distributed as feed, or to be mixed with feed, for animals except: unmixed seed, whole, processed, or unprocessed; straw, stover, silage, cobs, husks, and hulls; or individual chemical compounds not mixed with other ingredients.

**~~Cross~~ contamination**

~~means contamination the presence of a material or product with another material or product containing a component that in a feed or feed ingredient additive and whose presence in that feed or feed ingredient additive is potentially harmful for animal or public health or is restricted under the regulatory framework current regulations.~~

**GENERAL PRINCIPLES****Roles and responsibilities**

The Competent Authority has the legal power to set and enforce regulatory animal feeding requirements, and has final responsibility for verifying that these requirements are met. The Competent Authority may establish regulatory requirements for relevant parties to provide it with information and assistance. Refer to Chapters 1.3.3. and 1.3.4. of the OIE *Terrestrial Code*.

Those involved in the production and use of animal feed and feed ingredients have the responsibility to ensure that these products meet regulatory requirements. Appropriate contingency plans should be in place to enable tracing and recall of non-compliant products. All personnel involved in the manufacture, storage and handling of feed and feed ingredients should be adequately trained and aware of their role and responsibility in preventing the spread of ~~animal health and public health~~ hazards. Appropriate contingency plans should be developed. Equipment should be maintained in good working order and in a sanitary condition.

It is a particular responsibility of Veterinary Services to set and enforce the regulatory requirements pertaining to the use of veterinary drugs, animal *disease* control and the food safety aspects that relate to the management of live animals on farm.

Those providing specialist services to producers and to the feed industry (e.g. private veterinarians and laboratories) may be required to meet specific regulatory requirements pertaining to the services they provide (e.g. *disease* reporting, quality standards, transparency).

### **Regulatory safety standards**

All feed and feed ingredients should meet regulatory safety standards. In defining limits and tolerances for hazards, scientific evidence, including the sensitivity of analytical methods and on the characterisation of risks, should be taken into account.

### **Risk analysis (risk assessment, risk management and risk communication)**

Internationally accepted principles and practices on risk analysis (Section 1.3. of the OIE *Terrestrial Code*, and relevant Codex texts) should be used in developing and applying the regulatory framework.

Application of a generic framework should provide a systematic and consistent process for managing all biosecurity risks, while recognising the different risk assessment methodologies used in animal and public health.

### **Good practices**

Where national guidelines exist, good agricultural practices and good manufacturing practices (including good hygienic practices) should be followed. Countries without such guidelines are encouraged to develop them.

Where appropriate, Hazard Analysis and Critical Control Point<sup>2</sup> (HACCP) principles should be followed to control hazards that may occur in the manufacture of feed and feed additives.

### **Geographic and environmental considerations**

Land and facilities used for production of animal feed and feed ingredients and water sources should not be located in close proximity to sources of hazards for animal health or food safety. Animal health considerations include factors such as *disease* status, location of quarantined premises and existence of *zones/compartments* of specified health status. Food safety considerations include factors such as industrial operations that generate pollutants and waste treatment plants.

### **Zoning and compartmentalisation**

Feed is an important component of biosecurity and needs to be considered when defining a compartment or zone in accordance with Chapter 1.3.5. of the OIE *Terrestrial Code*.

### **Sampling and analysis**

Sampling and analytical protocols should be based on scientifically recognized principles and procedures.

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<sup>2</sup> Hazard Analysis and Critical Control Point, as defined in the Annex to the Recommended International Code of Practice on General Principles of Food Hygiene (CAC/RCP 1-1969).

Annex E (contd)**Labelling**

Labelling on how the feed or feed ingredients should be handled, stored and used should be clear and informative as to how the feed and feed ingredients should be handled, stored and used unambiguous, legible and conspicuously placed on the package if sold in package bagged form and on the waybill and other sales documents if sold in bulk, un-packaged bagged form, and should comply with regulatory requirements.

See Codex Code of Practice on Good Animal Feeding (CAC/RCP 54-2004).

**Design and management of inspection programmes**

In meeting animal and public health objectives prescribed in national legislation or required by *importing countries*, Competent Authorities contribute through the direct performance of some tasks or through the auditing of animal and public health activities conducted by other agencies or the private sector.

Feed and feed ingredients business operators and other relevant parts of industry should practice self-regulation to secure compliance with required standards for procurement, handling, storage, processing, distribution and use. Operators have the primary responsibility for implementing systems for process control. ~~Where such systems are applied,~~ the Competent Authority should verify that they achieve all regulatory requirements.

**Assurance and certification**

*Competent Authorities* are responsible for providing assurances domestically and to trading partners that regulatory ~~requirements~~ safety standards have been met. For international trade in animal product based feeds, *Veterinary Services* are required to provide international veterinary certificates.

**Hazards associated with animal feed**Biological hazards

Biological hazards that may occur in feed and feed ingredients include agents such as bacteria, viruses, prions, fungi and parasites.

Chemical hazards

Chemical hazards that may occur in feed and feed ingredients include naturally occurring chemicals (such as mycotoxins and gossypol), industrial and environmental contaminants (such as dioxins and PCBs), residues of veterinary drugs and pesticides and also radionuclides.

Physical hazards

Physical hazards that may occur in feed and feed ingredients include foreign objects (such as pieces of glass, metal, plastic or wood).

**Cross-contamination**

It is important to avoid ~~cross~~ contamination during the manufacture, storage, distribution (including transport) and use of feed and feed ingredients and relevant provisions should be included in the regulatory framework. Scientific evidence, including the sensitivity of analytical methods and on the characterisation of risks, should be drawn upon in developing this framework.

Procedures, such as flushing, sequencing and physical clean-out, should be used to avoid cross-contamination between batches of feed or feed ingredients.

### **Antimicrobial resistance**

Concerning the use of antimicrobials in animal feed refer to Section 3.9. of the OIE *Terrestrial Code*.

### **Management of information**

The Competent Authority should establish clear requirements for the provision of information by the private sector as this relates to regulatory requirements.

Records should be maintained in a readily accessible form regarding the production, distribution and use of feed and feed ingredients. These records are required to facilitate the prompt trace-back of feed and feed ingredients to the immediate previous source, and trace-forward to the next subsequent recipients, to address identified animal health or public health concerns.

*Animal identification* and *animal traceability* are tools for addressing animal health (including zoonoses), and food safety risks arising from animal feed (see Section 3.5. of the OIE *Terrestrial Code*, Section 4.3. of CAC/RCP 54-2004).

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## APPENDIX 3.10.2.

## GUIDELINES ON THE DETECTION, CONTROL AND PREVENTION OF *SALMONELLA* ENTERITIDIS AND *S. TYPHIMURIUM* IN POULTRY PRODUCING EGGS FOR HUMAN CONSUMPTION

## Article 3.10.2.1.

**Introduction**

The aim of the *Terrestrial Code* is to assist Member Countries in the management and control of significant animal diseases, including diseases with zoonotic potential, and in developing animal health measures applicable to trade in terrestrial animals and their products. This guideline provides recommendations on the detection, control and prevention of *Salmonella* Enteritidis and *S. Typhimurium* in poultry producing eggs for human consumption. These considerations equally apply to other paratyphoid *Salmonella* serovars.

*S. Enteritidis* and *S. Typhimurium* belong to the species of *S. Enterica*. In most food animal species, *S. Enteritidis* and *S. Typhimurium* can establish a clinically unapparent infection in poultry, of variable duration, which is significant as a potential zoonosis. Such animals may be important in relation to the spread of infection between flocks and as causes of human food poisoning. In the latter case, this can occur when these animals, or their products, enter the food chain thus producing contaminated food products.

Salmonellosis is one of the most common food-borne bacterial diseases in the world. It is estimated that over 90% of *Salmonella* infections in humans are food-borne with *S. Enteritidis* and *S. Typhimurium* accounting for major part of the problem. Egg-associated salmonellosis, particularly *S. Enteritidis*, is an important public health problem worldwide.

## Article 3.10.2.2.

**Purpose and scope**

This guideline deals with methods for on farm detection, control and prevention of *S. Enteritidis* and *S. Typhimurium* in poultry producing eggs for human consumption. This guideline complements the Codex Alimentarius draft Code of Hygienic Practice for Eggs and Egg Products CAC/RCP 15-1976 Revision 2007 ALINORM 07/28/13, appendix II. It covers the preharvest part of the production chain from elite flock to the commercial layer farm. ~~The objective is to control *Salmonella* in poultry with the goal of producing *Salmonella* free eggs.~~ A pathogen reduction strategy at the farm level is seen as the first step in a continuum that will assist in producing eggs that are safe to eat.

The scope covers chickens and other domesticated birds used for the production of eggs for human consumption. The recommendations presented in this guideline are also relevant to the control of other *Salmonella* serotypes.

## Article 3.10.2.3.

**Definitions (for this chapter only)****Broken/leaker egg**

means an egg showing breaks of both the shell and the membrane, resulting in the exposure of its contents.

Annex F (contd)**Cracked egg**

means an egg with a damaged shell, but with intact membrane.

**Dirty egg**

means an egg with foreign matter on the shell surface, including egg yolk, manure or soil.

**Peak of lay**

means the period of time in the laying cycle (normally expressed as age in weeks) when the production of the flock is highest.

**Pullet flock**

means a flock of poultry prior to the period of laying eggs for human consumption.

**Layer or laying flock**

means a flock of poultry during the period of laying eggs for human consumption.

**Competitive exclusion**

means the administration of bacterial flora to poultry to prevent gut colonisation by enteropathogens, including *Salmonellae*.

**Culling**

means the depopulation of a flock before the end of its normal production period.

Article 3.10.2.4.

**Hazards in poultry breeding flocks, hatcheries and poultry producing eggs for human consumption**

All measures to be implemented in breeding flocks and hatcheries are described in Chapter 2.10.2. on *Salmonella* Enteritidis and *Salmonella* Typhimurium in Poultry and in Appendix 3.4.1. on hygiene and disease security procedures in poultry breeding flocks and hatcheries.

This guideline ~~addresses deals with~~ poultry ~~that producing~~ eggs for human consumption. The rest of the food chain is addressed by the Codex Alimentarius ~~draft~~ Code of Hygienic Practice for Eggs and Egg Products.

Article 3.10.2.5.

**Biosecurity recommendations applicable to pullet and layer or laying flocks**

1. Access to the *establishment* should be controlled to ensure only authorized persons and conveyances enter the site. This may require that the *establishment* be surrounded by a security fence. The choice of a suitably isolated geographical location, taking into account the direction of the prevailing winds, facilitates hygiene and disease control. A sign indicating restricted entry should be posted at the entrance.
- ~~2. Establishments should operate on an 'all in - all out' single age group whenever possible.~~
2. An 'all in - all out' step should be followed for each poultry house, where feasible, taking into consideration multi-aged poultry houses.
3. Where several flocks are maintained on one *establishment*, each flock should be managed as separate entities.

4. Poultry houses and buildings used to store feed or eggs should be pest proof and not accessible to wild birds.
5. Poultry houses should be designed and constructed so that cleaning and *disinfection* can be carried out adequately ~~and preferably of smooth impervious materials.~~
6. *Establishments* should be free from unwanted vegetation and debris. The area immediately surrounding the poultry houses ideally should consist of concrete or other material to facilitate cleaning. ~~An exception to this would be trees for heat control, with the exception of fruit trees which could be attractive to birds.~~
7. Domestic animals, other than poultry, should not be permitted access to poultry houses and buildings used to store feed or eggs.
8. Clean coveralls or overalls, hats and footwear should be provided for all personnel and visitors entering the poultry house. A physical hygiene barrier or a ~~A~~ disinfectant foot-bath should be provided, and the disinfectant solution should be changed regularly as recommended by the manufacturer. Personnel and visitors should wash their hands with soap and water or in a disinfectant solution before and after entering the layer house.
9. When a poultry house is depopulated, all faeces and litter should be removed from the house and disposed of in a manner approved by the *Veterinary Services*. After removal of faeces and litter, cleaning and *disinfection* of the building and equipment should be applied in accordance with Appendix 3.6.1.

Bacteriological monitoring of the efficacy of *disinfection* procedures is recommended when *S. Enteritidis* and/or *S. Typhimurium* have been detected in the flock. Routine pest control procedures should also be carried out at this time.

10. Birds used to stock a pullet house should be obtained from breeding flocks that are certified as free from *S. Enteritidis* and *S. Typhimurium* and have been monitored according to Article 3.4.1.9.
11. Layer or laying flocks ~~Layer flocks~~ should be stocked from pullet flocks that are certified as free from *S. Enteritidis* and *S. Typhimurium* and have been monitored according to this guideline.
12. ~~While *S. Enteritidis* and *S. Typhimurium* are not normally found as a contaminant in feed, Because~~ salmonella organisms may contaminate feed, it is ~~nonetheless~~ recommended to monitor the salmonella status of feed used in poultry houses. The use of pelletised feeds or feeds subjected to other bactericidal treatment is recommended. Feed should be stored in clean closed containers to prevent access by birds and pests. Spilled feed should be cleaned up regularly to remove attractants for wild birds and pests.
13. The water supply to poultry houses should be potable according to the World Health Organization or to the relevant national standard, and microbiological quality should be monitored if there is any reason to suspect contamination.
14. Sick or dead birds should be removed from poultry houses as soon as possible and at least daily, and effective and safe disposal procedures implemented.
15. Records of flock history ~~and performance,~~ including mortality, as well as surveillance, treatment and vaccinations in regard to *Salmonella* should be maintained on an individual flock basis within the establishment. Such records should be readily available for inspection.
16. There should be good communication and interaction between all involved in the food chain so that control can be maintained from breeding to egg production and consumption. Farmers should have access to basic training on hygiene and biosecurity measures relevant to egg production and food safety.

Annex F (contd)

17. For poultry flocks that are allowed to range outdoors, the following provisions apply:

Attractants to wild birds should be minimised (e.g. commercial feed and watering points should be kept inside the poultry house if possible). Poultry should not be allowed access to sources of contamination (e.g. household rubbish, other farm animals, surface water and manure storage areas). The nesting area should be inside the poultry house.

Article 3.10.2.6.

### **Recommendations applicable to egg hygiene and collection**

1. Cages should be maintained in good condition and kept clean. The litter in the poultry house should be kept dry and in good condition. The nest box litter should be kept clean and an adequate quantity maintained.
2. Eggs should be collected at frequent intervals, e.g. not less than twice per day, and placed in new or clean and disinfected trays.
3. Dirty, broken, cracked, leaking or dented eggs should be collected separately and should not be used as table eggs.
4. Eggs should be stored in a cool and dry room used only for this purpose. Storage conditions should minimise the potential for microbial contamination and growth. The room should be kept clean and regularly sanitised.
5. Records of egg production should be kept to assist traceability and veterinary investigations.
6. If eggs are cleaned on the farm, this should be done in accordance with the requirements of the Competent Authority.

Article 3.10.2.7.

### **Surveillance of pullet and layer or laying flocks for *S. Enteritidis* and *S. Typhimurium***

Surveillance should be performed to identify infected flocks in order to take measures that will reduce transmission of *S. Enteritidis* and *S. Typhimurium* to humans and to reduce the prevalence in poultry. Microbiological testing is preferred to serological testing because of its higher sensitivity and specificity. In the framework of regulatory programmes for the control of *S. Enteritidis* and *S. Typhimurium*, confirmatory testing may be appropriate to ensure that decisions are soundly based.

### Sampling

1. Time and frequency of testing
  - a) Pullet flock testing
    - i) Four weeks before being moved to another house, or before going into production if the animals will remain in the same house for the production period.
    - ii) At the end of the first week of life when the status of breeding farm and hatchery is not known or does not comply with Chapter 2.10.2.
    - iii) One or more times during the growing period if there is a *culling* policy in place. The frequency would be determined on commercial considerations.

b) Layer or laying flock ~~Layer flock~~ testing

- i) At expected *peak of lay* for each production cycle.
- ii) One or more times if there is a *culling* policy in place or if eggs are diverted to processing for the inactivation of the pathogen. The minimal frequency would be determined by the *Veterinary Services*.

## c) Empty building testing

Environmental sampling of the empty building after depopulation, cleaning and *disinfection*, following a *S. Enteritidis* and *S. Typhimurium* positive flock.

2. Available methods for sampling

Drag swabs: Sampling is done by dragging swabs around the poultry building.

Boot swabs: Sampling is done by walking around the poultry building with absorbent material placed over the footwear of the sampler.

Faecal samples: Multiple samples of fresh faeces collected from different areas in the poultry building.

3. Number of samples to be taken according to the chosen method

Recommendation is 5 pair of boot swabs or 10 drag swabs. These swabs may be pooled into no less than 2 samples. 5 Pair of boot swabs correspond to 300 faeces samples.

The total number of faecal samples to be taken on each occasion is shown in Table I and is based on the random statistical sample required to give a probability of 95% to detect one positive sample given that infection is present in the population at a level of 5% or greater.

**Table I**

<b>Number of birds in the flock</b>	<b>Number of samples to be taken on each occasion</b>
25-29	20
30-39	25
40-49	30
50-59	35
60-89	40
90-199	50
200-499	55
500 or more	60

Annex F (contd)*Table I*

<b>Number of birds in the commercial flock</b>	<b>Number of <u>faecal</u> samples to be taken on each occasion</b>	<b><u>Number of drag swabs</u></b>	<b><u>Number of boot swabs</u></b>
25-29	20	1	1
30-39	25	<u>1</u>	<u>1</u>
40-49	30	<u>1</u>	<u>1</u>
50-59	35	<u>2</u>	<u>2</u>
60-89	40	<u>2</u>	<u>2</u>
90-199	50	<u>2</u>	<u>2</u>
200-499	55	2	2
500 or more	60	2	2

Laboratory methods

Refer to the *Terrestrial Manual*.

Article 3.10.2.8.

**Control measures**

*Salmonella* control can be achieved by adopting the management practices mentioned above in combination with the following measures. No single measure used alone will achieve effective *S. Enteritidis* and *S. Typhimurium* control.

Currently available control measures are: vaccination, *competitive exclusion*, flock *culling* and product diversion to processing. Antimicrobials, *competitive exclusion* and live vaccination are used in elite flocks.

Antimicrobials should not be used ~~are not recommended~~ to control *S. Enteritidis* and *S. Typhimurium* in poultry producing eggs for human consumption because the effectiveness of the therapy is limited; it has the potential to produce residues in the eggs and can contribute to the development of antimicrobial resistance.

1. Vaccination

Many inactivated vaccines are used against *Salmonella* infections caused by different serovars in various poultry species, including a single or combined vaccine against *S. Enteritidis* and *S. Typhimurium*.

Live vaccines are also used in a number of countries to prevent *Salmonella* infections in poultry. It is important that field and vaccine strains can easily be differentiated in the laboratory. Vaccines produced according to the *Terrestrial Manual* should be used.

Vaccination can be used as part of an overall *Salmonella* control programme. Vaccination should never be used as the sole control measure.

When the status of breeding farm and hatchery from which the *pullet flock* originates is not known or does not comply with Chapter 2.10.2., vaccination of *pullet flocks*, starting with day-old chicks, against *S. Enteritidis* or *S. Enteritidis/S. Typhimurium* should be considered.

Vaccination should be considered when moving day-old chicks to a previously contaminated shed so as to minimize the risk of the birds contracting infection with *S. Enteritidis* and *S. Typhimurium*.

When used, vaccination should be performed according to the instructions provided by the manufacturer and in accordance with the directions of the *Veterinary Services*.

## 2. Competitive exclusion

*Competitive exclusion* can be used in day old chicks to reduce colonisation by *S. Enteritidis* and *S. Typhimurium*.

## 3. Culling

Depending on animal health and public health policies, culling is an option to manage infected flocks. If poultry are not culled, eggs should be sent for processing for inactivation of pathogens. Infected flocks should be destroyed or slaughtered and processed in a manner that minimises human exposure to pathogens.

Before restocking, the poultry house should be cleaned, disinfected and tested to verify that the cleaning has been effective (see above).

~~Farmers should be educated on how to handle *Salmonella* infected flocks in order to prevent spread to adjacent farms and human exposure.~~

Article 3.10.2.9.

## **Prevention of Salmonella spread**

When a *layer or laying flock* or *pullet flock* is found infected with *S. Enteritidis* and *S. Typhimurium*, management procedures should be implemented.

In addition to the general control measures described previously, management procedures should be adjusted to effectively isolate the infected flock from other flocks on the farm, adjacent farms and from other farms under common management.

1. Personnel should observe standard disease control procedures (e.g. handle infected flock separately/last in sequence and use of dedicated personnel and clothing and, if possible equipment).
  2. Pest control measures should be observed stringently
  3. Epidemiological investigations should be carried out to determine the origin of new infections as appropriate to the epidemiological situation.
  4. Movement of *culled* poultry or layers at the end of the production cycle should only be allowed for slaughter or destruction.
  5. Farmers should be educated on how to handle *Salmonella* infected flocks in order to prevent spread to adjacent farms and human exposure.
56. Poultry litter/faeces and other potentially contaminated farm waste should be disposed of in a safe manner to prevent the spread of infections with *S. Enteritidis* and *S. Typhimurium*. Particular care needs to be taken in regard to poultry litter/faeces used to fertilise plants intended for human consumption.

Annex F (contd)

67. After depopulation of an infected flock the poultry house should be thoroughly cleaned and disinfected, with special attention to feed equipment and water systems.

78. Before restocking bacteriological examination should be carried out, if possible, to verify that the cleaning has been effective.

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**TERMS OF REFERENCE FOR THE  
OIE AD HOC GROUP ON SALMONELLOSIS  
(as amended by the APFSWG in Nov 2007)**

1. Review Members' comments and APFSWG comments on the draft Guidelines on the detection, control and prevention of *Salmonella* Enteritidis and *S.Typhimurium* in poultry producing eggs for human consumption.
2. Review the Code Chapter on hygiene and disease security procedures in poultry breeding flocks and hatcheries to assure consistency between this text and the (draft) texts on Salmonella in laying hens and future texts on Salmonella in broilers.
3. Using up to date scientific information, draft a Chapter for the OIE *Terrestrial* Animal Health Code that addresses on farm methods for the detection, control and prevention of Salmonella spp. in broilers.
4. Take into account risk assessments carried out by the Joint FAO/WHO Meetings on Microbial Risk Assessment (JEMR) and other expert groups.
5. Take into account standards developed and under development by relevant international organisations, in particular the CAC, seeking complementarity.
6. Provide scientific justification and risk basis for all recommendations.



## WORK PROGRAMME FOR 2008

The Working Group discussed issues that had been identified at its previous meeting and that still needed to be addressed at some stage. The following priorities for 2007/2008 were agreed:

### 1. Horizontal issues

- a) Animal identification and traceability (including animals and animal products derived from biotechnological interventions)
  - Code chapters - underway through the OIE *ad hoc* Group
  - Animal Identification and Traceability Conference 2009 – contribute to scientific programme
- b) Certification – Terrestrial Code Commission to update the current OIE model certificates – underway with Working Group to follow up
- c) Antimicrobial resistance – Working Group to monitor Codex (Task Force on Antimicrobial Resistance), FAO, WHO and OIE developments
- d) Alternative approaches in risk management of zoonoses – listing (ad hoc Group on disease notification) or alternative approaches (*ad hoc* Group on emerging zoonoses, tripartite FAO/OIE/WHO GLEWS mechanism)
- e) Good farming practices – *ad hoc* Group jointly with the FAO to advance the document including the use of veterinary drugs and animal feeding
 

Subtopic: reduction of chemical hazards of public and animal health significance at the farm level
- f) Guidelines for animal feeding addressing the animal health issues and complementing the existing CAC international standards – underway through an OIE *ad hoc* Group
- g) Guidelines for aquatic animal feeding - underway through an OIE *ad hoc* Group reporting to the APFSWG and to the Code Commission.
- h) Biotechnology – animals and animal products derived from biotechnological interventions
- i) Monitoring developments on the use of the term ‘risk based.’

### 2. Disease-specific OIE texts

- a) Chapters of the OIE *Terrestrial Animal Health Code* on brucellosis. A further *ad hoc* Group meeting is to be held in 2008.
- b) Foodborne zoonoses
  - salmonellosis in eggs for human consumption
  - salmonellosis in broilers
  - campylobacteriosis in broilers – on work programme for 2009 pending progress in Codex
  - cysticercosis.

Annex H (contd)

3. Continue to strengthen relationship between OIE and Codex by:
    - a) Encouraging enhanced OIE input into Codex texts
    - b) Developing a method for the most effective utilisation of Codex expertise in the work of OIE *ad hoc* Groups.
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