

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
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HEALTH
ORGANIZATION



JOINT OFFICE: Viale delle Terme di Caracalla 00100 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

ALINORM 03/16

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

Twenty-Fifth Session

Rome, Italy, 30 June - 5 July 2003

**REPORT OF THE EIGHTH SESSION OF THE CODEX COMMITTEE ON
MEAT AND POULTRY HYGIENE**

Wellington, New Zealand, 18 - 22 February 2002

Note: *This report includes Codex Circular Letter CL 2002/06-MPH*

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CL 2002/06-MPH
February 2002

TO: Codex Contact Points
Interested International Organizations

FROM: Secretary, Joint FAO/WHO Food Standards Programme
FAO, 00100 Rome, Italy

SUBJECT: **Distribution of the Report of the Eighth Session of the Codex Committee on Meat and Poultry Hygiene (ALINORM 03/16)**

The report of the Eight Session of the Codex Committee on Meat and Poultry Hygiene (CCMPH) is attached. It will be considered by the 50th Session of the Executive Committee of the Codex Alimentarius Commission (Rome, 26 - 28 June 2002) and the 25th Session of the Codex Alimentarius Commission (Rome, 30 June - 5 July 2003)

PART A: MATTERS FOR ADOPTION BY THE 50TH SESSION OF THE EXECUTIVE COMMITTEE OF THE CODEX ALIMENTARIUS COMMISSION AT STEP 5

Proposed Draft General Principles of Meat Hygiene, advanced to Step 5 of the Codex Procedure (ALINORM 03/16, Appendix II). See also paras. 9 through 27 of this report.

Governments and interested international organizations are invited to comment on the above document and should do so in conformity with the Procedures for the Elaboration of Codex Standards and Related Texts at Step 5) (*Codex Alimentarius Procedural Manual*, Twelfth Edition, page 20). Comments should be forwarded to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax +39 06 57054593; e-mail codex@fao.org), **not later than 31 May 2002.**

PART B: REQUEST FOR COMMENTS/INFORMATION

Proposed Draft Code of Hygienic Practice for Fresh Meat, advanced to Step 3 of the Codex Procedure (ALINORM 03/16, Appendix III). See also paras 28 through 77 of this report.

Governments and interested international organizations are invited to provide their additional comments on the current document (see Appendix III to this report). Comments should be forwarded to Ms. Cherie Flynn, Codex Committee on Meat and Poultry Hygiene, MAF Policy, Ministry of Agriculture and Forestry, P.O. Box 2526 Wellington, New Zealand Fax +64 4 474 4265 - E-mail: flynnc@maf.govt.nz with a copy to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax +39 06 57054593; e-mail codex@fao.org) for **not later than 30 June 2002.**

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SUMMARY AND CONCLUSIONS

The Eighth Session of the Codex Committee on Meat and Poultry Hygiene reached the following conclusions:

The Committee:

- agreed to forward the proposed draft General Principles of Meat Hygiene to the 50th Session of the Executive Commission (June 2002) for preliminary adoption at Step 5 (paras. 9-27);
- agreed to circulate the proposed draft Code of Practice for Fresh Meat General Principles for comments at Step 3 with a comments deadline of 30 June 2002 and that a drafting group prepare a revised version of the proposed draft code on the basis of the discussions and written comments for circulation, comments and further consideration at its next meeting (paras. 28-77);
- requested the Commission to amend the name of the Committee as “Codex Committee on Meat Hygiene” and to revise its Terms of Reference accordingly (paras. 81-83);
- requested New Zealand, in cooperation with the Codex Secretariat, to prepare a discussion paper on hygiene provisions for processed meat for potential inclusion in the Code, subject to the approval of 50th Session of the Executive Committee. The Committee noted that the decision to possibly broaden the scope of the Code would be subject to approval by the 50th Session of the Executive Committee (paras. 84-86).

In addition the Committee:

- noted the offer of New Zealand to prepare two discussion papers on the possible addition of Annexes to the proposed draft Code of Practice on principles and guidelines i) for establishing risk-based ante- and post-mortem inspection systems and ii) on systems for microbiological process control for meat. The Committee noted that the above proposals would be subject to approval as new work by the 50th Session of the Executive Committee meat (paras. 78-79).
- noted the request of the 49th CCEXEC for technical inputs the proposed draft Revised Code of Practice for the Processing and Handling of Quick Frozen Foods (ALINORM 0/27- Addendum 1) and agreed that specific inputs related to the proposed draft Revised Code should be referred by governments and international organizations directly to the Codex Committee on Food Hygiene.

LIST OF ABBREVIATIONS USED IN THIS REPORT

ALOP	Appropriate Level of Health Protection
ATP	Adenosin-Tri-Phosphate (bioluminescence)
BSE	Bovine Spongiform Encefalopathy
CAC/RCP	Codex Alimentarius Commission / Recommended Code of Practice
CAC/GL	Codex Alimentarius Commission / Guidelines
CCFH	Codex Committee on Food Hygiene
CCMPH	Codex Committee on Meat and Poultry Hygiene
CCFICS	Codex Committee on Food Import and Export Inspection and Certification Systems
CCEXEC	Executive Committee of the Codex Alimentarius Commission
CL	Circular Letter
CRD	Conference Room Document
EC	European Community
FAO	Food and Agriculture Organization of the United Nations
FSO	Food safety objectives
GHP	Good Hygienic Practices
HACCP	Hazard Analysis and Critical Control Point
MAF	Ministry of Agriculture and Forestry
OIE	Office International des Epizooties / International Office of Epizootics
QA	Quality Assurance (systems)
SPS	Sanitary and Phytosanitary Measures (WTO Agreement on)
SSOPs	Sanitation Standard Operating Procedures
WHO	World Health Organization
WTO	World Trade Organization

REPORT OF THE EIGHTH SESSION OF THE CODEX COMMITTEE ON MEAT AND POULTRY HYGIENE

OPENING OF THE SESSION

1. The Hon Jim Sutton, Minister of Agriculture, Rural Affairs and Trade Negotiations, opened the Eighth Session of the Codex Committee on Meat and Poultry Hygiene, which was held from 18-22 February 2002 in Wellington, New Zealand, at the kind invitation of the Government of New Zealand. The Session was chaired by Dr. Andrew McKenzie, Group Director, MAF Food Assurance Authority, Ministry of Agriculture and Forestry. The Session was attended by 138 participants from 37 Member countries and 9 international organizations. A complete list of participants is attached at Appendix I.

ADOPTION OF THE AGENDA (Agenda Item 1)¹

2. The Committee adopted the Provisional Agenda as proposed.

MATTERS REFERRED FROM THE CODEX ALIMENTARIUS COMMISSION AND OTHER CODEX COMMITTEES (Agenda Item 2)²

3. The Committee noted matters arising from the 24th Session of the Codex Alimentarius Commission and other Codex Committees related to the Strategic Framework and the proposed draft Medium-Term Plan 2003-2007; the Name and Terms of Reference of the reactivated Codex Committee on Meat and Poultry Hygiene; Risk Analysis Policies of the Codex Alimentarius Commission; Risk Assessment of Microbiological Hazards in Foods and Related Matters; the proposed draft Revised Code of Practice for the Processing and Handling of Quick Frozen Foods; and activities of the *Ad-hoc* Codex Intergovernmental Task Force on Animal Feeding.

4. The Committee agreed to discuss the name and terms of reference for the reactivated Codex Committee on Meat and Poultry Hygiene under "Other Business and Future Work" (Agenda Item 5). The Committee strongly supported the Commission recommendation that relevant Codex Committees should continue to develop and document the application of risk analysis in their work, and noted that the CCMPH texts currently under consideration took account of this recommendation.

5. The Committee noted the request of the 49th Executive Committee to refer the proposed draft Revised Code of Practice for the Processing and Handling of Quick Frozen Foods³ for technical inputs to relevant Codex committees, including the CCMPH. The CCMPH however agreed that specific inputs related to the proposed draft Revised Code should be referred by governments and international organizations directly to the Codex Committee on Food Hygiene.

6. The Committee was provided with a brief report on current joint FAO/WHO activities on risk assessment of microbiological hazards in foods. It was noted that the main objectives of this work were to provide expert technical advice to meet the needs of risk managers both at national and international levels; to provide a single source of all available information on specific pathogen-commodity combinations; and to develop tools that could be used at the national level.

7. Current and future work on risk assessment relevant to the work of CCMPH include the following:⁴

- *Listeria monocytogenes* in Ready to Eat Foods - This risk assessment, limited to a finite range of ready-to-eat foods, has been underway for two years and is now near completion.
- *Salmonella* spp. in Broiler Chickens and Eggs - This risk assessment has been completed and is about to undergo a peer review before publication.

¹ CX/MPH 02/1

² CX/MPH 02/2

³ ALINORM 01/27-Addendum 1

⁴ Information on joint FAO/WHO activities on risk assessment of microbiological risk assessment is available on FAO (<http://www.fao.org/ES/ESN/pagerisk/riskpage.htm>) and WHO (<http://www.who.int/fsf/mbriskassess/index.htm>) websites

- *Campylobacter* spp in Broiler Chickens - The preliminary version of this risk assessment, which includes hazard identification, the exposure assessment model and hazard characterization, is open to public comment. It is the intention of FAO and WHO to complete this risk assessment in 2002.
 - Enterohaemorrhagic *Escherichia coli* - This work will begin in the second half of 2002 if resources are available.
8. In regard to the last two points above, the Committee noted that it would be useful to inform FAO and WHO of the Committee's risk management needs so that the risk assessment might more effectively contribute to the work of CCMPH.

PROPOSED DRAFT PRINCIPLES OF MEAT HYGIENE (Agenda Item 3)⁵

INTRODUCTION

9. Dr. Steve Hathaway, Codex Consultant, informed the Committee that the proposed draft Principles of Meat Hygiene were drafted in line with the hierarchy of principles and objectives, the explanatory narrative and the general hygiene measures as set out in the General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3-1997) and were intended to reflect recent advances in meat and poultry hygiene. It was suggested that the principles could be incorporated into the Code of Hygienic Practice for Fresh Meat once the latter document was finalized.
10. Dr. Hathaway noted that the Principles were drafted to streamline the approach in the elaboration of the CCMPH code of practice, reflect a risk-based approach, promote HACCP principles as the food control system of choice and encourage consideration of the entire food chain.

GENERAL COMMENTS

11. The Delegation of Spain, speaking on behalf of the Member States of the European Community, informed the Committee that a new framework had recently been adopted⁶ within the Community on food safety matters, including the establishment of a European Food Safety Authority. In addition, rules for regular checks on the general hygiene carried out by operators in establishments on health conditions for the production and marketing of fresh meat, excluding poultry meat, were adopted.⁷
12. The Committee's attention was also drawn to the importance of liaising with the OIE (Office International des Epizooties) in regard to issues pertaining to the primary production of meat. The Committee was informed that the terms of reference of the Commission included the promotion of coordination of all food standards work undertaken by international governmental and non-governmental organizations, and that Objective 3 of the Medium-Term Plan included the integration into the Codex Alimentarius of OIE standards and other recommendations for the management of food-borne zoonoses (and vice versa).

PRINCIPLE 1

13. The Committee removed the square brackets from the phrase "including government, industry and consumers" to better reflect the shared responsibilities in ensuring that meat is safe and suitable for human consumption. The Committee also agreed to use the term "meat" in lieu of "fresh meat" throughout the text as it was felt that the general principles applied to all meat products and would be very useful in applications of meat hygiene to products other than fresh meat.

⁵ CX/MPH 02/3 and comments submitted in response to CL 2001/35-MPH from Argentina, Canada, Paraguay, Poland, Consumers International, European Community, International Association of Consumer Food Organizations (CX/MPH 02/3 Add.1), United States (CRD 2), Thailand (CRD 3) and the Philippines (CRD 5)

⁶ Regulation (EC) No 178/2002 of the European Parliament and the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

⁷ Commission Decision of 8 June 2001 (2001/471/EC) on laying down regular checks on the general hygiene carried out by operators in establishments according to Directive 64/433/EEC on health conditions for the production and marketing of fresh meat and Directive 71/118/EEC on health problems affecting the production and placing on the market of fresh poultry meat

PRINCIPLE 2

14. The Committee considered the written submission of the EC. The Committee decided to rearrange the text proposed by the EC on the basis of a hierarchical approach in order to clarify that in the first instance, the competent authority had ultimate responsibility in the development, enforcement and verification of regulatory meat hygiene requirements. Secondly, the establishment operator was responsible for the production of meat that was safe, suitable and in accordance with regulatory requirements. And finally, all relevant parties, which included the establishment operator, had a legal obligation to provide information and assistance to the competent authority.

PRINCIPLE 3

15. The Committee agreed to provide additional text to the principle to indicate that meat hygiene programmes should have as their primary goal the protection of public health in addition to being based on a scientific evaluation of risks. The Committee also agreed to remove the footnote to this principle as it dealt with local as opposed to international trade situations.

PRINCIPLE 4

16. The principle was left unchanged. The Committee agreed that the references in the footnote to this section, as well as other footnote references throughout the text, should be updated on the basis of horizontal work being undertaken elsewhere in the Codex system.

PRINCIPLE 5

17. The Committee decided to reverse and renumber principles 5 and 6 in order to better reflect a more hierarchical order, i.e., Principle 5 was renumbered as Principle 6. The delegation of the Philippines, supported by the delegations of Indonesia, Malaysia, Peru and Thailand, stressed the difficulties in controlling hazards throughout the entire food chain according to a HACCP-based approach and therefore suggested that the text be modified to indicate that HACCP should only be implemented if possible and practical. In view of the importance of this principle and in consideration of the remarks of the Philippines, the Committee agreed to indicate that controlling hazards throughout the entire food chain should be implemented to the greatest extent practicable. The principle was clarified to indicate that information from primary production, which included the farm, should be taken into account when formulating meat hygiene requirements. The Committee also deleted the term “processing” from the phrase “meat hygiene requirements” to better reflect the scope of the principles.

PRINCIPLE 6

18. In view of the Committee’s previous decision to reverse and renumber principles 5 and 6, the principle was renumbered as Principle 5. In view of ongoing work within the Codex Committee on Food Hygiene related to food safety objectives, the Committee left the text unchanged and agreed to place the text in square brackets.

PRINCIPLE 7

19. The Committee revised the principle to stress that establishment operators should apply HACCP principles. However, the principle was clarified to recognize that HACCP should also be applied, to the greatest extent practicable, throughout the food chain. The Committee noted that this revision would permit flexibility for all countries in the application of HACCP principles other than in establishments.

PRINCIPLE 8

20. The Committee clarified the principle to indicate that when voluntary quality assurance systems had been put in place, competent authorities should take the contribution of such systems into account during the verification of regulatory requirements. The Committee noted that this principle did not preclude the use of mandatory quality assurance systems. The Committee also stressed that the principle was generic in nature, as responsibility for the elaboration of specific texts related to quality assurance systems rested with the Codex Committee on Food Import and Export Inspection and Certification Systems. The Committee noted that a definition for the term “competent authority” was under development in the proposed draft Code of

Hygienic Practice for Fresh Meat. The Committee also deleted the term “ongoing” as it was already implied in the verification process.

PRINCIPLE 9

21. In view of the difficulty in defining and evaluating “competencies”, the Committee agreed that personnel should have appropriate training, knowledge, skills and ability to perform their duties, as and where defined by the competent authorities.

22. The Committee also agreed to elaborate a new Principle 10 to separately define the role of personnel involved in meat hygiene activities where appropriate, and included a separate reference to the specific role of the veterinary inspector.

PRINCIPLE 10

23. The principle was renumbered as Principle 11 in light of the Committee’s previous decision to create a new Principle 10. The Committee clarified the principle to indicate that it was the responsibility of the establishment operator to have adequate systems in place to trace and withdraw meat from the food chain, with the understanding that verification of these systems was subject to the control of the competent authority. The principle was also strengthened to indicate that communication of risk to consumers and other interested parties should be considered.

PRINCIPLE 11

24. The principle was renumbered as Principle 12 in light of the Committee’s previous decision to create a new Principle 10. The Committee noted that the principle was not intended to suggest duplication of already existing monitoring and surveillance programs. The Committee revised the principle to stress the need to consider the results of monitoring and surveillance of animal and human populations, where available, when conducting risk assessments so that such results could be used in the review and/or modification of meat hygiene requirements.

PRINCIPLE 12

25. The Committee was of the opinion that it was not within the purview of governments to facilitate the adoption of new processing technologies and therefore, deleted this principle in its entirety.

PRINCIPLE 13

26. Notwithstanding the continuing work of the Codex Committee on Food Import and Export Inspection and Certification Systems related to the development of texts concerning the determination and judgement of equivalence, the Committee retained the notion of the equivalence of alternative hygiene measures in order to facilitate adoption of alternative measures within a country as well as facilitating fair practices in trade.

Status of the Proposed Draft General Principles of Meat Hygiene

27. The Committee forwarded the proposed draft General Principles of Meat Hygiene (see Appendix II) to the 50th Session of the Executive Committee for preliminary adoption at Step 5. The Committee agreed that the italicized text accompanying each of the principles was useful for information purposes and therefore retained it for the time being. It was agreed that a final decision on the retention or deletion of the text would be taken at a future meeting.

PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR FRESH MEAT (Agenda Item 4)⁸**INTRODUCTION**

28. Dr. Steve Hathaway, Codex Consultant, informed the Committee that the proposed draft Code of Hygienic Practice for Fresh Meat was drafted on the basis of the request of the 47th Session of the Executive Committee⁹ to revise the existing Codes previously developed by the Codex Committee on Meat Hygiene. The CCEXEC requested that the revision should take account of recent developments, including revisions to the basic texts on food hygiene¹⁰, and be broadened so as to include poultry meat hygiene.

29. The Committee noted that the Code was intended to replace the current Recommended International Code of Hygienic Practice for Fresh Meat¹¹, the Recommended International Code of Hygienic Practice for Game¹² and the Recommended International Code of Hygienic Practice for Ante-Mortem and Post-Mortem Inspection of Slaughter Animals and for Ante-Mortem and Post-Mortem Judgement of Slaughter Animals and Meat¹³. The format of the proposed draft Code followed a hierarchical approach that reflects the format of the General Principles of Food Hygiene, with subsets of principles, explanatory narrative and guidelines applying to each section. It included ante- and post-mortem inspection as activities that were integral parts of processing operations, thereby facilitating application of a risk-based and HACCP-based approach to meat hygiene throughout the entire food chain.

30. The proposed draft Code recognized that a significant proportion of risks to human health arose from microbiological contamination of meat during processing operations and it presented a considerable volume of materials on recent advances in knowledge and practice on this issue. It emphasized the application of HACCP and voluntary quality assurance systems for ensuring the safety and suitability of meat and recognized the changing role of the competent authority in meat hygiene, which was increasingly more involved in verification activities.

31. In recognition that it was not always practicable and possible to establish risk-based procedures for post-mortem inspection and that current knowledge and practice varied greatly in different countries, the proposed draft Code contained general guidance for post-mortem inspection procedures and considerably reduced the quantity of prescriptive material that appears in the existing code.

GENERAL COMMENTS

32. The Committee considered, discussed and agreed to specific detailed revisions to Sections 1 through 4. The Committee also had limited discussions and made general comments and suggestions for revisions to Sections 5 through 14. Sections 5 through 14 were also amended to incorporate minor consequential changes on the basis of the Committee's previous decisions on general principles and definitions. A summary of discussions and revisions to the text are highlighted below.

33. The Committee agreed that consequential future changes were required to the Code on the basis of work already completed on the proposed draft General Principles on Meat Hygiene. The Committee also agreed that all references, including footnote references, to the Code should be updated with the latest information. The Committee noted that revisions and corrections to the Spanish version of the Code would be undertaken when the Code was re-translated and finalized by the Codex Secretariat.

⁸ CX/MPH 02/4 and comments submitted in response to CL 2001/35-MPH from Argentina, Canada, Paraguay, Consumers International, European Community, International Association of Consumer Food Organizations (CX/MPH 02/4 Add.1), United States (CRD 2), Thailand (CRD 3), Japan (CRD 4) and Philippines (CRD 5)

⁹ ALINORM 01/3, para. 46

¹⁰ Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 - 1997, Amended 1999); Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application (Annex to CAC/RCP 1-1969, Rev. 3-1997); and, Principles and Guidelines for the Conduct of Microbiological Risk Assessment (CAC/GL 30 - 1999)

¹¹ CAC/RCP 11-1976, Rev. 1 - 1993

¹² CAC/RCP 29-1983, Rev. 1 - 1993

¹³ CAC/RCP 41-1993

SECTION 1 – INTRODUCTION

34. The Committee revised the first sentence of the second paragraph to stress that modern meat hygiene approaches should be risk-based. The Committee clarified the third paragraph of this Section to indicate that irrespective of the meat hygiene delivery systems, the competent authority was responsible for defining the role of personnel involved in meat hygiene activities where appropriate and for verifying that all meat hygiene requirements were met.

SECTION 2 – SCOPE AND USE OF THIS CODE

35. The Committee revised the second paragraph of this Section by only referring to general animal categories and eliminating specific references to animal groups and by indicating that the Code might also be applied to other types of animals from which fresh meat is derived, subject to any special hygienic measures required by the competent authority. The Committee also added a reference to the General Guidelines for Use of the Term “Halal” in the penultimate paragraph of this Section.

SECTION 3 – DEFINITIONS

General Comments

36. The Committee noted that terms defined in other Codex texts were generally not duplicated or repeated in this Section. The Committee noted that this section would be expanded to include new definitions as appropriate.

Abattoir

37. The Committee removed the square brackets to the phrase “registered/listed” so that the definition referred to any establishment approved, registered and/or listed by the competent authority. This change was also applied to the subsequent definitions for *Establishment* and *Game depot*. The Committee removed the note concerning the slaughter of animals for reasons other than to produce fresh meat (e.g., health problems) as being outside the scope of the Code (i.e., not intended for human consumption).

Animal

38. In view of previous changes to Section 2 – Scope and Use of this Code, the Committee deleted the specific references to animal groups in the general animal category of “farmed game”. The general categories of “Lagomorphs, e.g., rabbits” and “animals as otherwise specified by the competent authority” were added to the definition for completeness.

Ante-mortem inspection

39. The Committee noted that the terms “inspection” and “official inspection” had not been defined and therefore, various suggestions were made for changes to the definition. The United States suggested that the term inspection be applied only to inspection performed by government employees. New Zealand suggested use of the term “examination” as a more general term in the context of ante-mortem meat hygiene activities. The ultimate phrase “excluding tests applied for health monitoring” was removed as it was inferred that such tests were outside the scope of the Code. In view of the above discussion, the Committee placed the term and definition for “Ante-mortem inspection” in square brackets.

Carcass

40. The Committee removed the term “bleeding” and added the term “slaughter” to the definition as it was recognized that slaughter was a process of killing through bleeding.

Competent authority

41. The Committee clarified that the competent authority was the official authority charged by the government with setting and enforcing “regulatory meat hygiene requirements” as opposed to standards.

Competent body

42. The Committee clarified that the competent body was both recognized and “overseen” by the competent authority to undertake specified meat hygiene activities, so as to ensure the independence of such bodies. The Committee also deleted the phrase indicating that such activities were undertaken on behalf of the competent authority as this was not always the case.

Competent person

43. In view of previous decisions concerning use of the term “competent” within the Principles, the Committee referred to a person who has the training, knowledge, skills and ability to perform an assigned task. The Committee clarified that the competent person was subject to “any” requirements of the competent authority. The Committee also deleted the phrase that a competent person included a person employed by the establishment operator as this was redundant.

Condemned

44. The term “unacceptable” was changed to “unsafe or unsuitable” for consistency with other changes to the text. The Committee placed the phrase “and/or animal” in square brackets in order to adequately consider the implications of including products intended for animal consumption into the scope of the definition. The Committee also placed the term “destruction” in square brackets for further consideration. This change was also applied to the subsequent definition for *Inedible*.

Disease or defect

45. In view of the suggestion to elaborate two separate definitions for disease and defect, the Committee placed the entire section into square brackets.

Dressing

46. In view of possible misinterpretations as to where dressing could occur, the Committee removed the phrase “on the dressing floor” from the definition.

Establishment

47. In view of the wide range of meat hygiene activities undertaken in establishments, the Committee removed the reference to meat handling as well as the specific reference to abattoirs.

Establishment Operator

48. The Committee clarified that the operator could be a person or “owner” in control of an establishment who ensures that all meat hygiene requirements (not only requirements of the competent authority), are met. The Committee also agreed to place the entire term and definition in square brackets.

Food safety objective (FSO)

49. On the basis of its previous decision concerning the consideration of this term within the Principles, the Committee updated the definition and placed the entire section in square brackets.

Fresh meat

50. The Committee agreed that the inclusion of processes such as irradiation and other treatments (e.g., with organic acids) would be considered in the further drafting of the Code. It was agreed that the definition would also be revised to specifically include reference to chilling and freezing, rather than use the general term “refrigeration”.

Inspector

51. As the Committee could not decide as to whether or not the term should also include inspectors who perform official activities under the authority of the competent authority, the entire term and definition was left unchanged and placed in square brackets.

Meat hygiene

52. The Committee referred to “all stages of the food chain” in lieu of “intended end use” in view of previous decisions taken on the Code and Principles. The Committee also deleted the term “fresh” in conjunction with the term “meat”.

Offal

53. In view of the use of alternative terms (e.g., meat by-products) in other languages and countries, the Committee placed the entire term and definition in square brackets, with the view of introducing alternative terminology.

Official inspector

54. The Committee clarified that the term applied to inspectors that “perform official meat hygiene activities”. The entire term and definition was placed in square brackets.

Post-mortem inspection

55. In view of its previous agreement related to the definition for *Ante-mortem inspection*, the Committee deleted the phrase “excluding tests applied for health monitoring and statistical process control”.

Quality assurance (QA) system

56. In view of ongoing work related to quality assurance systems in the Codex Committee on Food Import and Export Inspection and Certification Systems, the Committee placed the entire term and definition in square brackets.

Safe for human consumption

57. The Committee clarified in the first bullet that meat that is safe for human consumption had been produced by applying all food safety requirements appropriate to its “intended” end-use. This change was also applied to the subsequent definitions for *Suitable for human consumption*. In view of the need to reflect a risk-based approach to the presence of chemical residues or contaminants and their effect as related to human health, the Committee placed the last bullet of this definition in square brackets.

Suitable for human consumption

58. In view of ongoing discussions on the definition for *Safe for human consumption*, the Committee placed the entire definition for *Suitable for human consumption* in square brackets. A footnote making reference to the General Guidelines for Use of the Term “Halal” was added.

Verification

59. The entire term and definition was square bracketed in view of work undertaken by other Codex committees.

Veterinary Inspector

60. The entire term and definition was square bracketed in view of continuing discussion on the definition for “inspector”.

SECTION 4 – GENERAL PRINCIPLES OF MEAT HYGIENE

61. In view of ongoing work in the development of General Principles of Meat Hygiene (see paras. 9-27 and Appendix II), the Committee deleted the text in this Section in its entirety. It was noted that the Principles would be reinserted into the Code of Practice once the document was finalized.

SECTION 5 - PRIMARY PRODUCTION

62. The Committee stressed the need to take into account the relevant recommendations of the OIE in regard to primary production and animal health as related to meat safety and human health and welcomed the offer of the OIE representative to contribute to the continued elaboration of this Section of the Code.

63. It was suggested to align the concept and principles on trace-back (5.1.5) with ongoing discussions on traceability in other relevant Codex Committees and to ensure that trace-back systems should be permanently in place; to delete references to the competent authority in relation to coordination of quality assurance systems (5.1.6); to modify the language used in relation to hunting to reflect killing of game compared with other field activities (5.3); to review the phrase related to the use of antibiotics as growth promoters; to rephrase narrative relating to resting of animals before slaughter (5.6) and to expand the narrative in relation to cleaning, giving particular attention to wild game.

SECTION 6 - PRESENTATION OF ANIMALS FOR SLAUGHTERING

64. The Committee was informed that concepts related to animal welfare and the environment were outside the terms of reference of the Codex Alimentarius Commission unless they were directly related to food safety and suitability. Modifications were suggested in relation to the holding of livestock for slaughter (6.2), in particular the fact that not all animals were held in lairages prior to slaughter.

65. With regard to ante-mortem inspection (6.3) it was suggested to replace the term "public health quarantine" with "animal health quarantine" as more appropriate to the scope of the code; to consider the specific problems related to emergency slaughter; to specify who should carry out ante-mortem inspection, its requirements and who has the ultimate responsibility to verify that all meat hygiene requirements are met. In this regard, the need to define the specific role of the veterinary inspector was also expressed. Some concerns were expressed regarding the involvement of non-official agencies in ante-mortem and post-mortem inspection. It was also suggested to specify to whom and when the records on condemnation should be reported (6.3.2) and to consider the need for a second ante-mortem inspection in the case of a prolonged holding period.

SECTION 7 - PRESENTATION OF WILD GAME FOR DRESSING

66. It was suggested to clarify the term "sufficiently clean" and that field hygiene provisions for killed wild game might need to be expanded (7.1).

SECTION 8 - ESTABLISHMENTS: DESIGN, FACILITIES AND EQUIPMENT

67. It was suggested to replace the term "industry" with a more appropriate term such as establishment; to consider the possible utilization of recycled/reused water (8.6) in meat establishments; and to consider alternative methods to reduce/limit the growth of pathogens in the case of poultry slaughter (8.7). Clarifications were requested on whether "meat laboratories" could be classified as "establishments"; on the compatibility of the definition of frozen meat with the scope of this code; and on the use of term "required temperature" in cold stores.

SECTION 9 - CONTROL OF PROCESSING OPERATIONS

68. It was suggested to broaden the application of principle 9.1.3 to include the concept of a risk-based approach when referring to various types of contamination; to link principle 9.1.7 with principle 10 of the Draft General Principles of Meat Hygiene; to further consider the work undertaken in other Codex Committees on Food Safety Objectives in the view of the possible extension of the FSO concept to all kinds of hazard (9.1.10); to redraft completely principle 9.1.11 in order to better define the role and links of competent bodies involved in process control activities; and to redraft principle 9.1.12 to clarify the voluntary application of QA systems in light of the on-going discussion in the CCFICS.

69. It was suggested to replace the term "verification" with "auditing" or another phrase in the section related to HACCP systems and performance parameters (9.2.3 and 9.2.4); to add risk communication as a responsibility of the competent authority in the section on regulatory systems (9.2.5). Regarding the section on equivalence (9.2.7), it was proposed to further postpone the discussion in the light of developments in other Codex Committees.

70. It was also mentioned that dressing operations should be extended to take into account some specific requirements of certain categories of animal such as pigs; and the use of alternative dressing methods such as compressed air (9.4).

71. Regarding post-mortem inspection (9.5), it was suggested to include modification of traditional procedures where scientific investigation had shown them to be ineffective. It was also suggested that the role and function of the competent authority should be addressed. One delegation suggested that it was important to highlight the role of the veterinary inspector in post-mortem judgement and that information of ante-mortem inspection be taken into account.

72. Regarding the hygiene requirements for processing operations after post-mortem inspection (9.7), comments were made on various temperature requirements to ensure proper control of microbiological growth. One delegation suggested that prescriptive temperatures should only be established by the competent authority according to a risk-based approach and therefore should not be included in this Code. It was felt that the section on recall systems (9.9) should be moved to a more appropriate section.

SECTION 11 - PERSONAL HYGIENE

73. Regarding Personal Cleanliness, it was suggested to delete references to "carrier" as inappropriate to the text.

SECTION 12 - TRANSPORTATION

74. It was suggested to delete the requirement related to the transport of pig feet as it seemed unnecessarily detailed.

SECTION 14 - TRAINING

75. Concern was raised over the feasibility of assigning to "the competent authority the responsibility to establish and verify the levels of competency of all personnel involved in meat hygiene activities".

Status of the Proposed Draft Code of Hygienic Practice for Fresh Meat

76. The Committee decided to append the proposed draft Code of Hygienic Practice for Fresh Meat to its report (see Appendix III) for comment at Step 3, with a comment deadline of 30 June 2002 (see Circular Letter to this report). The Committee agreed that a drafting group¹⁴ would prepare a revised version of the proposed draft Code of Practice for Fresh Meat for circulation, additional comment and further consideration at its next meeting. It was stressed that the revised version of the Code would be circulated for additional comment no later than 30 September 2002.

77. The Committee agreed that the proposed draft code should be revised by the drafting group on the basis of the attached text (see Appendix III), the discussions, written comments submitted at the current meeting¹⁵, written comments submitted by the comment deadline of 30 June 2002, and the proposed draft General Principles of Meat Hygiene (see Appendix II).

CONSIDERATION OF THE ELABORATION OF ADDITIONAL APPENDICES TO THE CODE OF PRACTICE FOR FRESH MEAT

78. The Committee noted the offer of New Zealand, with the assistance of the Codex Secretariat, to prepare two separate discussion papers for consideration at its next Session on the possible addition of Annexes to the proposed draft Code of Practice for Fresh Meat on:

- a) Principles and guidelines for establishing risk-based ante- and post-mortem inspection systems for particular slaughter populations, including examples, and;

¹⁴ Led by New Zealand with the assistance of Australia, Brazil, Canada, Denmark, Egypt, Germany, Greece, Korea, Malaysia, Netherlands, Norway, Philippines, South Africa, Thailand, United States, Consumers International, European Commission and the International Office of Epizootics

¹⁵ CX/MPH 02/4 Add.1 and Conference Room Documents 2, 3, 4 and 5

- b) Principles and guidelines on systems for microbiological process control for meat, including establishment of performance parameters for outcomes of process control and implementation of national microbiological databases.

Some delegations expressed their reservation to the development of principles and guidelines on systems for microbiological process control.

79. The Committee noted that the above proposals would be subject to approval as new work by the 50th Session of the Executive Committee.

OTHER BUSINESS AND FUTURE WORK (Agenda Item 5)

NAME AND TERMS OF REFERENCE OF THE CODEX COMMITTEE ON MEAT AND POULTRY HYGIENE¹⁶

80. The 24th Session of the Codex Alimentarius Commission decided¹⁷ to reactivate the Codex Committee on Meat Hygiene and agreed that the mandate of the Committee should be extended to include poultry. It agreed to amend the Committee's terms of reference accordingly, and renamed the committee as the Codex Committee on Meat and Poultry Hygiene.

81. At the 49th Session of the Executive Committee, the Representative of the South West Pacific noted that the proposed work of the Codex Committee on Meat and Poultry Hygiene envisaged a broad definition of "meat" that would encompass poultry and other meats. On this basis, the decision of the Commission to make a separate reference to poultry meat may be prejudicial to this approach. The Executive Committee invited the CCMPH to discuss its Name and Terms of Reference and make appropriate proposals to the Commission.¹⁸

82. The Committee was informed that the current terms of reference for the CCMPH stated that the Committee was responsible "*To elaborate worldwide standards and/or codes of practice as may seem appropriate for meat and poultry hygiene*". The delegation of New Zealand noted that the proposed draft Code of Hygienic Practice for Fresh Meat was written to be inclusive of poultry meat as well as a number of other types of meat. New Zealand was therefore of the opinion that if the Name and Terms of Reference of the Committee included a specific reference to poultry, this would require the additional use of the term "poultry meat" wherever the term "meat" appeared throughout the Code and other texts developed by the Committee.

83. In view of technical and editorial problems associated with use of the terms "poultry" and "poultry meat", and in recognition that the Committee covers numerous types of meat in addition to poultry meat, the Committee requested the Commission to amend the Name of the Committee to the *Codex Committee on Meat Hygiene*. The Committee also requested the Commission to revise its Terms of Reference to be consistent with the name of the Committee, i.e., "*To elaborate worldwide standards and/or codes of practice as appropriate for meat hygiene*".

INCLUSION OF PROVISIONS RELATED TO PROCESSED MEATS IN THE PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR FRESH MEAT

84. The Committee was informed that the Codex Committee on Processed Meat and Poultry Products, which was abolished at the 23rd Session of the Commission in 1999, had been responsible for the elaboration of worldwide standards for processed meat and poultry products.

85. The CCMPH noted its previous agreement that the proposed draft Code of Hygienic Practice for Fresh Meat should take into account meat hygiene throughout the entire food chain, including hygiene provisions related to processed meat products. In view of this decision, the Committee requested that a discussion paper be prepared by New Zealand, in cooperation with the Codex Secretariat, on hygiene provisions for processed meat for potential inclusion in the Code. This discussion paper would be circulated for comment and further consideration at its next meeting. It was further agreed that the discussion paper would take account of and

¹⁶ Discussion on Title of the Committee and Terms of Reference (Prepared by New Zealand) (CRD 1)

¹⁷ ALINORM 01/41, paras. 9 and 215

¹⁸ ALINORM 03/3, para. 44

examine other Codex texts related to hygiene of processed meat and poultry products in the context of the Committee's work.

86. The Committee noted that the decision to possibly broaden the scope of the Code would be subject to approval by the 50th Session of the Executive Committee. The Committee also stressed that the discussion paper, as well as any proposed provisions related to processed meat hygiene, would be considered as a separate but parallel exercise to the further elaboration of the Code of Hygienic Practice for Fresh Meat so as not to delay the finalization of the Code. The Committee anticipated that opportunities for the incorporation of processed meat hygiene provisions would be explored during further elaboration of the Code.

DATE AND PLACE OF NEXT SESSION (Agenda Item 6)

87. The Committee was informed that the ninth Session of the Codex Committee on Meat and Poultry Hygiene was tentatively scheduled to be held in Wellington, New Zealand from 17-21 February 2003, subject to further consultations between the Codex and New Zealand Secretariats.

SUMMARY STATUS OF WORK

Subject Matter	Step	Action by:	Document Reference (ALINORM 03/16)
Proposed Draft General Principles for Meat Hygiene	5	50 th CCEXEC Governments 9 th CCMPH	Appendix II
Proposed draft Code of Hygienic Practice for Fresh Meat	3	Governments 50 th CCEXEC New Zealand Governments 9 th CCMPH	Appendix III
Proposed revised Name and Terms of Reference of the Codex Committee on Meat and Poultry Hygiene	-	25 th CAC	para. 80-83
Discussion paper on hygiene provisions for processed meat	-	25 th CCEXEC New Zealand 9 th CCMPH	paras. 84-86
Discussion paper on principles and guidelines for establishing risk based ante- and post-mortem inspection systems for particular slaughter populations, including examples	-	25 th CCEXEC New Zealand	para. 78
Discussion paper on principles and guidelines on systems for microbiological process for meat, including establishment of performance parameters for outcomes of process control and implementation of national microbiological databases	-	25 th CCEXEC New Zealand	para. 78

LIST OF PARTICIPANTS

CHAIRPERSON: Dr Andrew McKenzie
PRESIDENT:
PRESIDENTE: Ministry of Agriculture and Forestry
 PO Box 2526 Wellington
 New Zealand
 Tel: 64-4-474 4250
 Fax: 64-4-474 4240
 Email: McKenzieA@maf.govt.nz

AUSTRALIA
AUSTRALIE

Mr Stephen BAILEY
 National Manager, Food Inspection Operations
 Australian Quarantine and Inspection Service
 GPO Box 858
 Canberra ACT 2601
 AUSTRALIA
 Tel: +61 2 6272 5589
 Fax: +61 2 6272 4112
 Email: steven.bailey@aqis.gov.au

Mr Brian CASEY
 Chief Executive
 Victorian Meat Authority
 PO Box 2057
 South Melbourne, VIC 3205
 AUSTRALIA
 Tel: +61 3 9685 7333
 Fax: +61 3 9696 5284
 Email: caseyb@vma.gov.au

Dr Jeff FAIRBROTHER
 Executive Director
 Australian Chicken Meat Federation
 PO Box 579
 Level 7
 122 Walker Street
 North Sydney
 NSW 2059
 AUSTRALIA
 Tel: +612 9955 4885
 Fax: +612 9925 0627
 Email: jeff.fairbrother@chicken.org.au

Dr Sally HASELL
 Principal Microbiologist
 Australia New Zealand Food Authority (ANZFA)
 PO Box 10559
 Wellington
 NEW ZEALAND
 Tel: +64 4 474 0633
 Fax: +64 4 473 9855
 Email: sally.hasell@anzfa.gov.au

Mr James HASLAM
 Senior Principal Veterinary Officer
 Australian Quarantine and Inspection Service
 PO Box 858
 Canberra
 AUSTRALIA 2601
 Tel: +61 2 6272 5864
 Fax: +61 2 6271 6522
 Email: jack.haslam@affa.gov.au

Dr Marion HEALY
 Chief Scientist
 Australia New Zealand Food Authority (ANZFA)
 PO Box 7186
 Canberra MC ACT 2610
 AUSTRALIA
 Tel: +61 2 6271 2215
 Fax: +61 2 6271 2278
 Email: marion.healy@anzfa.gov.au

Mr Andrew POINTON
 Leader, SARDI Food Safety Program
 South Australian Research and Development Institute
 33 Flemington Street
 Glenside
 South AUSTRALIA 5065
 Tel: +61 8 8207 7838
 Fax: +61 8 8207 7854
 Email: pointon.andrew@saugov.sa.gov.au

AUSTRIA
AUTRICHE

Prof Peter WEBER
 Director of Veterinary Services
 Federal Ministry for Social Security and Generations
 Radetzkystr. 2
 1031 Vienna
 AUSTRIA
 Tel: +43 1 71100 4825
 Fax: +43 1 71100 4151
 Email: anita.chvatal@bmr.gov.at

BELGIUM
BELGIQUE
BELGICA**Dr Marc CORNELIS**

CVO – PH
Institute for Veterinary Inspection
Wetstraat 56 1040 Brussel
BELGIUM
Tel: +32 2 287 0253
Fax: +32 2 287 0239
Email: marc.cornelis@ivkiev.fgov.be

BOTSWANA**Dr Stephen GHANIE**

Principal Veterinary Officer (Abattoirs)
Ministry of Agriculture
Abattoir Inspection and Meat Hygiene Division
Private Bag 0012
Lobatse
BOTSWANA
Tel: +267 330 243
Fax: +267 333 255
Email: vetlob@info.bw

BRAZIL
BRESIL
BRASIL**Ms Ivanise de Melo MACIEL**

First Secretary
Ministry of External Relations
Divisão de Agricultura e Produtos de Base
Esplanada dos Ministerios - Palacio Itamaraty
Brasília - DF - Brasil
Tel: +55 61 4116369
Email: IMACIEL@mre.gov.br

Mr Ailton MARINO DA SILVA

Chefe Da Seção De Acordos Sanitários Do
Dci/Dipoa/Sda/Mapa
Ministério Da Agricultura,Pecuária E Abastecimento
Espl. Dos Ministérios Bl. “D” Anexo “A” 4º Andar –
Cep 70.043-900 – Brasília/Df
BRASIL
Tel: +61 218 2684
Fax: +61 218 2672

Mr Rui Eduardo SALDANHA VARGAS

Director Do Dipoa/Sda/Mapa
Ministério Da Agricultura,Pecuária E Abastecimento
Espl. Dos Ministérios Bl. “D” Anexo “A” 4º Andar –
Cep 70.043-900 – Brasília/Df
BRASIL
Tel: +61 218 2684
Fax: +61 218 2672
Email: rvargas@agricultura.gov.br

CANADA**Dr Mervyn BAKER**

Director, Food of Animal Origin Division
Canadian Food Inspection Agency
Nepean, Ontario
K1A 0Y9, CANADA
Tel: +613 225 2342 ex 4010
Fax: +613 228 6636
Email: mbaker@inspection.gc.ca

Dr Robert CHARLEBOIS

A/National Manager, Meat Programs
Canadian Food Inspection Agency
59 Camelot Drive
Nepean, Ontario
K1A 0Y0
Tel: +613 225 2342
Fax: +613 228 6636
Email: rcharlebois@inspection.gc.ca

Dr Thomas FELTMATE

Manager, Food Safety Risk Analysis Unit
Canadian Food Inspection Agency
3851 Fallowfield Road
Nepean, Ontario
K2H 8P9, CANADA
Tel: +613 228 6698 ex 5982
Fax: +613 228 6675
Email: tfeltmate@inspection.gc.ca

CHINA, PEOPLES REPUBLIC OF
CHINE**Mr Kexin BI**

Civil Servant
State General Administration of the PRC for Quality
Supervision and Inspection and Quarantine
NoA.10, Chaowaidajie
Chaoyang District
Beijing, 100020
PEOPLES REPUBLIC OF CHINA
Tel: +86 10 659 4194
Fax: +86 10 659 93870
Email: bikx@aqsiq.gov.cn

Ms Xiao LU

Professor / Deputy Director
Food Inspection Centre, Jinan
Ministry of Agriculture
28 Sangyuanhi, Jinan (250100)
PEOPLES REPUBLIC OF CHINA
Tel: +86 531 8601081
Fax: +86 531 861 02100
Email: xiao6@yeah.net

Dr Thomas SIT

Senior Veterinary Officer
Food and Environmental Hygiene Department
43/F, Queensway Government Offices
66 Queensway
HONG KONG
Tel: +11 852 2867 5420
Fax: +11 852 2521 8067
Email: thesit@fehd.gov.hk

Mr Guoying TAN

Senior Veterinarian
China, Senzhen Inspection and Quarantine Bureau
FuQiang Road 1011, Shenzhen City
GuangDong Province
PEOPLES REPUBLIC OF CHINA
Tel: +0086 755 337 1157
Fax: +0086 755 337 3573
Email: LW0157@szciq.gov.cn

Ms Yu ZHAO

Officer
Quality Control and Inspection Centre for Domestic
Animal Products M.O.A.
Ministry of Agriculture
N020 Maizidian Street
ChaoYong District
Beijing
PEOPLES REPUBLIC OF CHINA
Tel: +86 010 649 4681
Fax: +86 010 641 94681
Email: zhaoyuyu@sina.com.cn

DENMARK**DANEMARK****DINAMARCA****Mr Jens Kirk ANDERSEN**

Senior Scientist
Danish Veterinary and Food Administration (DVFA)
Mørkhøj Bygade 19
2860 Søborg
DENMARK
Tel: +45 33 95 60 00
Fax: +45 33 96 60 01
Email: jka@fdir.dk

Ms Susanne J JENSEN

Master of Science in Food
Danish Veterinary and Food Administration (DVFA)
Mørkhøj Bygade 19
2860 Søborg
DENMARK
Tel: +45 33 95 60 00
Fax: +45 33 96 60 01
Email: sjj@fdir.dk

EGYPT**EGYPTE****EGIPTO****Mr Ashraf HAMDY**

Counsellor
Egyptian Embassy
1 Darwin Av, Yarralumla ACT
AUSTRALIA
Tel: +3 627 34 437
Fax: +3 627 34 438
Email: aeoyk@yahoo.com

FINLAND**FINLANDE****FINLANDIA****Ms Anna-Maija GRÖNLUND**

Senior Officer
National Food Agency
PO Box 28, Helsinki, FIN-00581
FINLAND
Tel: +358 9 393 1574
Fax: +358 9 393 1594
Email: anna-maija.gronlund@nfa.fi

FRANCE**FRANCIA****Mr Jean-Yves KERVEILLANT**

Chef de bureau
Direction générale de l'alimentation
Ministère de l'agriculture et de la pêche
251, rue de Vaugirard
75732 PARIS cedex 15
Tel: +31 1 49 55 84 28
Fax: +31 1 49 55 56 80
Email: jean-yves.kerveillant@agriculture.gouv.fr

Mr Olivier PRUNAU

Vétérinaire – inspecteur
adjoint au chef du secteur des accords multilatéraux
sanitaires et phytosanitaires
Mission de coordination sanitaire internationale
Direction générale de l'alimentation
Ministère de l'agriculture et de la pêche
251, rue de Vaugirard
75732 PARIS cedex 15
Tel: +31 1 49 55 83 95
Fax: +31 1 49 55 44 62
Email: olivier.prunau@agriculture.gouv.fr

GERMANY
ALLEMAGNE
ALLEMANIA

Dr Hartwig KOBELT
 Head of Division
 Federal Ministry of Consumer Protection
 Rochuststr. 1
 53123 Bonn / GERMANY
 Tel: +49 228 529 4684
 Fax: +49 228 529 4945
 Email: hartwig.kobelt@bmvel.bund.de

Dr Lueppo ELLERBROEK
 Director, Science
 Federal Institute for Health Protection of Consumers
 and Veterinary Medicine
 Diedersdorfer Weg 1
 12277 Berlin, GERMANY
 Tel: +49 1888 412 2121
 Fax: +49 1888 412 2966
 Email: l.ellerbroek@bvgv.de

Dr Ralf ROTHENEDER
 Scientist
 Federal Centre of Meat Research
 E.-C Baumannstr. 20
 95326 Kulmbach, GERMANY
 Tel: +49 9221 803 221
 Fax: +49 9221 803 331
 Email: m-rotheneder@baff-kulmbach.de

GREECE
GRECE
GRECIA

Dr Dimitris MELAS
 Institute of Food Hygiene of Athens
 25 Neapoleos Street, Ag. Paraskevi
 GREECE
 Tel: +3 01 0 639 9241
 Fax: +3 01 0 639 9241
 Email: dmelas@b-online.gr

ICELAND

Mr Sigurdur Örn HANSSON
 Chief of Meat Inspection
 Ministry of Agriculture, Veterinary Services
 Solvholsgata 7. 150 Reykjavik
 ICELAND
 Tel: +int. 354 560 97 50
 Fax: +int. 354 552 1160
 Email: sigurdur.hansson@lan.stjr.is

INDONESIA
INDONESIE

Mr Syukur IWANTORO
 Director for Centre of Standardization & Accreditation
 Ministry of Agriculture
 JL Harsonod Rm 3 Ragunan
 PASAR MIN66U
 Jakarta
 INDONESIA
 Tel: +062 21738 42042
 Fax: +062 21788 42043
 Email: syukur@deptan.go.id

Mr Adnan AHMAD
 Director of Veterinary Public Health Laboratory
 Regional Office for Animal Husbandry, Fisheries and
 Marine Services
 Province / Regional Government of Jakarta
 INDONESIA
 Tel: +06 221 845 5748 or +06 221 845 5752
 Fax: +06 221 845 5748

Mr Rismansyah DANASAPUTRA
 Director of Processing and Marketing
 Ministry of Agriculture
 JL Harsonod Rm 3 Ragunan
 PASAR MIN66U
 Jakarta
 INDONESIA
 Tel: +062 21788 42044
 Fax: +062 21781 5880
 Email: risman@deptan.go.id

Mr Djajadi GUNAWAN
 Official, Directorate of Veterinary Public Health
 Ministry of Agriculture
 JL Harsonod Rm 3 Ragunan
 PASAR MIN66U
 Jakarta
 INDONESIA
 Tel: +062 21 782 7488
 Fax: +062 21 782 7466
 Email: djajadi@deptan.go.id

Mr Wiwit WIRSATYO
 First Secretary (Economic)
 Head of Economic Division
 Indonesian Embassy
 70 Glen Road, Kelburn
 Wellington
 NEW ZEALAND
 Tel: +64 4 475 8699
 Fax: +64 4 475 9374
 Email: wiwit2000@lycos.com

**IRAN, ISLAMIC REPUBLIC OF
IRAN, REPUBLIQUE ISLAMIQUE
IRAN, REPUBBLICA ISLAMICA****Dr Hosseinali ARAB**

Deputy of Head of Veterinary Organisation
Vali-Asr Ave. Yosef Abad Street
Tehran - IRAN
Tel: +9821 895 6923
Fax: +9821 895 7007
Email: harab@chamran.ut.ac.ir

**IRELAND
IRLANDE
IRLANDA****Mr Niall KAVANAGH**

Veterinary Public Health Advisor
Food Safety Authority of Ireland
Abbey Court
Lower Abbey Street
Dublin 1
IRELAND
Tel: +01 817 1300
Fax: +01 817 1301
Email: nkavanagh@fsai.ie

Mr David NOLAN

Senior Veterinary Inspector. Veterinary Public Health
Department of Agriculture, Food and Rural
Development
Kildare Street
Dublin 2
IRELAND
Tel: +353 1 607 2456
Fax: +353 1 607 2888
Email: davidw.nolan@agriculture.gov.ie

ISRAEL**Dr Herbert SINGER**

Director Veterinary Department
Food Control Service
Ministry of Health
Haarbach St No 14
Tel Aviv
ISRAEL
Tel: +972 3 563 4834
Fax: +972 3 562 5769
Email: fcs.herbert@matat.health.gov.il

**ITALY
ITALIE
ITALIA****Dr Silvio BORRELLO**

Chief Office of Hygiene Meat and Meat Products
Ministry of Health
P2A, Marconi 25
ITALY
Tel: +39 065 99 437 59
Fax: +39 065 99 436 57
Email: s.borrello@sanita.it

Dr Ciro IMPAGNATIELLO

Ministero delle Politiche Agricole e Forestali
Via XX Settembre 20
00187 Roma
ITALY
Tel: +39-06-466-56511
Fax: +39 06 488-0273
Email: blturco@triscalinet.it

**JAPAN
JAPON****Mr Michio IWANAMI**

First Secretary
Embassy of Japan in New Zealand
Level 18, The Majestic Centre
100 Willis Street
Wellington
NEW ZEALAND
Tel: +64 4 495 8321
Fax: +64 4 471 2951
Email: michio.iwanami@mofa.go.jp

Dr Shoji MIYAGAWA

Deputy Director, Inspection and Safety Division
Department of Food Safety, Pharmaceutical and Food
Safety Bureau
Ministry of Health, Labour and Welfare
Kasumigaseki 1-2-2, Chiyoda-ku
Tokoyo
JAPAN
Tel: +81 3 3595 2337
Fax: +81 3 3503 7964
Email: miyagawa-shoji@mhlw.go.jp

KENYA**Dr Juustuc Peter NTHULI**

Deputy Director of Veterinary Services
Ministry of Agriculture & Rural Development
Veterinary Research Laboratories
P Bag 00625, Kangemi
Nairobi
KENYA
Tel: +254 02 631 289
Fax: +254 02 631 289

KOREA, REPUBLIC OF KOREA
KOREE, REPUBLIQUE DE
COREA, REPUBBLICA DE

Mr Byoung-Gon JEONG

Deputy Director, DVM
 National Veterinary Research &
 Quarantine Service MAF
 480 Anyang 6-dong, manan-gu
 Anyang-city
 Gyeonggi-do
 KOREA
 Tel: +82 31 467 1962
 Fax: +82 31 467 1974
 Email: jbgon@nvrqs.go.kr

Mr Kim MYOUNG-HO

Senior Researcher
 Korea Food Research Institute
 San 46-1, Baekhyun-Dong
 Bundang-ku, Songnam-SI
 Kyonggi-Do, 463 746
 REPUBLIC OF KOREA
 Tel: +82 31 780 9291
 Fax: +82 31 780 9264
 Email: kim4567@kfri.re.kr

Mr Kim YONG-SANG

Veterinary Office
 Ministry of Agriculture & Forestry
 Government Complex II
 Joongang-Dong, Kwachon City
 Kyonggi-Do, Korea
 REPUBLIC OF KOREA
 Tel: +82 2 500 1939
 Fax: +82 2 504 0908
 Email: yskim@maf.go.kr

MALAYSIA

MALAISIE

MALASIA

Dr Matta ABD. RAHMAN

Deputy Director General II,
 Department of Veterinary Services, Malaysia
 Ministry of Agriculture
 8 & 9th floor, Wisma Chase Perdana
 Off Jalan Semantan, Damansara Heights
 50630 Kuala Lumpur, MALAYSIA
 Tel: +603 254 0103
 Fax: +603 253 5804
 Email: matta@jph.gov.my

Dr Aaisah SENIN

Principle Assistant Director
 Ministry of Health
 Bahagian Kawalan Mutu Makanan
 Jun Dungun Malaysia
 MALAYSIA
 Tel: +603 254 0088
 FAX: +603 253 5804
 Email: aaisah@moh.gov.my

Dr Murugiah SIVAMOORTHY

Veterinary Officer
 Department of Veterinary Services, Malaysia
 Ministry of Agriculture
 8 & 9th floor, Wisma Chase Perdana
 Off Jalan Semantan, Damansara Heights
 50630 Kuala Lumpur, MALAYSIA
 Tel: +603 254 0103
 Fax: +603 253 5804
 Email: moorthy@jph.gov.my

Dr Rozyati TAMBY HASSAN

Veterinary Officer
 Department of Veterinary Services, Malaysia
 Ministry of Agriculture
 8 & 9th floor, Wisma Chase Perdana
 Off Jalan Semantan, Damansara Heights
 50630 Kuala Lumpur, MALAYSIA
 Tel: +603 254 0103
 Fax: +603 253 5804
 Email: rozyati@jph.gov.my

MONGOLIA

MONGOLIE

Mrs Boldbaatar BYAMBA

Senior Inspector
 Food Safety & Agriculture Inspection Agency of
 Mongolian Government
 Ulaanbaatar 210349
 Peace Avenue 16A
 Ministry of Food & Agriculture
 State Property Building IX
 MONGOLIA
 Tel: +976 11 460 610
 Fax: +976 11 451 752

Mrs Bayarmagnai DUGERSUREN

Senior Inspector
 Food Safety & Agriculture Inspection Agency of
 Mongolian Government
 Ulaanbaatar 210349
 Peace Avenue 16A
 Ministry of Food & Agriculture
 State Property Building IX
 MONGOLIA
 Tel: +976 11 460 610
 Fax: +976 11 451 752
 Email: magnai_d@yahoo.com

Mrs Oyunbileg NAMKHAIDORJ

The Competitiveness Initiative
 USAID Funded Project
 Bayanzurkh District
 Peace Avenue 24
 Building of Former Indian Embassy
 Ulaanbaatar
 MONGOLIA
 Tel: +976 11 460 968
 Fax: +976 11 460 967
 Email: initiative@magicnet.mn

NETHERLANDS**PAYS BAS****PAISES BAJOS****Arie OTTEVANGER**

Senior Veterinary Policy Officer
Ministry of Health, Welfare and Sport
Public Health Department
PO Box 2500 EJ
Den Haag
NETHERLANDS
Tel: +31 70 340 68 86
Fax: +31 70 340 55 54
Email: a.ottevanger@minvws.nl

Dr Albert LAM

Senior Veterinary Public Health officer
Ministry of Health, Welfare and Sport
PO Box 16108, 2500 BC The Hague
NETHERLANDS
Tel: +31 70 340 7051
Fax: +31 70 340 5435
Email: albert.lam@kvw.nl

Mr Willem Jan RIEPMA

Policy Officer
PVE, Product Boards for Livestock, Meat and Eggs
Louis Braillelaan 80
PO Box 460
2700 AL Zoetermeer
NETHERLANDS
Tel: +31 79 368 79 45
Fax: +31 79 368 79 87
Email: w.riepma@pve.agro.nl

Aad VAN SPRANG

Senior Veterinary Officer
Ministry of Agriculture
Nature Management and Fisheries
National Inspection Service for Livestock and Meat
Central Department
Burgemeester Feithplein 1
PO Box 3000
2270 JA Voorburg
NETHERLANDS
Tel: +31 70 357 88 51
Fax: +31 70 387 65 91
Email: a.p.van.sprang@rvv.agro.nl

Ana Isabel VILORIA ALEBESQUE

Policy Officer
Department of Food and Veterinary Affairs
Ministry of Agriculture, Nature Management and
Fisheries
73. Bezuidenhoutseweg
PO Box 20401, 2500 EK Den Haag
NETHERLANDS
Tel: +31 70 378 47 78
Fax: +31 70 378 61 41
Email: a.i.viloria.alebesque@vva.agro.nl

NEW ZEALAND**NOUVELLE ZELANDE****NUEVA ZELANDIA****Dr Tony ZOHRAB**

Director, Animal Products Group
MAF Food Assurance Authority
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 474 4179
Fax: 64- 4- 474 4240
Email: zohrabt@maf.govt.nz

Ms Judy BARKER

Programme Manager (Animal Products Standards)
MAF Food Assurance Authority
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 474 4270
Fax: 64- 4- 474 4239
Email: barkerj@maf.govt.nz

Mr John BASSETT

National Adviser (Risk Assessment)
MAF Food Assurance Authority
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 474 4192
Fax: 64- 4- 474 4240
Email: bassettj@maf.govt.nz

Mr Grant BURNEY

Group Director, Operations
Ministry of Agriculture and Forestry
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 474 4289
Fax: 64- 4- 474 4244
Email: burneyg@maf.govt.nz

Ms Carole INKSTER

Director, Policy Coordination
Ministry of Agriculture and Forestry
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 474 4297
Fax: 64- 4- 474 4240
Email: inksterc@maf.govt.nz

Dr Caryll SHAILER

Director, Biosecurity Coordination
Ministry of Agriculture and Forestry
Biosecurity Authority
PO Box 2526
Wellington
NEW ZEALAND
Tel: +64 4 474 4219
Fax: +64 4 498 9888
Email: shailerc@maf.govt.nz

Dr Phil WARD

Technical Policy Manager (Animal Products)
MAF Food Assurance Authority
PO Box 2526
Wellington
NEW ZEALAND
Tel: 64- 4- 498 9864
Fax: 64- 4- 474 4739
Email: wardp@maf.govt.nz

Ian BALDICK

Public Service Association Union Organiser
Public Service Association
RD 2
Drury, South Auckland
NEW ZEALAND
Tel: 025 439 634 (cell phone)
Fax: +64 9 294 6132
Email: ian.baldick@psa.org.nz

Mr Graham BELL

Senior Scientist
AgResearch Limited
Ruakura MIRINZ Centre
Private Bag 3123
Hamilton
NEW ZEALAND
Tel: +64 7838 5162
Fax: +64 7838 5625
Email: graham.bell@agresearch.co.nz

Ms Anne BERRYMAN

MeatNZ
Box 121
Wellington
NEW ZEALAND

Mr Dennis BUTLER

Chair
New Zealand Meat Industry Standards Council
PO Box 1472
53 Victoria Street
Christchurch
NEW ZEALAND
Tel: +64 3 358 3295
Fax: +64 3 366 0595
Email: dennisb@alliance.co.nz

Mr Allan FRAZER

Senior Executive, Special Projects
Meat NZ
Box 121
Wellington
NEW ZEALAND

Mr Keith GUTSELL

Public Service Association Delegate
Asure NZ
103 Albert St
Invercargle
NEW ZEALAND
Tel: 025 243 2209 (cell phone)
Email : keith.kg@es.co.nz

Mr Nigel LUCAS

Technical Manager
Canterbury Meat Packers Ltd
Seafield Rd
Ashburton
NEW ZEALAND
Tel: +64 3 302 7699
Fax: +64 3 302 7700
Email: nigel.lucas@cmp.co.nz

Mr Brian LYNCH

Executive Director
Meat Industry Association
PO Box 345
Wellington
NEW ZEALAND
Tel: +64 4 474 6465
Fax: +64 4 474 1731
Email: brian.lynch@mia.co.nz

Ms Katie MATHESON

Communications Manager
Meat NZ
Box 121
Wellington
NEW ZEALAND

Mr John MILLER

Secretary, Meat Industry Standards Council
Lochiel Consultants Limited
PO Box 22038
Wellington
NEW ZEALAND
Tel: 027 499 5845
Fax: +64 4 479 5845
Email: djmiller@clear.net.nz

Mr Ben O'BRIEN

Manager, Trade Policy
Meat NZ
Box 121
Wellington
NEW ZEALAND

Mr Terrance PIERSON

General Manager
Asure NZ
PO Box 1141
Christchurch
NEW ZEALAND
Tel: +64 3353 1370
Fax: +64 4 33531371
Email: piersont@asure.co.nz

Dr Alan ROYAL

Technical Policy Consultant
Meat NZ
Box 121
Wellington
NEW ZEALAND
Tel: +64 4 474 9508
Email: alan.royal@meatnz.co.nz

Mr Owen SYMMANS

Manager - Operations
Meat Industry Association
PO Box 345
Wellington
NEW ZEALAND
Tel: 64- 4473 6465
Fax: 64- 4473 1731
Email: owen.symmans@mia.co.nz

Mr Neil TAYLOR

Chief Executive Officer
Meat NZ
Box 121
Wellington
NEW ZEALAND

NORWAY**NORVEGE****NORUEGA****Dr Halvard KVAMSDAL**

Senior Adviser DVM
Norwegian Food Control Authority
PO Box 8187 Dep.
NO-0034 Oslo
NORWAY
Tel: +47 23 21 70 00
Fax: +47 23 21 70 01
Email: hkv@snt.no

Dr Truls NESBAKKEN

Research Director
Norwegian Meat Research Centre
PO Box 396 Økern
0513 Oslo
NORWAY
Tel: +47 22 09 23 99
Fax: +47 22 22 00 16
Email: truls.nesbakken@fagkjott.no

Dr Paul SKJAKER

Senior Adviser DVM
Norwegian Food Control Authority
PO Box 8187 Dep.
NO-0034 Oslo
NORWAY
Tel: +47 23 21 67 60
Fax: +47 23 21 70 01
Email: psk@snt.no

PERU**PEROU****Dr Lilian CHEA SOTO**

Especialista En Insumos pecuarios
Senasa
Pasaje Zela s/n Jesus Maria – Lima Peru
PERU
Tel: +423 5553
Fax: +423 5553
Email: lches@senasa.gob.pe

PHILIPPINES**FILIPINAS****Dr Maria Araceli ALBARECE**

Agricultural Attache
Embassy of the Philippines
1 Moonah Place
Yarralumla, ACT
AUSTRALIA
Tel: +2 6273 2584
Fax: +2 6273 2113
Email: attache@ozemail.com.au

Dr Minda S. MANANTAN

Deputy Executive Director
National Meat Inspection Commission – DA
BAI Compound, Visayas Ave.,
Dilman
Quezon City, PHILIPPINES
Tel: +632 924 3119
Fax: +632 924 7973
Email: msmanantan@yahoo.com

Mr Zafrullah G. MASAHUD

Trade Commissioner
Phillippine Trade & Investment Centre
Level 1 Philippine Centre
27-33 Wentworth Avenue
SYDNEY NSW 2000
Tel: +61 2 9283 7300
Fax: +61 2 9283 8011
Email: dtisydney@bigpond.com

**SINGAPORE
SINGAPOUR
SINGAPUR**

Dr Paul Chiew KING TIONG
Head / Inspection & Epidemiology Division
Agri-Food & Veterinary Authority of Singapore
51 Jalan Buroh
Singapore 619495
REPUBLIC OF SINGAPORE
Tel: +65 267 0820
Fax: +65 265 0784
Email: paul_chiew@ava.gov.sg

**SOUTH AFRICA
AFRIQUE DU SUD
SUDAFRICA**

Dr Andrew VAN ZYL
Team Leader
Acting Deputy Director: Hygiene Control
Directorate: Veterinary Services
National Department of Agriculture
Private Bag X138
0001 Pretoria
SOUTH AFRICA
Tel: +27 12 319 7647
Fax: +27 12 329 6892
Email: andrewvz@nda.agric.za

Mr Muzi D. NKOSI
Control Meat Inspector
Directorate: Veterinary Services
North West Province
Private Bag X239
8681 Mmabatho
SOUTH AFRICA
Tel: +27 18 389 5037
Fax: +27 18 389 5090

Prof C. M. VEARY
Section Leader: Veterinary Public Health
Faculty of Veterinary Public Health
University of Pretoria
Private Bag X04
0110 Onderstepoort
SOUTH AFRICA
Tel: +27 12 529 8015
Fax: +27 12 529 8311
Email: Tubveary@op.up.ac.za

**SPAIN
ESPAGNE
ESPANA**

Mr Oscar GONZALEZ GUTIERREZ-SOLANA
Subdirector General de Sanidad Exterior y Veterinaria
Ministerio de Sanidad Y Consumo
Paseo Del Prado
18 – 20 28071 Madrid
ESPAÑA (SPAIN)
Tel: +3491 596 2040
Fax: +3491 596 2047
Email: ogonzalez@msc.es

Mr Angel Javier LAZARO RUIZ
Veterinarian Advisor
Ministry of Agriculture, Food & Fisheries of Spain
C/- Corazon De Maria, 8 4ª Planta
28002 Madrid
SPAIN
Tel: +34 913 478 351
Fax: +34 913 478 299
Email: jlazaror@mapya.es

Mr Jesús MARTÍN RUIZ
Jefe Area Veterinaria De Salud Publica
Ministerio de Sanidad Y Consumo
Paseo Del Prado
18 – 20 28071 Madrid
ESPAÑA (SPAIN)
Tel: +3491 596 1943
Fax: +3491 596 2047
Email: amartinez@msc.es

**SWEDEN
SUEDE
SUECIA**

Dr Tor BERGMAN
Chief Veterinary Officer, Public Health
National Food Administration
Box 622
SE – 751 26 Uppsala
SWEDEN
Tel: +46 18 17 55 87
Fax: +46 18 12 76 37
Email: tor.bergman@slv.se

**SWITZERLAND
SUISSE
SUIZA**

Dr Andreas BAUMGARTNER
Deputy Chief “Section of Microbiology and
Biotechnology”
Swiss Federal Office of Public Health
CH-3003 Bern
SWITZERLAND
Tel: +41 31 322 95 82
Fax: +41 31 322 95 74
Email: andreas.baumgartner@bag.admin.ch

Dr Dagmar HEIM

Head of BSE Project
Swiss Federal Veterinary Office
Schwarzenburgstrasse.161
PO Box CH-3003 BERN
SWITZERLAND
Email: dagmar.heim@bvet.admin.ch

Dr Katharina STÄRK

Head of Monitoring
Swiss Federal Veterinary Office
Schwarzenburgstrasse 161
PO Box
CH-3003 Bern
SWITZERLAND
Tel: +41 31 323 95 44
Fax: +41 31 323 95 43
Email: Katharina.staerk@bvet.admin.ch

THAILAND**THAILANDE****TAILANDIA****Mr Sakchai SRIBOONSUE**

Deputy Director General
Department of Livestock Development
Rajathewi Rd, Rajathewi
Bangkok 10400
THAILAND
Tel: +66 2 693 4402
Fax: +66 2 653 4902
Email: sakchasi@dld.go.th

Mrs Usa BAMRUNGBHUET

Standards Officer
Thai Industrial Standards Institute
Rama VI Street
Ratchathewi
Bangkok 10400
THAILAND
Tel: +66 2 246 1993
Fax: +66 2 248 7987
Email: usak@tisi.go.th

Mr Sakurn EAMSILA

Director of Food Sanitation Division
Health Department
Ministry of Public Health
Thivanon Rd, Nonthaburi 11000
THAILAND
Tel: +66 2 590 4182
Fax: +66 2 590 4188
Email: sakurn@health.moph.go.th

Ms Vimonrat PREMSIRI

Thai Broiler Processing Exporters Association
313 CP. Tower, 22nd Floor
Bangrak, Bangkok 10500
THAILAND
Tel: +66 2 638 2199
Fax: +66 2 638 2536
Email: vimonrat@cpf.co.th

Mr Boonpeng SANTIWATTANATAM

Board of Director, Vice Chairman of Food Processing
Industry Club
The Federation of Thai Industries
Queen Sirikit International Convention Center Zone d.
4th floor
60 New Rachadapisek Road
Klongtoey, Bangkok
THAILAND
Tel: +66 2 229 4255
Fax: +66 2 229 4941 2
Email: www.fti.or.th

UNITED KINGDOM**ROYAUME-UNI****REINO UNIDO****Mr Kenneth CLARKE**

Veterinary Advisor
Food Standards Agency
Government Buildings
Kenton Bar
Newcastle
UNITED KINGDOM
Tel: +44 191 286 9210
Fax: +44 191 286 4452
Email: kenneth.clarke@foodstandards.gsi.gov.uk

Dr Debby REYNOLDS

Veterinary Director
UK Food Standards Agency
125 Kingsway
London
UNITED KINGDOM
Tel: +44 20 7276 8380
Fax: +44 20 7276 8376
Email: debby.reynolds@foodstandards.gsi.gov.uk

**UNITED STATES OF AMERICA
ETATS UNIS D'AMERIQUE
ESTADOS UNIDOS DE AMERICA**

Mr John C. PRUCHA

Assistant Deputy Administrator
Program Coordination and Evaluation
Office of Policy, Program Development and
Evaluation
Food Safety and Inspection Service
U.S. Department of Agriculture
Room 4866-South Building
1400 Independence Avenue, SW
Washington, DC 20250-3700
Tel: +202 720-3473
Fax: +202 690-3856
E-mail: john.prucha@usda.gov

Dr Bonnie BUNTAIN

Chief Veterinary Medical Officer
Food Safety and Inspection Service
U.S. Department of Agriculture
Room 3130-South Building
1400 Independence Avenue, SW
Washington, DC 20250-3700
Tel: +202 720-8609
Fax: +202 720-9893
E-mail: bonnie.buntain@usda.gov

Mr Mark DOPP

Senior Vice President
Regulatory Affairs & General Counsel
American Meat Institute
1700 North Moore Street
Suite 1600
Arlington, VA 22209-1995
Tel: +703 841-2400
Fax: +703 527-0938
E-mail: Mdopp@meatami.org

Mr William JAMES

Director
Food Animal Sciences Division
Mail Drop 343
901 D Street, SW
Washington, DC 20250
Tel: +202 690-6572
Fax: +202 690-6565
E-mail: william.james@usda.gov

Ms Alice JOHNSON

Vice President
Food Safety Programs
National Food Processors Association
1350 I Street, NW
Washington, DC 20005
Tel: +202 639-5983
Fax: +202 639-5991
E-mail: ajohnson@nfpa-food.org

Ms Edith E. KENNARD

Staff Officer
U.S. Codex Office
Food Safety and Inspection Service
U.S. Department of Agriculture
Room 4861-South Building
1400 Independence Avenue, SW
Washington, DC 20250-3700
Tel: +202 720-5261
Fax: +202 720-3157
E-mail: edith.kennard@usda.gov

Ms Merle PIERSON

Deputy Under Secretary for Food Safety
U.S. Department of Agriculture
Room 227-E - JLW Building
1400 Independence Avenue, SW
Washington, DC 20250-3700
Tel: +202 720-0350
Fax: +202 690-0820
E-mail: merle.pierson@fsis.usda.gov

Mr Bryce QUICK

Director, CPAO
USDA Food Safety & Inspection Service
Office Administrator
Congressional & Public Affairs Office
1400 Independence Avenue
SW Washington DC 20250
Tel: +202 720 3897
Fax: +202 720 5704
Email: bryce.quick@fsis.usda.gov

Mr David YOUNG

Agricultural Attache
US Embassy
PO Box 1190
Wellington
NEW ZEALAND
Tel: +64 4 462 6012
Fax: +64 4 462 6016
Email: youngd@fas.usda.gov

OBSERVER ORGANISATIONS

**Asociación Latinoamericana de Avicultura
Secretario Ejecutivo (ALA)**

Dr J. Isidro MOLFESE

Latin American Association of Poultry Breeders
(ALA)
Arce 441 3° Piso (1426)
Buenos Aires
ARGENTINA
Tel: (+54 11) 4774-4770
Email: molfese@ciudad.com.ar

Consumers International (CI)

Ms Celia MURPHY
Consumers Institute of New Zealand
Consumers International
24 Highbury Crescent
London
UNITED KINGDOM
Tel: +44 0207 266 6663 ex 207
Email: rhannan@consint.org

Centre de Liason des Industries Transformatrices de Viandes de L'U.E. (CLITRAVI)

Mr Dirk DOBBELAERE
Secretary General
Centre De Liason Des Industries Transformatrices De Viandes De L'U.E. (CLITRAVI)
Boulevard Baudouin 18 (Bte 4)
B-1000 Bruxelles
Tel: +32 2 203 51 41
Fax: +32 2 203 32 44
Email: devries@skypro.be

European Commission (EC)

Dr Henri BELVEZE
European Commission
1049 Brussels
BELGIUM
Tel: +32 2 296 28 12
Fax: +32 2 299 85 66
Email: henri.belveze@cec.eu.int

Mr Martinus WEIJTENS
Administrator
European Commission
Rue Belliard 232
B-1040 Brussels
BELGIUM
Tel: +32 2 295 9973
Fax: +32 2 296 9062
Email: martinus.weijtens@cec.eu.int

Mr Andrew John WILSON
Counsellor, Consumer Health Affairs
European Commission
140 Wireless Rd, Bangkok
THAILAND
Tel: +2 255 9100
Fax: +2 255 9114
Email: andrew.wilson@cec.eu.int

Council of the European Union (EU)

Mr Olli MATTILA
Administrator
General Secretariat of the Council of the European Union
Rue de la L01 175
B-1048 Brussels
BELGIUM
Tel: +322 285 8357
Fax: +322 285 7928
Email: olli.mattila@consilium.eu.int

Food and Agriculture Organisation (FAO)

Dr Jose GARCIA-DE-SILES
Senior Animal Production Officer
Meat Technology and Hygiene
Food and Agriculture Organisation
Dag Hammarskjöld 3241
Vitacura, Santiago
CHILE
Tel: +56 2 337 2237
Fax: +56 2 337 2101
Email: joseluis.garciadesiles@fao.org

Office International des Epizooties (OIE)

Dr Alejandro THIERMANN
President OIE International Animal Health Code Commission
Office International des Epizooties
12, Rue De Prony
75017 PARIS
Tel: +33 1 44 15 18 88
Fax: +33 1 42 67 09 87
Email: alexthiermann@compuserve.com

World Health Organisation (WHO)

Dr Hajime TOYOFUKU
Technical Officer
Food Safety Programme
World Health Organisation
20 Avenue Appia
Geneva CH1211
SWITZERLAND
Tel: +41 22 791 3556
Fax: +41 22 791 4807
Email: toyofukuh@who.ch

World Veterinary Association (WVA)

Dr Jim EDWARDS
President
World Veterinary Association
c/o MAF
PO Box 2526, Wellington
NEW ZEALAND
Tel: +64 4 460 8758
Fax: +64 4 460 8701
Email: edwardsj@maf.govt.nz

CODEX CONSULTANT**Dr Steve HATHAWAY**

Director (Programme Development)
MAF Food Assurance Authority
PO Box 646
GISBORNE
Tel: +64 6867 1144
Fax: +64 6868 5207
Email: hathaways@maf.govt.nz

CODEX SECRETARIAT**Mr David BYRON**

Food Standards Officer
Joint FAO/WHO Food Standards Programme
Room C-264
FAO
Viale delle Terme di Caracalla
00100 Rome
ITALY
Tel: +39 06 57054419
Fax: +39 06 57054593
Email: david.byron@fao.org

Ms Annamaria BRUNO

Food Standards Officer
Joint FAO/WHO Food Standards Programme
Room C-272
FAO
Viale delle Terme di Caracalla
00100 Rome
ITALY
Tel: +39 06 57056254
Fax: +39 06 57054593
Email: annamaria.bruno@fao.org

Mr Christophe LEPRÊTRE

Associate Food Standards Officer
Joint FAO/WHO Food Standards Programme
Room C-297
FAO
Viale delle Terme di Caracalla
00100 Rome
ITALY
Tel: +39 06 57055621
Fax: +39 06 57054593
Email: christophe.lepretre@fao.org

NEW ZEALAND SECRETARIAT**Mrs Cherie FLYNN**

Senior Policy Analyst, Food and Animal Policy
MAF Policy
PO Box 2526
WELLINGTON
Tel: +64 4 4744169
Fax: +64 4 4744265
Email: flynnc@maf.govt.nz

Ms Laurie KNIGHT

Policy Analyst, SPS/Codex
MAF Policy
PO Box 2526
WELLINGTON

Dr Judi LEE

Programme Manager (Programme Development)
MAF Food Assurance Authority
95 McGregor Road
RD 2
Papakura
AUCKLAND
Tel: +64 9 2929131
Fax: +64 9 2929131
Email: leeja@maf.govt.nz

Ms Cindy NEWMAN

Conference Co-ordinator, SPS/Codex
MAF Policy
PO Box 2526
WELLINGTON

Ms Debra TUIFAQ

Policy Analyst, SPS/Codex
MAF Policy
PO Box 2526
WELLINGTON

Appendix II

PROPOSED DRAFT GENERAL PRINCIPLES OF MEAT HYGIENE**(Advanced to Step 5)**

1. Meat must be safe and suitable for human consumption and all interested parties including government, industry and consumers have a role in achieving this outcome.¹

This draft principle addresses the primary goals of meat hygiene i.e. meat must be both safe and suitable for human consumption. In a risk-based, farm-to-plate meat hygiene system, all interested parties i.e. industry, government and consumers, have a role to play in ensuring safety and suitability.

2. The competent authority should have the legal power to set and enforce regulatory meat hygiene requirements, and have final responsibility for verifying that regulatory meat hygiene requirements are met. It should be the responsibility of the establishment operator to produce meat that is safe, suitable and in accordance with regulatory meat hygiene requirements. There should be a legal obligation on relevant parties to provide any information and assistance as may be required by the competent authority.

Although all interested parties have a role in meat hygiene, the competent authority is responsible for setting standards and has the final responsibility for ensuring that safety and suitability requirements as specified in regulations are met.

3. Meat hygiene programmes should have as their primary goal the protection of public health and should be based on a scientific evaluation of meat-borne risks to human health and take into account all relevant food safety hazards, as identified by research, monitoring and other relevant activities.

For food in international trade, the WTO SPS Agreement requires that sanitary measures be based on scientific principles and an assessment of the risks to human health, using risk assessment techniques developed by the relevant international organisations. It is now generally accepted at both the international level i.e. Codex, and the national level i.e. Member government competent authorities, that food hygiene standards should be based on science and risk assessment to the extent possible and practicable.

4. The principles of food safety risk management should be incorporated wherever possible and appropriate in the design and implementation of meat hygiene programmes.²

The Codex system is working on several fronts to develop practical guidelines for incorporating risk assessment into the design and implementation of food hygiene standards. Development of a framework for management of food-borne risks to human health is based on four steps: risk evaluation (including risk assessment), assessment of options for managing risks, implementation of hygiene measures, and monitoring and review.

5. [Wherever possible and practical, competent authorities should formulate food safety objectives (FSOs)³ according to a risk-based approach so as to objectively express the level of hazard control that is required to meet public health goals.]

¹ Specific meat hygiene requirements should address biological, chemical and physical hazards; and pathophysiological and other characteristics associated with suitability for human consumption

² Codex Committee on Food Hygiene, proposed draft Principles and Guidelines for the Conduct of Microbiological Risk Management (CX/FH 01/7 and ALINORM 03/13 paras. 99-128); Codex Committee on General Principles, proposed draft Working Principles for Risk Analysis, CX/GP 02/3

³ As a temporary compromise solution, the 34th Session of the Codex Committee on Food Hygiene decided that its drafting group should use the following definition proposed by the ICMSF as a basis for its discussions. Food Safety Objective: The maximum frequency and/or concentration of a [microbiological] hazard in a food at the time of consumption that provides the appropriate level of health protection [(ALOP)].” (ALINORM 03/13 Para. 123)

FSOs are a relatively new concept in Codex. Given the primacy of HACCP systems in food control, it is apparent that achievement of risk-based food safety goals requires a “bridge” between the level of protection desired for the consumer population (“appropriate level of protection”) and the level of hazard control that the HACCP system must necessarily deliver. The concept of a FSO is founded on the need for an objective measure of the level of control of hazards in the food that is required to achieve a desired level of consumer protection.

6. Meat hygiene requirements should control hazards to the greatest extent practicable throughout the entire food chain. Information available from primary production should be taken into account so as to tailor meat hygiene requirements to the spectrum and prevalence of hazards in the animal population from which the meat is sourced.

Food safety measures can be implemented at many points in the food chain and an optimal meat hygiene system will apply available measures at those points where they are the most efficient and effective in terms of reducing food-borne risks to human health. Because of the particular nature of meat production systems, optimisation of meat hygiene activities at the processing level requires appropriate information to be supplied from the primary production level.

7. The establishment operator should apply HACCP principles. To the greatest extent practicable, the HACCP principles should also be applied in the design and implementation of hygiene measures throughout the entire food chain.

HACCP is now acknowledged as the food hygiene system of choice, and the establishment operator has the primary responsibility for its application. However, there are some concerns over the practicality of HACCP at the farm level and therefore this draft principle must remain flexible in terms of application to all sectors of the food chain.

8. When voluntary quality assurance systems have been put in place, competent authorities should take the contribution of such systems into account during verification of regulatory requirement.

QA systems are widespread in the food industry. Voluntary inclusion of meat hygiene activities in an overarching QA system operated by the establishment operator is likely to result in enhanced delivery, and competent authorities may take properly-functioning QA systems into account when carrying out their regulatory responsibilities e.g. by decreasing the frequency of HACCP verification checks. The Codex Committee on Import and Export Inspection and Certification Systems is currently considering a discussion paper entitled “Proposed Draft Guidelines for the Utilisation of Quality Assurance Systems to Meet Requirements in Relation to Food” which explores the possible role of the competent authority in officially recognising such QA systems.

9. The range of activities involved in meat hygiene should be carried out by personnel with the appropriate training, knowledge, skills and ability as and where defined by the competent authority.

Meat hygiene involves a complex range of activities and the personnel carrying out those activities are not always directly employed by the competent authority e.g. a number of countries are trialing ante-mortem and post-mortem inspection systems that partly involve industry personnel. The training and competency of all personnel involved in meat hygiene is a key element in ensuring food safety and suitability, and defining training, knowledge, skills and ability, and roles of appropriately-trained personnel remains the responsibility of the competent authority.

10. The competent authority should define the role of those personnel involved in meat hygiene activities where appropriate, including the specific role of the veterinary inspector.

11. The competent authority should verify that the establishment operator has adequate systems in place to trace and withdraw meat from the food chain. Communication with consumers and other interested parties should be considered where appropriate.

Adequate systems for recall of product are an increasingly recognised requirement of industry.

12. As appropriate to the circumstances, the results of monitoring and surveillance of animal and human populations where available should be considered with subsequent review and/or modification of meat hygiene requirements whenever necessary.

A framework for effectively managing food-borne risks to human health requires monitoring and surveillance of the consumer population to determine if hygiene measures are achieving the required level of consumer protection. Further, monitoring of the animal population for specified hazards may be required to determine the prevalence of infected or contaminated animals entering the food chain.

13. Competent authorities should recognise the equivalence of alternative hygiene measures where appropriate, and promulgate meat hygiene measures that achieve required outcomes in terms of safety and suitability and facilitate fair practices in the trading of meat.

The equivalence of food hygiene measures is an increasingly important issue in the international trade in foods. "Equivalence is the state wherein sanitary measures applied in an exporting country, though different from the measures applied in an importing country, achieve, as demonstrated by the exporting country, the importing country's appropriate level of protection" (Codex Committee on Import and Export Inspection and Certification Systems; ALINORM 01/30A, Appendix III).

Appendix III

PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR FRESH MEAT**(Advanced to Step 3)****1. INTRODUCTION**

1. Fresh meat has traditionally been viewed as a vehicle for a significant proportion of human food-borne disease. Although the spectrum of meat-borne diseases of public health importance has changed with changing production and processing systems, continuation of the problem has been well illustrated in recent years by human surveillance studies of specific meat-borne pathogens such as *Escherichia coli* O157:H7, *Salmonella* spp., *Campylobacter* spp. and *Yersinia enterocolitica*. In addition to existing biological and chemical hazards, new hazards are also appearing e.g., the agent of bovine spongiform encephalopathy (BSE).

2. A contemporary risk-based¹ approach to meat hygiene requires that hygiene measures should be applied at those points in the food chain where they will be of greatest value in reducing food-borne risks to consumers. This should be reflected in application of specific measures that are based on science and risk assessment and a greater emphasis on prevention and control of unseen microbiological contamination during processing. Application of HACCP principles is an essential element. The measure of success of contemporary programmes is an objective demonstration of levels of hazard control in food that are correlated with required levels of consumer protection, rather than by concentrating on detailed and prescriptive measures that give an unknown outcome.

3. A number of national governments are implementing systems that redefine the respective roles of industry and government in delivering meat hygiene activities. Irrespective of the delivery systems the competent authority is responsible for defining the role of personnel involved in meat hygiene activities where appropriate, and verifying that all regulatory requirements are met.

4. The principles of food safety risk management² should be incorporated wherever appropriate in the design and implementation of meat hygiene programmes. Further, newly-recognised meat-borne risks to human health may require additional measures to those usually applied in meat hygiene, e.g., the potential for zoonotic transmission of central nervous system disorders of slaughtered livestock means that additional animal health surveillance programmes may need to be undertaken.

2. SCOPE AND USE OF THIS CODE

5. This proposed draft code of hygienic practice for fresh meat further develops and applies 'The Recommended International Code of Practice: General Principles of Food Hygiene'³ in the context of fresh meat up to and including transportation. Where appropriate, the Annexe to that code (Hazard Analysis and Critical Control Point System and Guidelines for its Application) and the Principles for the Establishment and Application of Microbiological Criteria for Foods⁴ are further developed and applied in the specific context of meat hygiene.

6. For the purposes of this code, fresh meat is that derived from domestic ungulates, domestic solipeds, poultry, farmed game, farmed game birds (including rattites) and wild game. This Code of Practice may also be applied to other types of animals from which fresh meat is derived, subject to any special hygienic measures required by the competent authority. Further to general hygiene measures applying to all species of animal as described above, this code also presents specific measures that apply to different species and classes

¹ In the context of this Code the term " risk-based" is used to describe in a general sense the application of risk analysis principles and procedures in the development of meat hygiene requirements

² Proposed Draft Working Principles for Risk Analysis (CX/GP 02/3); Proposed Draft Working Principles for Microbiological Risk Management (CX/FH 01/7 and ALINORM 03/13 paras. 99-128)

³ CAC/RCP 1-1969, Rev. 3-1997

⁴ CAC/GL 21-1997

of animals, e.g., it is an inevitable consequence that some limitations are placed on meat hygiene in the procurement of wild game killed in the field.

7. Although the scope of this code is necessarily limited to production of fresh meat, the hygiene measures that are applied should take into account further hygiene measures that are likely to be applied throughout later stages of the food chain.

8. Meat hygiene is by nature a complex activity, and this code refers to standards, texts and other recommendations developed elsewhere in the Codex system where linkages are appropriate, e.g., Principles for Food Import and Export Inspection and Certification (CAC/GL 20 - 1995), Proposed Draft Principles and Guidelines for the Conduct of Microbiological Risk Management (CX/FH 01/7 and ALINORM 03/13 paras. 99-128), General Guidelines for Use of the Term "Halal" (CAC/GL 24-1997) and recommendations of the *Ad hoc* Intergovernmental Task Force on Animal Feeding (ALINORM 01/38 and ALINORM 01/38A).

9. Traditional practices may result in departures from some of the meat hygiene recommendations presented in this code when fresh meat is produced for local trade.

3. DEFINITIONS

10. The following definitions apply to this code. (Note that more general definitions relating to food hygiene appear in The Recommended International Code of Practice: General Principles of Food Hygiene⁵).

Abattoir Any establishment where specified animals are slaughtered and dressed for human consumption and that is approved, registered and/or listed by the competent authority for such purposes.

Animal Animals of the following types:

- Domestic ungulates i.e. bovine, porcine, ovine and caprine animals;
- Domestic solipeds;
- Poultry i.e. farmed birds;
- Lagomorph e.g. rabbits;
- Farmed game;
- Farmed game birds, including rattites;
- Wild game, i.e. wild land mammals and birds which are hunted (including those living in enclosed territory under conditions of freedom similar to those of wild game);
- Animals as otherwise specified by the competent authority.

[Ante-mortem inspection Any procedure or test applied ante-mortem to animals for the purpose of judgement and disposition]

Carcass The whole body of an animal after slaughter and/or dressing.

Chemical residues Residues of veterinary drugs and pesticides as described in the Definitions for the Purpose of the Codex Alimentarius⁶.

Competent authority The official authority charged by the government with the control of meat hygiene, including setting and enforcing regulatory meat hygiene requirements.

Competent body A body recognised and overseen by the competent authority to undertake specified meat hygiene activities.

Competent person A person who has the training, knowledge, skills and ability to perform an assigned task, and who is subject to any requirements of the competent authority.

⁵ Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev.3-1997)

⁶ Procedural Manual of the Codex Alimentarius Commission

<i>Condemned</i>	An animal or parts of an animal inspected and judged, or otherwise determined to be, unsafe or unsuitable for human [and/or animal] consumption and requiring [destruction].
<i>Contaminant</i>	Any biological or chemical agent, foreign matter, or other substance not intentionally added to food that may compromise food safety or suitability. ⁷
[<i>Disease or defect</i>]	A pathological or pathophysiological change, or other abnormality (including technological defects associated with dressing).]
<i>Dressing</i>	The progressive separation of an animal into a carcass (or sides of a carcass), other edible parts, and inedible products.
<i>Establishment</i>	A building or area used for meat hygiene activities that is approved, registered and/or listed by the competent authority for such purposes.
[<i>Establishment operator</i>]	The owner or a person in control of an establishment who is responsible for ensuring that the meat hygiene requirements are met.]
<i>Equivalence</i>	The capability of different meat hygiene systems to meet the same food safety and/or suitability objectives.
[<i>Food safety objective (FSO)</i>]	The maximum frequency and/or concentration of a [microbiological] hazard in a food at the time of consumption that provides the appropriate level of health protection [(ALOP)] ⁸]
<i>Fresh meat</i>	Meat that apart from refrigeration has not been treated in any way for the purpose of preservation other than by modified atmosphere packaging or vacuum packaging.
<i>Game depot</i>	A building in which killed wild game is temporarily held prior to transfer to an establishment, and which is approved, registered and/or listed by the competent authority for this purpose. (<i>Note that for the purposes of this code, a game depot is a particular type of establishment</i>).
<i>Hazard</i>	A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect. ⁹
<i>Hunter</i>	A person involved in the killing and/or bleeding, partial evisceration and partial field dressing of wild game.
<i>Inedible</i>	Parts of an animal inspected and judged to be, or otherwise determined by the competent authority to be, unsafe or unsuitable for human consumption but not requiring [destruction].
[<i>Inspector</i>]	A person appointed, accredited or otherwise recognised by the competent authority.]
<i>Meat</i>	All parts of an animal that are safe and suitable for human consumption.
<i>Meat hygiene</i>	All conditions and measures necessary to ensure the safety and suitability of meat at all stages of the food chain.
[<i>Offal</i>]	Meat other than that of the carcass.]
[<i>Official inspector</i>]	An inspector who is employed by the government to perform official meat hygiene activities.]
<i>Organoleptic inspection</i>	Identification of diseases and defects of animals by sense of sight, touch and smell.

⁷ Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997)

⁸ Proposed Draft Working Principles for Microbiological Risk Management (CX/FH 01/7 and ALINORM 03/13 paras. 99-128)

⁹ Definitions for the Purpose of the Codex Alimentarius. Procedural Manual, 12th edition, page 43

Primary production	All those steps in the food chain constituting animal production and transport of animals to the abattoir, or hunting and transporting wild game to a game depot.
Post-mortem inspection	Any procedure or test applied post-mortem to the heads, carcass, viscera and other parts of an animal for the purpose of judgement and disposition.
[Quality assurance (QA) system	The organisational structure, procedures, processes and resources needed to implement quality assurance.]
Safe for human consumption	Safe for human consumption according to the following criteria: <ul style="list-style-type: none"> • has been produced by applying all food safety requirements appropriate to its intended end-use; • meets FSOs or other outcome-based performance parameters for specified hazards; and • [does not contain chemical residues or contaminants at levels that are unsafe for human health.]
Sanitation standard operating procedures (SSOPs)	A documented system for assuring that facilities, equipment and utensils are clean and sanitised prior to and during operations.
Suitable for human consumption	[Suitable for human consumption according to the following criteria: <ul style="list-style-type: none"> • has been produced by applying all consumer acceptability requirements appropriate to its intended end-use¹⁰; • meets outcome-based performance parameters for specified diseases and/or defects; and • has not been treated with illegal substances as specified in relevant national legislation.]
[Verification	The continual review of process control systems to ensure that regulatory requirements are met, including appropriate corrective and preventative actions.]
[Veterinary Inspector	An inspector or official inspector who is professionally qualified as a veterinarian.]

4. GENERAL PRINCIPLES OF MEAT HYGIENE

Under separate development (See ALINORM 03/16 Para. 61 and Appendix II)

5. PRIMARY PRODUCTION

11. Primary production is a significant source of hazards associated with fresh meat. A number of microbiological hazards are present in animal populations intended for slaughter and their control at farm level often presents considerable challenges, e.g., *E. coli* O157:H7, *Salmonella* spp. and, *Campylobacter* spp. A risk management approach to meat hygiene includes consideration of risk management options that may have a significant impact on risk reduction when applied at the level of primary production¹¹

12. Increased provision of information on animals intended for slaughter facilitates application of risk-based meat hygiene programmes, and allows inspection procedures to be tailor-made to the spectrum and prevalence of diseases and defects in the particular animal population.

13. The principles and guidelines presented in this section are supplemental to the objectives and guidelines in Section III of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

¹⁰ See for example the General Guidelines for Use of the Term "Halal" (CAC/GL 24-1997)

¹¹ Proposed Draft Working Principles for Risk Analysis (CX/GP 02/3).

5.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO PRIMARY PRODUCTION

- i. Primary production should be managed in a way that reduces the likelihood of introduction of hazards and appropriately contributes to fresh meat being safe and suitable for human consumption.
- ii. Both the farming industry and the competent authority, to the extent practicable, should collect and make available information on hazards and conditions affecting the safety and suitability of fresh meat that may be present in animal populations, including systems for the on-going support of HACCP-based processing operations at the establishment.
- iii. Primary production should include official or officially-recognised programmes for the control and monitoring of zoonotic agents in animal populations and the environment as appropriate to the circumstances, and notifiable zoonotic diseases should be reported as required.
- iv. Good hygienic practice (GHP) at the level of primary production should involve the hygiene of animals, feedingstuffs and the environment, and should include application of HACCP systems or the principles that underline HACCP systems.
- v. Animal identification practices should allow trace-back to the place of origin in cases where regulatory investigation is required as a result of unacceptable levels of hazards (or suitability characteristics) being detected at later stages in the food chain.
- vi. QA systems implemented by the farming industry during primary production may be appropriately recognised by the competent authority as contributing to regulatory requirements.

5.2 HYGIENE OF SLAUGHTER ANIMALS

14. Both farmers and the competent authority should work together to implement meat hygiene programmes at the level of primary production that document the general health status of slaughter animals, and implement practices that maintain or improve that status, e.g., zoonoses control programmes. QA programmes at the level of primary production should be encouraged and may include application of HACCP principles as appropriate to the circumstances. Such programmes should be taken into account by competent authorities in the overall design and implementation of risk-based meat hygiene programmes.

So as to facilitate the application of risk-based meat hygiene programmes:

- Farmers should record relevant information on the health status of groups of slaughter animals as it relates to the production of fresh meat that is safe and suitable for human consumption, e.g., origin of feedingstuffs, treatment with veterinary drugs, details of mastitis control programmes. This information should be made available to the abattoir as appropriate to the circumstances.
- Systems should be in place for return from the abattoir to the farm of information on the safety and suitability of slaughter animals and meat, so that such information can be incorporated into industry-led on-farm QA programmes to improve their effectiveness.
- Return of information on the results of post-mortem inspection may be particularly important in improving the health status of slaughter populations
- Competent authorities should systematically analyse health monitoring and surveillance information from primary production so that meat hygiene can be assessed on a “farm-to-plate” basis as meeting overall public health goals.

15. The competent authority should administer an official programme for specified zoonotic agents, chemical hazards and contaminants.

Official or officially-recognised programmes for specified zoonotic agents should include measures to:

- control and eradicate their presence in animal populations, or subsets of populations, e.g., particular poultry flocks;
- prevent the introduction of new zoonotic agents;
- provide monitoring systems that establish baseline data and guide a risk-based approach to control of such hazards in fresh meat;

- control movement of animals between farms, and to abattoirs, where populations are under quarantine restrictions; and
- co-ordinate activities with competent authorities for human and animal health to the greatest extent possible.

Official or officially-recognised programmes for chemical hazards and contaminants may include measures to:

- control the registration and use of veterinary drugs so that residues do not occur in fresh meat at levels that render the product unsafe for human consumption ¹²; and
- provide monitoring and surveillance systems that establish baseline data and guide a risk-based approach to control of such hazards in fresh meat.

16. Animal identification systems should be in place at the farm level so that the origin of fresh meat can, if required, be reliably traced back from the abattoir or establishment to the place of production of the animals.

17. Animals should not be loaded for transport to the abattoir when:

- the degree of contamination of the external surfaces is likely to compromise hygienic slaughter and dressing;
- information is available to suggest that animals may compromise the production of fresh meat that is safe and suitable for human consumption, e.g., presence of specific disease conditions or recent administration of veterinary drugs. (In such cases, transport may only proceed if the animals have been attended by a veterinarian who has certified to the effect that it is a “suspect” to be slaughtered under regulatory supervision); or
- injury or accident precludes transport on animal welfare grounds.

5.3 HYGIENE OF WILD GAME

18. Only limited knowledge can be gained on the health status of populations of wild game hunted for meat, however, the competent authority should consider all sources when gathering such information. In this respect, hunters should be encouraged to provide relevant information, e.g., geographical origin of wild game, and any clinical symptoms of disease observed in wild animal populations.

19. Wild game should be harvested in a manner so that:

- killing is humane;
- killing methods are consistent with the production of fresh meat that is safe and suitable for human consumption; and
- the geographical origin is not subject to relevant official prohibitions on harvest, e.g., in the case of concurrent chemical pest control programmes or animal health quarantine.

20. Hunters are particularly important in providing information on killed animals, and should be aware of their responsibilities in terms of supplying to the establishment all relevant information that may impact on the safety and suitability of wild game meat, e.g., clinical symptoms of disease immediately before killing, grossly-apparent diseases and defects detected during partial field dressing and/or evisceration. In some situations, the competent authority may require that hunters or other people involved in harvesting of wild game undergo basic training in meat hygiene appropriate to field procurement, e.g., recognition of diseases and defects, application of GHP in partial field dressing and transport to a game depot.

21. As wild game are killed in the field, appropriate hygienic practices immediately following death are essential to minimise contamination of edible parts. GHP should be applied to the extent practicable during

¹² Guidelines for the Establishment of a Regulatory Programme for Control of Veterinary Drug Residues in Foods (CAC/GL 16-1993)

bleeding, partial dressing, e.g., removal of the head (where allowed by the competent authority), and partial evisceration, e.g., removal of stomach and intestines in large mammals.¹³

Bleeding and partial dressing of wild game in the field should include:

- bleeding and partial evisceration as soon as possible after killing (unless exempted by the competent authority for a particular species of wild game);
- partial skinning and/or partial dressing in a manner that minimises the level of contamination of edible parts to the lowest level practicable;
- removal only of those parts of the animal that are not necessary for post-mortem inspection and judgement; and
- retention of the lungs, liver, heart and kidneys as a minimum if partial evisceration is carried out, either by natural attachment to the carcass or identified and packaged as an attachment to the carcass.¹⁴

22. Game depots should not be simultaneously used for a purpose other than receiving and holding wild game, unless the competent authority specifies other uses and conditions.

23. Delivery of wild game carcasses to a game depot or an establishment should be within time limits established by the competent authority and in accordance with harvesting and environmental conditions. Carcasses and other animal parts should not be frozen before dressing and post-mortem inspection in an establishment, unless unavoidable due to ambient temperatures.

5.4 HYGIENE OF FEEDINGSTUFFS

24. Feeding of animals during primary production should be subject to good animal feeding practice in the procurement, handling, storage, processing and distribution of animal feedingstuffs, and in forage crop production and pasture feeding.¹⁵ Feedingstuffs should be protected from contamination by chemical, physical and microbiological hazards, and from pests that carry zoonotic agents, to the greatest extent possible and practical.

25. There is a need for collaboration between all parties involved in feed production, feed manufacturing and use so as to establish any linkage between identified hazards and the level of risk to consumers that may result from transmission through the food chain. Due to the possibility of development of antimicrobial resistant strains of pathogens, the competent authority should have an active strategy for the proper use of antibiotics as growth promoters in feedingstuffs.

26. Manufacturing of feedingstuffs at the farm level should be subject to the same controls as industry-produced feed. Records should be maintained at both the manufacturing and the farm level on the origin of feedingstuffs and/or their ingredients, and the pattern of feeding, and the competent authority should verify that the above objectives are met.

Animals should not be fed feedingstuffs that:

- are recognised as likely to introduce zoonotic agents to the slaughter population; or
- contain chemical substances, (e.g., veterinary drugs, pesticides) or contaminants that could result in residues or contaminants in fresh meat at levels that render the product unsafe for human consumption.

27. The competent authority should implement appropriate legislation and controls governing the feeding of animal protein to animals where there is a likelihood of transmission of zoonotic agents, and this may include a ban on such feeding when justified by risk management. Any processed feedingstuff should be subject to appropriate microbiological and other criteria, e.g., negative for *Salmonella* spp. according to a specified sampling plan, and maximum limits for mycotoxins.

¹³ Partial evisceration usually only involves removal of the gastrointestinal tract, and this aides cooling

¹⁴ In the case of small wild game, the competent authority may allow full evisceration

¹⁵ *Ad hoc* Intergovernmental Codex Task Force on Animal Feeding; Revised proposed draft Code of Practice on Good Animal Feeding (CL 2001/36-AF and CL 2001/37-AF)

5.5 HYGIENE OF THE ENVIRONMENT

28. Primary production of food should not be undertaken in areas where the presence of hazards in the environment could lead to an unacceptable level of such hazards in fresh meat.

29. The competent authority should design and administer environmental monitoring and surveillance programmes as appropriate to the circumstances, e.g., where there has been extensive industrial pollution, or historical use of banned pesticides.

Control programmes with appropriate record keeping should be in place for:

- animal and plant pests that may compromise the production of fresh meat that is safe and suitable for human consumption;
- environmental contaminants that may result in levels in fresh meat that render the product unsafe for human consumption; and
- ensuring that water and other vehicles, e.g., fertilizer, are not significant vehicles for transmission of hazards.

Facilities and procedures should be in place to ensure that:

- housing, feeding platforms and other areas where zoonotic agents and other hazards may accumulate can be effectively cleaned, and are maintained in a sanitary condition (refer to Section 10);
- systems for active processing and/or disposal of dead animals and waste should not constitute a possible source of food-borne hazards to human and animal health; and
- chemical hazards required for technological reasons are stored in a manner so that they do not contaminate the environment or feedingstuffs.

5.6 TRANSPORT

5.6.1 Transport of slaughter animals

30. Transport of slaughter animals can have a significant impact on the safety and suitability of fresh meat.

Slaughter animals require transport facilities to the abattoir that ensure that:

- soiling and cross-contamination with faecal material is minimised;
- new hazards are not introduced during transport through other farming areas or territories;
- animal identification as to the place of origin is maintained; and
- due consideration is given to animal welfare and avoiding stress.

Transport vehicles should be designed and maintained so that:

- animals can be loaded and unloaded easily and with minimal risk of injury;
- animals of different species, and animals of the same species likely to cause injury to one another, are physically separated during transport;
- use of floor gratings, crates or similar devices limits soiling and cross-contamination with faecal material;
- where the vehicle has more than one deck, animals conveyed on a lower deck are protected by an impervious floor on the deck above;
- ventilation is adequate; and
- cleaning and disinfection is readily achieved (refer to Section 10).

31. Transport vehicles, and crates in the case of poultry, should be cleaned and if necessary disinfected as soon as practicable after animals have been unloaded at the abattoir.

5.6.2 Transport of wild game animals

32. Following dressing in the field, carcasses and other parts should be transported to a game depot or establishment without delay and in a manner that minimises contamination of edible parts. Vehicles used as part of a commercial wild game operation should be subject to relevant construction, operational and sanitation requirements applying to transport of fresh meat (refer to Section 8).

33. Unless otherwise due to ambient temperature, temperature should be actively reduced by refrigeration as quickly as possible after partial field dressing and transport.

6. PRESENTATION OF ANIMALS FOR SLAUGHTER

34. Every effort should be made to present animals for slaughter that are healthy and clean.

35. Ante-mortem inspection is an important pre-slaughter activity, and all relevant information on animals presented for slaughter should be continuously utilised in meat hygiene systems.

6.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO ANIMALS PRESENTED FOR SLAUGHTER

- i. Animals presented for slaughter should be sufficiently clean? so that they do not compromise hygienic slaughter and dressing.
- ii. The conditions of holding of animals presented for slaughter should minimise cross-contamination with food-borne pathogens and facilitate efficient slaughter and dressing.
- iii. Slaughter animals should be subjected to ante-mortem inspection, with the competent authority determining the procedures and tests to be used, how inspection is to be implemented, and the necessary competencies and training of personnel involved (including personnel employed by the establishment operator).
- iv. Ante-mortem inspection should be science- and risk-based as appropriate to the circumstances, and should take into account all relevant information from the level of primary production.
- v. Relevant information from primary production and results of ante-mortem inspection should be utilised in control of processing operations, preferably within the framework of HACCP (refer to Section 9).
- vi. The establishment operator and the competent authority should analyse and return information from ante mortem inspection to the primary producer as appropriate.

6.2 CONDITIONS OF LAIRAGE

36. Holding of animals presented for slaughter has an important effect on many aspects of slaughter and dressing and the production of fresh meat that is safe and suitable for human consumption. In particular, the cleanliness of animals has an important effect on the level of microbiological cross-contamination of the carcass and other edible parts during slaughter and dressing. Animals that are excessively soiled with faecal material and dirt have the potential to result in high cross-contamination rates of edible parts with enteric food-borne pathogens, e.g., *Salmonella* spp., *Campylobacter* spp. and *E. coli* O157:H7.

37. A range of measures may be applied to ensure that only animals that are sufficiently clean are slaughtered, e.g., manual washing by hosing, automated spray washes, swim washing. In the case of sheep, adequate drying of the fleece after washing may be an important determinant of the level of unseen microbiological cross-contamination from the fleece to the carcass during dressing.

38. QA systems implemented by the establishment operator will enhance achievement of appropriate conditions of lairage on an on-going basis.

The establishment operator should ensure conditions of lairage that include:

- facilities operated in a way that soiling and cross-contamination of animals with food-borne pathogens is minimised to the greatest extent practicable;

- holding of animals so that their physiological condition is not compromised and ante-mortem inspection can be effectively carried out, e.g., animals should be adequately rested and not overcrowded, protected from weather where necessary, and provided with water and feed where necessary;
- separation of different classes and types of slaughter animals as appropriate, e.g., sorting of animals by age so as to facilitate the efficiency of routine dressing, separation of animals with special dressing requirements, and separation of “suspects” that have been identified as having the potential to transfer specific food-borne pathogens to other animals (refer to 6.3);
- systems to ensure that only animals that are sufficiently clean (and dry, e.g., sheep) are slaughtered;
- systems to ensure that feed has been appropriately withdrawn before slaughter, e.g., before transport to the abattoir in the case of poultry;
- maintenance of identification of animals (either individually, or as lots, e.g., poultry) until the time of slaughter and dressing; and
- conveying of relevant information on individual animals or lots of animals to the inspector undertaking post-mortem inspection, e.g., information on “suspects”.

39. The competent authority should verify that all conditions of lairage that may impact on the safety and suitability of fresh meat are in accordance with regulatory requirements. In determining the frequency and intensity of verification activities, the competent authority should take into account QA systems properly implemented by the establishment operator.

6.3 ANTE-MORTEM INSPECTION

40. All animals presented for slaughter should be subjected to ante-mortem inspection, whether on an individual or a lot basis.¹⁶ Inspection should include verification that the animals are properly identified, are not sourced from a geographical area subject to public health quarantine, and are sufficiently clean so that they do not compromise hygienic slaughter and dressing.

41. Ante-mortem inspection supports post-mortem inspection and judgement by application of a specific range of procedures and/or tests that utilise the behaviour, demeanour and appearance of the live animal.¹⁷

42. Ante-mortem inspection should be preceded by screening of animals by the establishment operator upon their arrival at the abattoir. Where abnormalities in behaviour or appearance suggest that an individual animal or a consignment of animals should not be admitted to the lairage, the ante-mortem inspector should be immediately notified.

Admission of animals to the abattoir should be denied when:

- animals have died in transit;
- a contagious zoonotic disease is present, or suspected;
- an animal health disease subject to quarantine restrictions is present, or suspected;
- animal identification requirements are not met; or
- vendor declarations required by the competent authority (including compliance with good veterinary practice in the use animal medicines) are absent or inadequate.

Alternatively, animals may be admitted to the lairage under special hygiene controls imposed by the inspector, e.g., where return of a consignment of animals to their place of origin may increase the probability of spread of a disease, or exacerbate an existing animal welfare problem.

6.3.1 Design of ante-mortem inspection systems

43. Ante-mortem inspection should be included as an integral component of an overarching risk-based system for the production of fresh meat, with systems for control of processing operations (refer to Section

¹⁶ Exceptions may be made in emergency situations where prolonged delay of slaughter will result in unacceptable conditions of animal welfare

¹⁷ In the case of wild game killed in the field, ante-mortem inspection is replaced by gross evaluation of the carcass and available viscera before dressing commences

9) incorporating appropriate components. Relevant information on the slaughter population, e.g., animal class, health status, geographical region of origin, should be utilised in both the design and implementation of ante-mortem inspection systems.

44. Ante-mortem inspection procedures and tests should be established by the competent authority according to a science and risk-based approach. In the absence of a risk-based system, procedures will have to be based on current scientific knowledge and practice and it is probable that procedures of increased range and intensity will have to be applied to achieve required levels of consumer protection.

45. Where indicated by public health concerns, screening of individual animals by methods other than organoleptic inspection may be required, e.g., for chemical residues, BSE.

Characteristics of a risk-based ante-mortem inspection programme are:

- procedures for confirmation of proper animal identification in accordance with national legislation;
- design and application of organoleptic procedures and tests that are relevant and proportional to meat-borne risks associated with clinical signs of illness and grossly-detectable abnormalities;
- tailoring of procedures to the spectrum and prevalence of diseases and defects reasonably likely to be present in the slaughter population, taking into account the type of animal, geographical origin and primary production system;
- integration with HACCP-based processing operations to the extent practicable, e.g., application of objective criteria for ensuring appropriate cleanliness of animals presented for slaughter;
- on-going tailoring of procedures to information received from the farm on a lot-by-lot basis, where practicable;
- use of laboratory tests for hazards that are unaddressed by organoleptic examination when their presence is suspected in individual animals, e.g., chemical residues and contaminants; and
- return of information to the farm so as to seek continuous improvement in the safety and suitability status of animals presented for slaughter (refer to 6.4).

6.3.2 Implementation of ante-mortem inspection

46. The competent authority should determine how ante-mortem inspection is to be implemented, including identification of the components that may be applied at the farm rather than the abattoir, e.g., in the case of intensively-raised poultry.¹⁸ The competent authority should establish the training, knowledge, skills and ability requirements of personnel involved, including the role of the veterinary inspector and personnel not employed by the competent authority (refer to 9.2), with verification of inspection activities and judgements being undertaken as appropriate by the competent authority. The final responsibility for ensuring that all regulatory requirements are met should lie with the competent authority.

The responsibilities of the establishment operator in respect of ante-mortem inspection include:

- presentation of a certificate to the ante-mortem inspector stating that animals have passed ante-mortem inspection, when this has been carried out at the farm level;
- withholding of animals from ante-mortem inspection and slaughter if they are in an advanced stage of pregnancy, have recently given birth or have recently aborted;
- applying identification systems for individual animals or lots of animals until the time of slaughter that document the outcome of ante-mortem inspection, and after slaughter in the case of “suspect” animals;
- washing and re-presentation of animals judged to be insufficiently clean; and
- prompt removal of animals that have died in the lairage, e.g., from metabolic disease, stress, suffocation, with the permission of the ante-mortem inspector.

¹⁸ In some cases the competent authority may allow slaughter on the farm for particular classes of animal, e.g., delayed-evisceration poultry, farmed game, and in such cases the slaughter animals should be subject to ante-mortem inspection and other hygiene controls as determined by the competent authority

47. Ante-mortem inspection at the abattoir should occur as soon, as is practicable after delivery of slaughter animals. Only animals that are judged to be sufficiently rested should proceed to slaughter. Where there is an undue delay before slaughter, e.g., more than 24 hours, ante-mortem inspection should be repeated.

Ante-mortem inspection systems implemented by the competent authority should include the following:

- all relevant information from the level of primary production should be taken into account on an on-going basis, e.g., vendor declarations relating to the use of veterinary drugs, information from official hazard control programmes;
- animals suspected as being unsafe or unsuitable for human consumption should be identified as such and handled separately from normal animals (refer to 6.2 and 8.2);
- if an inspector judges that a suspect animal can proceed to slaughter under special hygiene conditions, the results of ante-mortem inspection should be made available to the post-mortem inspector so as to augment final judgement;
- in more equivocal situations, the ante-mortem inspector may hold the animal (or lot) in special facilities for more detailed examination, diagnostic tests, and/or treatment;
- animals condemned as unsafe or unsuitable for human consumption should be immediately identified as such and handled in a manner that does not result in cross-contamination of food-borne hazards to other animals (refer to 8.2); and
- the reason for condemnation should be recorded, with confirmatory laboratory tests being carried out if deemed necessary.

48. Slaughter of animals under an official or officially-recognised programme for the eradication or control of a specific zoonotic disease, e.g., salmonellosis, should only be carried out under the hygiene conditions specified by the competent authority.

6.3.3 Judgement categories

49. Diseases, defects and other conditions that may result in an animal, or edible parts of an animal, being judged as unsafe or unsuitable for human consumption are presented in Appendix II.

Judgement categories include:

- passed for slaughter;
- passed for slaughter after an additional holding period, e.g., when animals are insufficiently rested, or are temporarily affected by a physiological or metabolic condition;
- passed for slaughter under special conditions i.e. deferred slaughter as “suspects”, where the inspector suspects that post-mortem inspection findings could result in partial or total condemnation;
- condemned for public health reasons i.e. due to: meat-borne hazards, occupational health hazards, or likelihood of unacceptable contamination of the slaughter and dressing environment following slaughter¹⁹ (refer to Appendix II);
- condemned for meat suitability reasons²⁰ (refer to Appendix II);
- emergency slaughter for animal welfare reasons;²¹
- emergency slaughter, when an animal eligible for being passed under special conditions could deteriorate if there was a delay in slaughter, e.g., hypomagnesaemia in cattle; and
- condemned for animal health reasons, as specified in relevant national legislation, and disposed of accordingly.

¹⁹ The inspector may judge, after post-mortem inspection in special facilities, that edible parts of the animal can be salvaged for a particular purpose e.g. pet-food

²⁰ Exceptions may be made in emergency situations where prolonged delay of slaughter will result in unacceptable conditions of animal welfare

²¹ Exceptions may be made in emergency situations where prolonged delay of slaughter will result in unacceptable conditions of animal welfare

6.4 INFORMATION ON PRE-SLAUGHTER ANIMALS

50. Comprehensive knowledge on animals presented for slaughter is an important determinant of optimal slaughter and dressing procedures and is a prerequisite for effective design and implementation of processing operations by the establishment operator. Further, competent authorities should analyse relevant information and take it into account when setting hygiene requirements for risk-based hygiene systems throughout the entire food chain, including the formulation of FSOs (refer to 9.2).

51. The competent authority may require monitoring of animals presented for slaughter to establish baseline information on the prevalence of hazards in the slaughter population, e.g., specified meat-borne pathogens, chemical residues greater than maximum residue limits. The competent authority should design and implement these monitoring activities according to national public health goals. Scientific analysis and dissemination of results to interested parties is the responsibility of the competent authority.

So as to facilitate throughout the entire food chain risk-based meat hygiene, systems should be in place that provide:

- on-going information on animals presented for slaughter for incorporation into HACCP plans and QA programmes that are part of processing operations;
- information back to the farm on the safety and suitability status of animals presented for slaughter, for incorporation into QA programmes as appropriate; and
- information to the competent authority that facilitates on-going review of risk-based meat hygiene systems.

7. PRESENTATION OF WILD GAME FOR DRESSING

52. Killed wild game presented at an establishment have generally been subject to different hygienic practice compared to animals presented for slaughter. In lieu of ante-mortem inspection, wild game should undergo an appropriate evaluation before dressing and full post-mortem inspection commences, so as to prevent undue contamination of the dressing environment and wastage of resources.

7.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO EVALUATION OF WILD GAME PRESENTED FOR DRESSING

- i. Animals should be sufficiently clean so that they do not compromise hygienic dressing.
- ii. Evaluation of the animals for safety and suitability prior to dressing should be risk-based to the extent practicable, and should take into account relevant information available from the field.

7.2 EVALUATION OF WILD GAME PRESENTED FOR DRESSING

53. The evaluation should determine to the extent possible whether hygienic practice for field-harvested animals has been appropriately applied, including an assessment of cleanliness sufficient for hygienic dressing. Special measures required by the competent authority to facilitate post-mortem inspection, e.g., correct identification and attachment of viscera separated from the carcass (refer to 5.3), will need to be verified at this time.

54. The evaluation should take into account any information available from harvesting in the field, e.g., presence of abnormalities at the time of death, geographical location. Where practicable, the results should be returned to hunters or other people involved in harvesting of wild game so as to improve their knowledge of meat hygiene.

55. Evaluation of wild game for safety and suitability prior to dressing should be risk-based to the extent practicable, given that the entire animal may not be presented for dressing, e.g., the gastrointestinal tract of large wild game will most likely have been discarded in the field. Evaluation procedures prior to dressing and full post-mortem inspection will be necessarily limited in nature and should generally be focused on detecting abnormalities intrinsic to field harvesting of wild game, e.g., signs of natural death or the animal being moribund at the time of death, decomposition, and any evidence of intoxication with poisons or environmental

contaminants. Systems for the implementation of evaluation procedures and judgements should be based on those used for ante-mortem inspection of other classes of animals (refer to 6.3).

56. Identification of the carcass of an animal with other parts required for post-mortem inspection should be maintained up to and including dressing, without removal of any tissues required for post-mortem inspection.

8. ESTABLISHMENTS: DESIGN, FACILITIES AND EQUIPMENT

57. The principles and guidelines presented in this section are supplemental to the objectives and guidelines in Section IV of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

58. The competent authority should allow variations in the design and construction of game depots and establishments processing wild game, and their facilities, where they are by necessity impermanent, as long as meat hygiene is not compromised.

8.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO ESTABLISHMENTS, FACILITIES AND EQUIPMENT

- i. Establishments should be located, designed and constructed so that contamination of fresh meat is minimised to the greatest extent practicable.
- ii. Facilities and equipment should be designed, constructed and maintained so that contamination of fresh meat is minimised to the greatest extent practicable.
- iii. Facilities and equipment that are in direct contact with edible parts of animals and meat should be designed and constructed so that there can be effective monitoring of their hygiene status as part of sanitation standard operating procedures (SSOPs) and HACCP plans.
- iv. Suitable equipment should be available for control of temperature, humidity and other factors as appropriate to the particular processing system for fresh meat.
- v. Water should be potable except where water of a different standard can be used without leading to contamination of fresh meat.
- vi. The design of establishments and their contents should facilitate the hygiene activities of the establishment operator and the competent authority.

8.2 DESIGN AND CONSTRUCTION OF LAIRAGES

59. Lairages should be designed and constructed so that they do not lead to undue cross-contamination of fresh meat because of soiling of the external surfaces of the animal, do not adversely affect the suitability of fresh meat, and do not compromise animal welfare.

60. Lairages should include appropriate layout and facilities for washing (and drying) of animals that are not sufficiently clean for slaughter.

Lairages should be designed and constructed so that:

- animals can be held without overcrowding or injury, and are not exposed to climatic stress;²²
- pens and races facilitate ante-mortem inspection;
- floors are paved or slatted and allow good drainage;
- there is an adequate supply and reticulation of clean water for drinking and for sanitation, and facilities are provided for feeding where necessary;
- there is a physical separation between lairages and areas of an abattoir where edible material may be present;

²²

In the case of poultry and farmed game birds, facilities should be available to park transport vehicles in areas that are well ventilated, and are protected from direct sunlight, inclement weather and extremes of temperature

- “Suspect” animals can be segregated and examined in separate areas.²³ These areas should include facilities that are capable of secure holding of “suspect” animals pending slaughter under supervision, and should have separate and contained drainage; and
- there is an adjacent area with adequate facilities for cleaning and disinfection of transport vehicles and crates, unless there are facilities within close distance that are approved by the competent authority.

61. Except in the case of poultry and farmed game birds, special facilities are required for separate slaughter of “suspect”, condemned or injured animals.

Facilities for separate slaughter of “suspect”, condemned or injured animals should be:

- separate from the lairage and used solely for the above purpose;
- easily accessed from pens containing “suspect” or injured animals;
- secure;
- constructed with suitable facilities for hygienic storage of parts derived from “suspect” or injured animals;
- constructed so that all parts, gut contents and faeces from condemned animals can be held under secure containment as appropriate to the circumstances; and
- constructed and equipped so as to facilitate effective cleaning and disinfection (refer to Section 10).

8.3 DESIGN AND CONSTRUCTION OF SLAUGHTER AREAS

62. Stunning and slaughter areas should be separated from all other areas (either physically or by distance), including bleeding areas, so that cross-contamination of all edible parts of animals is minimised.

63. Areas for scalding, dehairing, defeathering, scraping and singeing (or similar operations) should be appropriately separated from dressing areas.

64. Where slaughter lines are operated, they should be designed so that there is constant progress of animals in a manner that does not cause cross-contamination.

8.4 DESIGN AND CONSTRUCTION OF AREAS WHERE MEAT MAY BE PRESENT

65. All areas and facilities where meat may be present should be designed and constructed so that they allow GHP,²⁴ and contamination of meat is minimised to the greatest extent practicable.

Rooms and other areas in which meat may be present should be designed and constructed so that:

- cross-contamination during processing runs is minimised to the greatest extent practicable;
- effective cleaning, disinfection and maintenance can be carried out during and between processing runs; (refer to Section 10)
- floors in areas where water is present should slope sufficiently to grilled or otherwise protected outlets so as to ensure continual drainage;
- angles between adjoining walls should be covered in areas where there is the potential for build-up of dirt and other contaminants;
- doors that service rooms where meat is present should provide a secure boundary;
- chutes separately conveying different parts of animals are fitted with inspection and cleaning hatches where these are necessary for sanitation.
- separate rooms are used for:
 - skin-on dressing of pigs or other animals, when other classes of animals are being dressed at the same time

²³ In the case of poultry and farmed game birds, “suspect” birds are usually slaughtered on the slaughter line under special hygiene provisions

²⁴ Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1 - 1969, Rev. 3-1997)

emptying and cleansing of alimentary tracts, and further preparation of clean alimentary tracts, unless such separation is deemed unnecessary by the competent authority
handling of meat and inedible parts of animals after they have been so designated, unless these products are otherwise separated by time or distance
storage of inedible animal parts such as hides, horns, hooves, feathers and inedible fats

- there is adequate natural or artificial lighting for hygienic control of processing operations, as prescribed by the competent authority;
- there are appropriate facilities for the preparation and storage of edible fats;
- access and harbouring of pests is prevented; and
- adequate facilities are provided for secure storage of chemicals, (e.g., cleaning materials, lubricants, branding inks) and other hazardous substances so as to prevent accidental contamination of meat.

66. Appropriately designed and insulated rooms should be available for cooling, refrigeration and freezing of meat.

Establishments that de-bone or otherwise cut up meat should have for this purpose:

- facilities that allow constant progress of operations or that ensure separation between different production batches;
- a room or rooms, physically separated from other rooms, capable of being temperature-controlled; and
- separation of the boning, cutting and primary wrapping area from the packaging area, unless hygiene measures are in place to ensure that packaging does not contaminate meat.

67. Drainage and waste disposal systems should not be a source of contamination of meat, the potable water supply or the processing environment. All lines should be watertight and adequately trapped and vented, with catch basins, traps and sumps that are isolated from any area where meat may be present.

68. Each establishment should have appropriate facilities and equipment for competent authority personnel.

69. Establishments should have an appropriate area, sufficiently protected from environmental contamination, for dispatching fresh meat.

8.5 DESIGN AND CONSTRUCTION OF EQUIPMENT WHERE MEAT MAY BE PRESENT

70. All equipment used in areas where meat may be present should facilitate GHP. Equipment and containers in rooms and other areas where meat may be present should be designed and constructed so that cross-contamination is minimised. Meat should not be allowed to contact the floor and walls, or fixed structures not designed for such contact.

71. Where slaughter lines are operated, they should be designed so that there is constant progress of carcasses and other animal parts, in a manner that prevents cross-contamination between different parts of the slaughter line and between different slaughter lines.

72. All rooms and other areas in which meat may be present should be equipped with adequate facilities for washing hands, and should be equipped with adequate facilities for cleaning and disinfection of implements (refer to Section 10).

Facilities for cleaning and disinfection of equipment should:

- be used solely for this purpose and be designed to effectively clean and disinfect the particular equipment;
- be located convenient to work stations; and
- have waste water lines ducted to drains.

73. Equipment and implements for use with inedible or condemned parts of animals should be distinctively identified.

74. Establishments should be provided with adequate means of natural or mechanical ventilation so as to prevent excessive heat, humidity and condensation, and ensure that air is not contaminated with odours, dust or smoke.

Ventilation systems should be designed and constructed so that:

- air-borne contamination from aerosols and condensation droplets is minimised;
- ambient temperatures, humidity and odours are controlled; and
- air flow from contaminated areas, (e.g., slaughter and dressing areas) to clean areas, (e.g., chilling floors for carcasses) is minimised.

8.6 WATER SUPPLY

75. Establishments involved in the production of fresh meat usually have high demands for potable water. Adequate facilities must be provided for monitoring and maintaining potability, storage, temperature control and distribution of water.

Equipment should be installed that provides:

- an adequate and easily accessible supply of hot and cold potable water at all times;
- hot potable water heated to at least 82° C for the purposes of disinfecting equipment, unless an equivalent sanitation system is available;
- potable water at an appropriate temperature for hand-washing; and
- cold or warm sanitising solution of acceptable concentration, supplied as and where necessary;

76. Where non-potable water is supplied for various uses e.g., fire fighting, steam production, refrigeration, reticulation systems should be designed so that the non-potable supply is completely separate from the potable water supply and there is no possibility of back siphoning.

8.7 TEMPERATURE CONTROL

77. In the absence of suitable temperature, humidity and other environmental controls, meat is particularly vulnerable to survival and growth of pathogens and spoilage micro-organisms.

78. Facilities and equipment should be adequate for:

- Cooling, refrigeration and/or freezing of meat according to written specifications for control of processing operations;
- Storage of chilled and frozen fresh meat at required temperatures;
- Monitoring of temperature, humidity, air flow and other environmental factors so as to assure that process control regimes are achieved.

8.8 FACILITIES AND EQUIPMENT FOR PERSONAL HYGIENE

79. Slaughter, dressing and further handling of animals and animal parts present many opportunities for cross-contamination of meat by food handlers (refer to Section 11). Appropriate personal hygiene facilities are needed so that there is not undue cross-contamination of fresh meat from this source.

Facilities for personal hygiene should include:

- changing rooms, showers, flush toilets, hand-washing and hand-drying facilities, and separate areas for eating; and
- protective clothing such that it prevents accumulation of contaminants and allows effective cleaning.

All areas in which meat may be present should be equipped with adequate facilities for washing hands that:

- are located convenient to work stations;

- have taps that are not operable by hand;
- supply warm water, and are fitted with dispensers for liquid soap or other hand cleansing agents;
- include hand drying equipment where necessary, and receptacles for discarded paper towels; and
- have waste water lines ducted to drains.

8.9 FACILITIES FOR CONTROL OF PROCESSING OPERATIONS

80. The hygiene activities of the establishment and the competent authority should be supported by suitable establishment layout, and provision of appropriate facilities and equipment.

81. Separate amenities should be provided for persons engaged in meat hygiene activities in abattoirs, including adequate facilities for personal hygiene (refer Section 11). In establishments where animals are not slaughtered and dressed, e.g., cutting establishments, amenities may be located nearby as long as they provide for appropriate personal hygiene.

82. Laboratory facilities necessary to support meat hygiene activities may be part of the establishment or provided at a separate location.

8.10 TRANSPORT VEHICLES

Vehicles or shipping containers in which fresh meat is transported should:

- be designed and equipped so that the product does not contact the floor;
- have joint and door seals that prevent entry of all sources of contamination; and
- be equipped so that temperature control and humidity can be appropriately maintained and monitored.

9. CONTROL OF PROCESSING OPERATIONS

83. An extensive range of hazards are associated with fresh meat and these may arise from animal reservoirs, e.g., *Salmonella* spp. and *E. coli* O157:H7, the processing environment, e.g., *Listeria monocytogenes* and *Clostridium perfringens*, and from food handlers themselves, e.g., *Staphylococcus aureus* and hepatitis viruses. Effective control of processing operations, that include both GHP and HACCP, is necessary to produce fresh meat that is safe and suitable for human consumption.

84. The principles and guidelines presented in this section should satisfy the general objectives and guidelines in Section V of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997). In addition, the section also presents considerable additional new material relating to the control of processing operations for fresh meat.

85. Many aspects of slaughter and dressing procedures have the potential to result in significant contamination of fresh meat, e.g., hide/feather removal, evisceration, carcass washing, post-mortem inspection, trimming, and further handling in the cold chain. Systems for control of processing operations should limit microbial cross-contamination in these circumstances to as low a practicable level as possible, and reflect the proportional contribution of these controls in reducing meat-borne risks to human health.

9.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO CONTROL OF PROCESSING OPERATIONS

- i. Production of fresh meat that is safe and suitable for human consumption requires that detailed attention be paid to the design, implementation, monitoring and review of all processing operations.
- ii. The establishment operator has the primary responsibility for implementing systems for process control. Where such systems are applied, the competent authority should verify that they achieve all meat hygiene requirements on an on-going basis.
- iii. All processing operations should limit the level of unseen microbiological contamination to the lowest level possible and practicable.
- iv. HACCP should be applied wherever practicable as the system of choice for process control, and should be supported by prerequisite GHP that includes SSOPs.

- v. Process control should reflect an integrated strategy for control of hazards throughout the food chain, with information available from the farm and pre-slaughter being taken into account wherever possible and practicable.
- vi. All animals should be subjected to post-mortem inspection that is science- and risk-based, and is tailored to the hazards that are reasonably likely to be present in the animals presented for inspection.²⁵
- vii. The competent authority should determine the procedures and tests to be used in post-mortem inspection, how that inspection is to be implemented, and the necessary competencies and training of personnel involved (including personnel employed by the establishment operator).
- viii. Post-mortem inspection should take into account all relevant information from primary production, and from official or officially-recognised hazard control programmes.
- ix. Post-mortem judgement of edible parts of animals should be based on: food-borne risks to human health, other human health risks, e.g., from occupational exposure or handling of fresh meat in the home, food-borne risks to animal health as specified in relevant national legislation, and suitability characteristics.
- x. [FSOs and performance parameters] for the outcome of microbiological process control and post-mortem inspection activities should be established wherever practicable, and should be subject to ongoing verification by the competent authority.
- xi. Competent bodies or competent persons may be employed by the establishment operator to undertake prescribed process control activities, including post-mortem inspection.²⁶
- xii. QA systems should be implemented by the establishment operator where they can enhance meat hygiene activities, and they may be taken into account in the verification of regulatory requirements by the competent authority.

9.2 SYSTEMS FOR CONTROL OF PROCESSING OPERATIONS

86. Effective control of processing operations requires design and implementation of appropriate systems. Industry has the primary responsibility for applying and supervising process control systems to ensure the safety and suitability of fresh meat, and these should incorporate prerequisite GHP and HACCP plans as appropriate to the circumstances. Post-mortem inspection is a particular aspect of control of processing operations, and different components may be carried out by the industry and/or the competent authority (refer to 9.2.5).

87. A documented process control system should describe the meat hygiene activities applied (including any sampling procedures), performance parameters (if set), verification activities, and corrective and preventative actions.

88. Competent bodies or competent persons suitably recognised by the competent authority may be employed by the establishment operator to undertake prescribed process control activities, including post-mortem inspection. These activities should be part of HACCP or QA systems as appropriate to the circumstances.

89. Systems for control of processing operations relating to food safety should incorporate a risk-based approach. Application of HACCP principles in the design and implementation of process control systems should be according to The Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application (CAC/RCP 1-1969, Rev. 3 1997). The Guidelines for the Design, Operation, Assessment and Accreditation of Food Import and Export Inspection and Certification Systems (CAC/GL 26-1997) provide general requirements for control of operations for food as they relate to international trade.

²⁵ Where risk assessment capability is not available, post-mortem inspection carried out according to current scientific knowledge and practice should be capable of achieving the level of consumer protection required

²⁶ Officially recognised inspection systems and officially recognised certification systems are systems which have been formally approved by the government agency having jurisdiction (CAC/GL 20 - 1995)

9.2.1 Sanitation Standard Operating Procedures (SSOPs)

90. Pre-operational and operational SSOPs should minimise direct and indirect contamination of fresh meat to the greatest extent possible and practicable. A properly implemented SSOP system should ensure that facilities and equipment are clean and sanitised prior to start of operations, and appropriate hygiene is maintained during operations.

Characteristics of SSOPs are:

- initial supply of SSOP templates by the competent authority, which include minimum regulatory requirements for general sanitation;
- development of a written SSOP programme by the establishment that describes the procedures involved and the frequency of application;
- identification of establishment personnel responsible for implementing and monitoring SSOPs;
- documentation of monitoring any corrective and/or preventative actions taken, which is made available to the competent authority for purposes of verification;
- corrective actions that include appropriate disposition of product; and
- periodic re-evaluation of the effectiveness of the system by the establishment operator.

91. Microbiological verification of SSOPs can utilise a range of methods, e.g., direct methods for estimating aerobic plate counts (results available in one to two days), indirect methods using ATP bioluminescence (results immediately available). Establishment operators should use statistical process control or other methods to monitor sanitation trends.

9.2.2 Microbiological criteria

92. Microbiological criteria may be used in some circumstances to support process control systems for fresh meat. A microbiological criterion defines the acceptability of a process or product lot based on the presence/absence or number of microbes, and/or the quantity of their toxins or metabolites according to a specified sampling plan.²⁷ Both pathogens and indicators can be used.

93. Where a microbiological criterion is used as a guideline, e.g., in support of visual monitoring of SSOPs, the competent authority may apply regulatory sanctions if there is a significant level of non-performance.

9.2.3 HACCP

94. HACCP systems for production of fresh meat are a proactive means of process control for food safety purposes, and the principles and guidelines for application include validation and verification.²⁸ Validation of a HACCP plan for fresh meat should ensure that it is effective in meeting food safety goals (refer 9.2.4), taking into account the degree of variability in presence of hazards that is normally associated with different lots of animals presented for processing.

95. Verification frequency by the competent authority may vary according to the operational aspects of process control, the historical performance of the establishment in application of the HACCP plan, and the results of verification itself. In some situations, the competent authority may choose to approve HACCP plans so as to facilitate achievement of regulatory objectives.

96. Although HACCP plans are generally limited to food safety, HACCP principles may be used to design process control systems for food suitability. Process control systems for suitability characteristics should utilise overarching QA systems to the extent practicable (refer to 9.2.6).

9.2.4 Performance parameters for outcomes of process control

97. Verification of adequate control of processing operations is greatly enhanced by establishment of performance parameters for the outcome of specified activities. In achieving performance parameters on an

²⁷ Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL -1997)

²⁸ Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application, (Annex to CAC/RCP 1-1969, Rev. 3-1997)

on-going basis, industry can readily demonstrate adequate process control for both safety and suitability characteristics of fresh meat.

98. The establishment should have a documented process control system for implementing corrective and planned actions that will allow it to consistently meet performance parameters. Process review and any other corrective actions required as a result of non-compliance with performance parameters should be properly recorded. The competent authority should implement a system for collecting and analysing results from all establishments to the greatest extent possible, and periodically review process control trends in relation to national meat hygiene goals.

99. Performance parameters can initially be established from baseline surveys of current performance, and can be altered as appropriate to reflect regulatory policy. Where possible, performance parameters for food safety characteristics of fresh meat should be derived from FSOs that objectively express the level of hazard control that should be achieved by the process control system (see below). Performance parameters for suitability characteristics of fresh meat should be capable of demonstrating that conditions other than those affecting safety are removed from the fresh meat supply to a degree that is practically achievable and reflects consumer expectations.

100. In some circumstances, the competent authority may utilise performance parameters as regulatory guidelines or standards (refer to 9.2.5).

Performance parameters for outcomes of process control systems act to:

- facilitate validation of process control systems;
- facilitate derivation of performance and process criteria at various steps in the food production system;
- allow maximum flexibility and technical innovation in the way the establishment operator achieves the required level of performance;
- facilitate industry-wide consistency in performance;
- provide an objective basis for outcome-driven regulatory guidelines and standards, e.g., statistical process control requirements, prevalence of *Salmonella* spp.; and
- provide a means to improve meat hygiene outcomes over time.

101. A working definition of a FSO is “the maximum frequency and/or concentration of a [microbiological] hazard in a food at the time of consumption that provides the appropriate level of health protection [(ALOP)]²⁹”. Setting the FSO will generally be the task of the competent authority. Although a FSO is primarily set at the point of consumption of the fresh meat product, performance and process parameters derived from a FSO can be set at any step in the processing system.

102. Where performance parameters derived from FSOs are established as regulatory guidelines or standards, explanation of the linkage to an appropriate level of consumer protection should be provided, e.g., guidelines for allowable levels of generic *E. coli*, standards for absence of *E. coli* O157:H7, maximum residue limits for chemicals with acute toxicity. Organoleptic performance parameters that are “reflective” of a FSO may also be established as regulatory guidelines or standards, e.g., “zero tolerance” for visible faecal contamination on carcasses.

FSOs allow:

- objective validation of HACCP plans;
- derivation of performance and process parameters that are risk-based;
- tightening of hazard control over time so as to improve the level of consumer protection; and
- objective determination of the equivalence of sanitary measures.

103. Performance parameters for outcomes of process control may be an inadequate means to achieve the required level of consumer protection against hazards of concern, e.g., BSE, and the competent authority may need to implement special procedures and tests to achieve FSOs, e.g., laboratory diagnostic testing of

²⁹ Draft Working Principles for Microbiological Risk Management (CX/FH 01/7 and ALINORM 03/13 para. 123)

brains from all animals showing nervous symptoms at ante-mortem inspection, routine condemnation of “specified risk materials”, and prohibition of mechanically-recovered meat in regions where BSE has been found in slaughter populations. Specific measures such as this should be implemented on the basis of risk assessment and full consideration of the effectiveness of all available risk management options³⁰.

9.2.5 Regulatory systems

104. The competent authority should have the legal power to set and enforce regulatory meat hygiene requirements, and has the final responsibility for ensuring that all regulatory requirements are met. The competent authority has four essential functions in respect of process control:

- i. Establish regulatory requirements, and competencies of personnel (generally at a national level).
- ii. Implement meat hygiene controls where they are designated to be the direct responsibility of the competent authority, e.g., official sampling programmes, ante- and post-mortem inspection, and provide appropriate verification.³¹
- iii. Verify that process control systems implemented by the establishment operator meet regulatory requirements on an on-going basis i.e. GHP, SSOPs, HACCP.
- iv. Carry out enforcement actions as necessary.

The competent authority should verify continuous compliance with:

- GHP requirements for: animals presented for slaughter (and wild game presented for dressing), establishments, facilities and equipment, processing operations, transport, and hygiene of personnel;
- SSOPs;
- HACCP plans;
- all regulatory requirements relating to ante- and post-mortem inspection;
- performance and process parameters that are regulatory guidelines or standards, e.g., microbiological statistical process control requirements, standards for *Salmonella* spp.
- FSOs where applicable;
- chemical residue and contaminant levels that are below maximum limits as described in relevant legislation and national sampling plans;
- official or “officially-recognised” zoonoses control programmes, e.g., microbiological tests for *E. coli* O157:H7; and
- hygiene requirements for “specified risk materials”, e.g., removal of tissues that may constitute a risk of transmission of spongiform encephalopathies.

105. Verification activities may include oversight of processing activities carried out by establishment personnel, documentary checks, organoleptic examination of edible parts of animals and meat, and taking of samples for laboratory tests. [Registration/listing] of an establishment may facilitate the ability of the competent authority to ensure that it is operating in compliance with regulatory requirements.

106. The competent authority should ensure appropriate supervision of the verification activities that it carries out, and the nature and intensity of that supervision should be risk-based. The veterinary inspector who has overall responsibility for supervision of meat hygiene in an establishment should ensure that all verification activities undertaken by the competent authority have been carried out as required, and will likely employ additional documentary checks, procedures and tests in this role. Rules governing the presence of the veterinary inspector during ante- and post-mortem inspection, and during processing, cutting, and storage of fresh meat, should be determined by the competent authority in relation to deployment of

³⁰ Bovine spongiform encephalopathy. Chapter 2.3.13. International Animal Health Code - 2000. Office International des Epizooties

³¹ Verification by the competent authority is the continual review of the establishment operators' control of processing operations to ensure that regulatory requirements are met, including requirements for appropriate corrective and preventative actions

other competent persons, and in relation to potential risks to human health associated with the classes of animals and fresh meat involved.

107. A national meat hygiene programme should be subject to audit by the competent authority that is additional to routine verification at the individual establishment level.

Where the premises operator does not comply with regulatory requirements, the competent authority should carry out enforcement actions that include:

- slowing of production while regaining adequate process control;
- stopping production, and withdrawing certification for meat deemed to be unsafe or unsuitable for its intended use;
- withdrawing inspection personnel employed by the competent authority;
- ordering specified treatment, recall or destruction of fresh meat; and
- withdrawing [registration/listing] of the establishment if process control systems are invalid or repeatedly non-compliant.

108. “Risk-based” process control systems programmes require an appropriate regulatory framework for risk assessment and risk management, especially when process control systems extend from “farm-to-plate”.³² Risk communication that includes appropriate consultation between the competent authority and all interested parties should be recognised as a vital component.

9.2.6 Quality assurance (QA) systems

109. Competent authorities should encourage and co-ordinate voluntary, industry-driven QA systems throughout the “farm-to-plate” continuum.

110. Wherever possible and practical, the establishment operator should implement QA systems so as to improve the effectiveness and efficiency of meat hygiene. QA systems operate through implementation of documented procedures and practices, and can provide an additional assurance by the establishment operator that process controls are in place and working correctly.

111. Competent bodies or competent persons suitably recognised by the competent authority may be employed by the establishment operator to undertake prescribed meat hygiene activities within an overarching QA system. These alternative systems for carrying out meat hygiene activities should include:

- personnel that meet competency and training requirements established by the competent authority;
- HACCP plans for control of meat-borne hazards;
- performance parameters for safety and suitability characteristics of fresh meat; and
- verification of process control activities by the competent authority.

112. Competent authorities should take the contribution of such systems into account during on-going verification of regulatory requirements, [and this may include official recognition of a QA system].

[QA systems implemented by the establishment operator may be officially recognised by the competent authority³³ and in such circumstances:

- official recognition can be achieved by an assessment of the system by the competent authority, or an officially-recognised competent body, that shows that the QA system meets specified criteria;
- where another party is granted the status of an officially-recognised assessment body, the competent authority should apply specified criteria and make that party subject to official verification procedures;
- there may be a reduced frequency of verification activities by the competent authority when the QA system consistently demonstrates compliance with regulatory requirements; and

³² Proposed Draft Working Principles for Risk Analysis (CX/GP 02/3)

³³ Proposed Draft Guidelines for the Utilisation of Quality Assurance Systems to Meet Requirements in Relation to Food (CX/FICS 02/6)

- there should be a regulatory policy that suitably addresses non-performance and/or non-compliance of the QA system].

9.2.7 Equivalence

113. Equivalence is the state wherein hygiene measures applied in an exporting country, though different from the hygiene measures applied in an importing country, achieve, as demonstrated by the exporting country, the importing country's appropriate level of consumer protection.³⁴ Regulatory systems that are risk-based and that utilise FSOs as the basis for establishing performance and process parameters can take maximum advantage from application of the principle of equivalence.

114. Where equivalence agreements have been entered into on a bilateral or multilateral basis,³⁵ particular regulatory systems may be required, e.g., the necessity to [register/list] all establishments that have been shown to be in compliance with equivalent measures, and specific verification of the equivalent measures.

115. Where alternative systems for delivery of process control are being trialed in the field before final implementation, the product involved should be eligible for routine certification if required meat hygiene outcomes can be scientifically demonstrated from preliminary trial results.

9.3 GENERAL HYGIENE REQUIREMENTS FOR ALL PROCESSING OPERATIONS

116. Control of processing operations should meet the general hygiene requirements of the Recommended International Code of Practice: General Principles of Food Hygiene.³⁶

General hygiene requirements for processing operations should include:

- water for cleaning and disinfecting of a standard that is appropriate for the specific purpose, and used in a manner that does not directly or indirectly contaminate meat;
- cleaning of facilities and equipment that involves disassembly where necessary, removal of all debris, rinsing of parts, application of an approved cleaner, repeat rinsing, reassembly, and further sanitisation and rinsing as appropriate;
- handling and storage of containers and equipment in a way that minimises the potential for contamination of meat;
- assembly of containers or cartons in rooms or areas where meat may be present in such a manner that there is minimal possibility of contamination; and
- controlled access of personnel to processing areas.

117. The competent authority and industry should have access to government laboratories and/or appropriately accredited commercial laboratories when verifying process control and carrying out other meat hygiene activities. Testing of animal or environmental samples should utilise validated analytical methods.³⁷

Laboratory testing may be required for:

- microbiological verification of process control (refer to 9.2.5);
- verification of microbiological performance standards (refer to 9.2.5);
- national residue monitoring plans;
- diagnosis of disease conditions affecting individual animals; and
- official programmes for monitoring of zoonoses.

³⁴ Proposed Draft Guidelines on the Judgement of Equivalence of Sanitary Measures Associated with Food Inspection and Certification Systems.(ALINORM 01/30A, Appendix III)

³⁵ Guidelines for the Establishment of Equivalence Agreements Regarding Food Import and Export Inspection and Certification Systems (CAC/GL 34-1999)

³⁶ Note that general requirements for control of incoming materials, use of water, packaging, documentation and records, and recall procedures are described in the recommended international code of practice: general principles of food hygiene (CAC/RCP 1 - 1969, Rev. 3 1997)

³⁷ Guidelines for the assessment of the competence of testing laboratories involved in the Import and Export Control of Food (CAC/GL 27-1997)

9.4 HYGIENE REQUIREMENTS FOR SLAUGHTER AND DRESSING

118. Only live animals intended for slaughter should be brought into an abattoir, with the exception of animals that have undergone emergency slaughter outside the slaughterhouse and have appropriate veterinary documentation.

119. No animal other than an animal for slaughter should enter an establishment other than an abattoir. In the latter case, animals used for transport or for stock handling should not enter areas other than lairages.

120. Except under emergency slaughter provisions, an animal should only be slaughtered or dressed in an abattoir if an inspector is present. All animals brought to the slaughter floor should be slaughtered without delay, and stunning, sticking and bleeding of animals should not proceed at a rate faster than that at which carcasses can be accepted for dressing.

During initial dressing operations:

- slaughtered animals that are scalded, flamed or similarly treated should be scoured of all bristles, hair, scurf and dirt;
- the trachea and oesophagus should remain intact during bleeding, except in the case of ritual slaughter;
- bleeding should be as complete as possible; if blood is intended for food, it should be collected and handled in a hygienic manner;
- where the tongue is dropped, it should be done in such a way that the tonsils are not cut;
- skinning of the head should not be required in the case of calves, sheep and goats, provided that heads are handled in such a way as to avoid undue contamination of meat;
- before the removal from the head of any parts intended for human consumption, the head should be clean and, except in the case of scalded and dehaired carcasses, skinned to sufficient extent to facilitate inspection and the hygienic removal of specified parts;
- lactating or obviously-diseased udders should be removed from carcasses at the earliest opportunity;
- udder contents should not be allowed to contaminate the carcass, and procedures for removal of udders should ensure this;
- gas deskinning (pumping of air or gas between the skin and the carcass to facilitate skinning) should only be permitted if it can meet required microbiological and organoleptic performance parameters; and
- hides/fleeces should not be washed, de-fleshed or left to accumulate in any part of an abattoir or establishment that is used for slaughter or dressing.

121. Because of the special nature of dressing of poultry and farmed game birds, the de-feathered animal can only be effectively cleaned of dust, feathers and other contaminants by the application of potable water. Washing of the carcasses of these animals at multiple steps in the dressing process, and as soon as possible after each contaminating step, reduces the adherence of bacteria to the skin and in this way is advantageous in terms of reducing overall carcass contamination. (Washing after evisceration and post-mortem is also necessary for technological reasons, as this is the only method available to routinely clean carcasses before entry to the chilling process). Washing may be carried out by several methods e.g., spraying, immersion washing.

122. Farmed rattites may have an excessive amount of dust and dirt trapped in their feathers, and this has the potential for significant contamination of the dressing area unless there is adequate separation by distance, physical barrier, or other means, e.g., positive ventilation.

123. Once the removal of the hide/fleece has commenced, carcasses should be separated from each other to avoid contact, and this should be maintained until each carcass has been examined and judged by an inspector. (Note: Full separation of carcasses is not technologically achievable in the case of poultry and farmed game birds, however, cross-contamination should be minimised by generally limiting contact to that involving the wings of adjacent carcasses).

During dressing:

- except in the case of poultry and game birds, skinning should be completed before evisceration;
- water in scalding tanks should be changed as frequently as practicable;

- evisceration should be carried out without delay;
- discharge or spillage of any material from the oesophagus, stomach, intestines or rectum, or from the gall bladder, urinary bladder, uterus or udder, should be prevented;
- intestines should not be severed from the stomach during evisceration and no other opening should be made into an intestine, unless the intestines are first effectively tied to prevent spillage;
- stomachs and intestines and all inedible material derived from the slaughtering and/or dressing of animals should be removed as soon as possible from the dressing area, and processed in a manner that does not cause cross-contamination of meat;
- water should not be used as a means to remove faecal contamination from carcasses (Note that removal of gross faecal contamination is an inevitable consequence of routine washing of poultry and game bird carcasses to remove dust, feathers and other contaminants);
- faecal and other material should be trimmed or otherwise removed from carcasses in a manner that does not result in further contamination, and which achieves appropriate performance parameters for process control; and
- paper, cloths, sponges or brushes should not be used in the washing of carcasses (except that brushes may be used in the dressing of singed pig carcasses provided this is done as the next operation after singeing).

124. Carcasses should not come into contact with surfaces or equipment unless practically unavoidable. Where use of equipment involves contact by design, e.g., in the case of automatic eviscerating machines, the hygiene of the equipment should be appropriately maintained and monitored.

125. Where an inspector considers that the manner in which animals are being slaughtered or dressed, or meat is further handled, will adversely affect the safety and suitability of fresh meat, the inspector should enforce a reduction in the rate of production or the suspension of operations, as deemed necessary (refer to 9.2.5).

126. Establishment operators should meet the requirements of the competent authority in terms of presentation of edible parts of animals for post-mortem inspection. Parts of slaughtered animals that have been removed before post-mortem inspection is performed should remain identifiable as belonging to a single carcass (or a group of carcasses in the case of small ruminants, poultry and farmed game birds).

127. Facilities and equipment for slaughtering and/or dressing should be used for that purpose only and not for cutting-up or de-boning. However, in some situations, preparatory operations, e.g., partial de-boning of the neck, may be acceptable to the competent authority.

128. Competent authorities should encourage innovative technologies and procedures at the premises level, where they have been shown to have a significant effect on reducing cross-contamination, e.g., enclosing the terminal rectal intestine in a bag and tying off.

9.5 POST-MORTEM INSPECTION

129. All animals should be subjected to post-mortem inspection, which preferably should be part of an overarching, risk-based system for the production of fresh meat.

130. Post-mortem inspection of animals should utilise information from primary production and ante-mortem inspection, together with the findings from organoleptic inspection of the head, carcass and viscera, to make a judgement on the safety and suitability of edible parts for human consumption. Where the results of organoleptic inspection are insufficient to accurately judge edible parts of animals as safe or suitable for human consumption, the parts should be set aside and followed up with confirmatory inspection procedures and/or tests.

9.5.1 Design of post-mortem inspection systems

131. Post-mortem inspection procedures and tests should be established by the competent authority according to a science- and risk-based approach. In the absence of a risk-based system, procedures will have to be based on current scientific knowledge and practice and it is probable that procedures of increased range and intensity will need to be applied to achieve required levels of consumer protection.

132. Relevant information on the animal population, e.g., animal type, health status, geographical region of origin, should be utilised in both the design and implementation of post-mortem inspection systems.

133. Where indicated by public health concerns, routine screening of edible parts of animals by methods other than organoleptic inspection may be required for suspected hazards, e.g., testing for *Trichinella* spp.

Characteristics of a risk-based post-mortem inspection programme are:

- design and application of organoleptic procedures and tests that are relevant and proportional to meat-borne risks associated with grossly-detectable abnormalities;
- tailoring of procedures to the spectrum and prevalence of diseases and defects reasonably likely to be present in the particular slaughter population, taking into account the type (age), geographical origin and primary production system of the slaughter animals, e.g., multiple incisions of relevant muscles in all pigs from geographical regions where *Taenia solium* is present;
- procedures that minimise cross-contamination through handling to the greatest extent practicable, and may include procedures that are limited to visual observation of animal parts in the first instance if justified by risk assessment;
- inspection of non-edible parts of animals where they may play an indicator role in the judgement of edible parts;
- deletion of traditional procedures where scientific investigation has shown them to be ineffective or in themselves hazardous to food, e.g., routine incision of lymph nodes of young animals to detect granulomatous abnormalities;
- application of more intensive organoleptic procedures on a routine basis when a disease or condition capable of general distribution is found in a single part of an animal, e.g., cysts of *Taenia saginata* in cattle, xanthosis;
- application of additional risk-based inspection procedures on a routine basis when live animals are positive to a diagnostic test, e.g., tuberculin test in cattle, mallein test in horses;
- use of laboratory tests for hazards that are unaddressed by organoleptic examination, e.g., *Trichinella* spp., chemical residues and contaminants;
- performance parameters for outcomes of organoleptic inspection that reflect a risk-based approach;
- integration with HACCP plans for other process control activities, e.g., establishment of “zero faecal tolerance” criteria for faecal contamination of carcasses;
- on-going tailoring of procedures to information received from the farm on a lot-by-lot basis; and
- return of information to the farm so as to seek continuous improvement in the safety and suitability status of animals presented for slaughter (refer to 6.4).

134. Post-mortem inspection procedures that may provide a basis for development of a science- and risk-based inspection system for a particular population of animals are presented in Appendix I.

9.5.2 Implementation of post-mortem inspection

135. Post-mortem inspection should occur as soon as is practicable after slaughter of animals, or delivery of game animals. Inspection should take into account all relevant information from the level of primary production and ante-mortem inspection, e.g., vendor declarations relating to the use of veterinary drugs, information from official or officially-recognised hazard control programmes, information on animals slaughtered as “suspects”.

136. The competent authority should determine: how post-mortem inspection is to be implemented, the competencies and training requirements of personnel involved (including personnel not employed by the competent authority), and the frequency and intensity of verification activities (refer to 9.2.5). The final responsibility for ensuring that all post-mortem inspection and judgement requirements are met should lie with the competent authority.

137. Animals or parts of animals condemned by the post-mortem inspector as unsafe or unsuitable for human consumption should be identified as appropriate and handled in a manner that does not result in cross-

contamination of meat from other animals. The reason for condemnation should be recorded, and confirmatory laboratory tests may be taken if deemed necessary.

The responsibilities of the establishment operator in respect of post-mortem inspection include:

- maintenance of the unique identity of all edible parts of an animal (including blood) until inspection is complete;
- skinning and dressing of heads to the extent necessary to facilitate inspection, e.g., partial skinning to allow access to sub-maxillary lymph nodes, detaching of the base of the tongue to allow access to the retropharyngeal lymph nodes;
- skinning of heads to the extent necessary to allow hygienic removal of edible parts, when this is a processing option;
- presentation of animal parts for inspection according to the requirements of the competent authority;
- a prohibition on establishment personnel intentionally removing or modifying any evidence of a disease or defect, or animal identification mark, prior to post mortem inspection;
- prompt removal of fetuses from the evisceration area, for rendering or other processes as allowed by the competent authority, e.g., collection of foetal blood;
- retention in the inspection area of all parts of animals required for inspection, until inspection and judgement has been completed;
- provision of facilities for identifying and retaining all parts of animals that require more detailed inspection and/or diagnostic tests before a judgement on safety and suitability can be made, in a manner that prevents cross-contamination of meat from other animals;
- condemnation of parts of the carcass trimmed from the region of the sticking wound;
- routine condemnation of the liver and/or kidneys from older animals where the competent authority has determined that there may be an unacceptable accumulation of heavy metals;
- use of health marks that communicate the outcome of post-mortem inspection, as specified by the competent authority; and
- co-operation with inspectors in all other ways necessary to facilitate effective post-mortem inspection, e.g., access to processing records, and easy access to all animal parts.

Post-mortem inspection systems implemented by the competent authority, or a competent body carrying out inspection activities on behalf of the competent authority, should include:

- procedures and tests that are risk-based to the extent possible and practicable (refer to 9.5.1);
- verification of proper stunning and bleeding;
- availability of inspection immediately after completion of dressing;
- visual inspection of animal parts, including inedible parts, as determined by the competent authority (refer to Appendix I);
- palpation and/or incision of animal parts, including inedible parts, as determined by the competent authority according to a risk-based approach (refer to Appendix I);
- additional palpation and/or incisions by the inspector as necessary to reach a judgement for an individual animal, and under appropriate hygiene control, e.g., opening of infected arthritic joints should be carried out in an area where there will be no cross-contamination to meat from other animals;
- more detailed inspection of edible parts intended for human consumption compared with inspection of those parts for indicator purposes alone, as appropriate to the circumstances, e.g., incision of lungs and udders if intended for human consumption;
- systematic, multiple incisions of lymph nodes where incision is necessary;
- other organoleptic procedures, e.g., smell, touch;
- where necessary, laboratory diagnostic and other tests carried out by the competent authority or by the establishment operator under instruction;

- performance parameters for the outcomes of organoleptic inspection;
- regulatory power to slow or halt processing so as to allow adequate post-mortem inspection at all times;
- verification of routine removal of specified parts if required by the competent authority, e.g., “specified risk materials” for BSE; and
- verification of proper use and secure storage of equipment for health marking.

138. The competent authority and industry should record and disseminate the results of post-mortem inspection as appropriate. Notifiable human or animal health diseases and cases of non-complying residues or contaminants should be reported to national competent authorities as well as to the owner of the animal(s). Analysis of the results of post-mortem inspection over time is the responsibility of the competent authority, and the results of such analyses should be made available to all interested parties.

9.6 POST-MORTEM JUDGEMENT

139. Post-mortem judgement of edible parts of animals as safe and suitable for human consumption should primarily be based on food-borne risks to human health. Other risks to human health, e.g., from occupational exposure or from handling of fresh meat in the home, also are an important consideration. Judgements in relation to suitability characteristics of fresh meat should reflect consumer acceptability requirements appropriate to end-use.³⁸

140. Although outside the mandate of Codex, post-mortem inspection programmes may be utilised to identify and judge animals or parts of animals according to risks to animal health, as specified in relevant national legislation.

Judgement of edible parts as safe and suitable should take into account information from the following sources:

- information from primary production (refer to Section 6);
- observations during lairage;
- ante-mortem inspection; and
- post-mortem inspection, including diagnostic tests.

141. Judgements should be based on science and risks to human health to the greatest extent possible, with guidelines being provided by the competent authority. Judgements should only be made by suitably competent and trained persons. When edible parts with any abnormality are always judged to be unsafe and unsuitable for human consumption and appropriately disposed of, the level of competence for judgement may be less than in situations where edible parts demonstrating an abnormality may not necessarily be removed from the food supply.

142. Judgement of edible parts of animals as unsafe or unsuitable for human consumption should be guided by general categories as presented in Appendix II.

143. Where the initial results of post-mortem inspection are insufficient to accurately judge edible parts of animals as safe or suitable for human consumption, a provisional judgement should be followed up with more detailed inspection procedures and/or tests. Pending the outcome of more detailed inspection and/or diagnostic tests, all parts of the animal that are required for further investigation should be held under the control of the inspector.

Judgement categories for edible parts of animals include:

- safe and suitable for human consumption;
- safe and suitable for human consumption, subject to application of a prescribed process, e.g., cooking, freezing³⁹;

³⁸ The competent authority may take into account varying needs of different consumer populations so that suitability judgements do not distort the economics of the food supply

³⁹ The inspector can instruct that following post-mortem inspection, edible parts held under suitable inventory control can be designated as safe and suitable when subjected to a particular process e.g. freezing, cooking, canning

- held on suspicion of being unsafe or unsuitable, pending the outcome of further procedures and/or tests;
- unsafe for human consumption i.e. due to meat-borne hazards or occupational health/meat handling hazards, but able to be used for some other purpose, e.g., pet-food, animal feedingstuffs, industrial non-food use, providing there are adequate hygiene controls to prevent any transmission of hazards, or illegal re-entry to the human food chain;
- unsafe for human consumption i.e. due to meat-borne hazards or occupational health/meat handling hazards, and requiring condemnation and destruction;
- unsuitable for human consumption, but able to be used for some other purpose, e.g., pet-food, animal feedingstuffs, industrial non-food use, providing there are adequate controls to prevent illegal re-entry to the human food chain;
- unsuitable for human consumption, and requiring condemnation and destruction; and
- unsafe for animal health reasons as specified in national legislation, and disposed of accordingly.⁴⁰

144. When edible parts of an animal are judged to be safe and suitable for human consumption subject to application of a prescribed process, the specifications for that process should be verified by the competent authority as sufficient to kill the pathogenic agent of concern, e.g., specifications for retorting, high temperature rendering and freezing.

145. The competent authority has final responsibility for all judgements relating to the safety and suitability of edible parts of animals, as guided by national legislation.

9.7 HYGIENE REQUIREMENTS FOR PROCESSING OPERATIONS AFTER POST-MORTEM INSPECTION

146. Operations following post-mortem inspection include chilling of carcasses, de-boning and cutting, and freezing and storing. Particular attention needs to be paid to temperature control, with temperatures of freshly slaughtered and dressed carcasses and offals being reduced as rapidly as possible to a temperature that will not result in growth of micro-organisms or the formation of toxins that could constitute a risk to human health. It is also important that the cold chain is not interrupted except to the minimal extent necessary for practical operations, e.g., handling during transportation.

147. In the case of poultry and farmed game birds, viscera or parts of viscera remaining in the carcass, apart from kidneys, should be entirely removed as soon as possible, unless otherwise permitted by the competent authority.

Meat passed as safe and suitable for human consumption should be:

- removed without delay from the dressing area;
- handled, stored and transported in a manner that will protect it from contamination and deterioration;
- held under conditions that reduce its temperature and/or water activity as quickly as possible, unless cut up or de-boned pre-rigor; and
- held at temperatures that achieve safety and suitability objectives, e.g., 7° C for fresh red meat, 4° C for fresh poultry meat.

In the case of poultry or farmed game birds undergoing immersion chilling:

- the immersion chilling process should meet hygiene criteria as specified by the competent authority;
- the reduction in carcass temperature should be as rapid as possible, and there should be minimal water uptake;
- carcasses emerging from the process should have a lesser microbiological count for indicator organisms and pathogens than those entering the process; and

⁴⁰

In some circumstances, edible parts may be judged as suitable for human consumption but subject to restricted distribution because the animals were sourced from geographical areas under quarantine for animal health reasons

- sanitation requirements should include complete emptying, cleaning and disinfection of tanks as appropriate.

148. A health mark applied to meat, wrapping or packaging may provide recognition that the product is in accordance with regulatory requirements, and should assist with trace-back to the establishment of origin if required. If used as part of an official meat hygiene programme, the health mark should include the registration number of the establishment, be applied in such a way that it cannot be re-used, and be legible. Other marks may denote conformance with commercial specifications, or unacceptability for human consumption, e.g., distinctive brands for pet-food.

149. Health marks may be applied direct to the product, wrapping or packaging, or be printed on a label affixed to the product, wrapping or packaging. In circumstances of bulk transport to another establishment for further handling, processing or wrapping, health marks may be applied to the external surface of the container or packaging.

Where carcasses, parts of carcasses or other meat is placed in a holding room:

- all requirements for hygienic control of operations must be adhered to e.g., chiller loading rates, and specifications for temperature and relative humidity;
- carcasses and parts of carcasses, whether hung or placed in racks or trays, should be held in a manner permitting adequate circulation of air;
- the potential for cross-contamination via dripping of fluids should be prevented; and
- water dripping from overhead facilities and condensation should be prevented to the extent practicable.

150. Rooms and equipment for cutting, de-boning or further preparing fresh meat should be reserved for those purposes alone, with rooms being maintained at an appropriate temperature and humidity during operations. Meat intended for cutting or de-boning should be brought into work rooms progressively as needed. If meat is cut or de-boned prior to reaching temperatures that are appropriate for storage and transport, it must be immediately reduced in temperature to prescribed levels.

When meat is cut or de-boned pre-rigor:

- it should be transported directly from the dressing area to the cutting up or de-boning room;
- the cutting up or de-boning room should be temperature-controlled and directly linked to the dressing areas, unless the competent authority approves alternative procedures that provide an equivalent level of hygiene; and
- cutting up, de-boning and packing should be done without delay and should meet all requirements for hygienic control of processing operations.

Where meat is packaged or wrapped:

- packaging material should be stored and used in a hygienic manner; and
- cases or cartons should have a suitable inner liner or other means of protecting the meat, except that the liner or other protection may not be required if pieces of meat, such as cuts, are individually wrapped before packing.

Where meat is placed in a room for freezing:

- meat that is not in cartons should be hung or placed on racks or trays in a manner that allows adequate circulation of air;
- meat that is not in cartons should be held in a manner whereby the potential for cross-contamination via dripping of liquids is prevented;
- cartons containing meat should be stacked so as to permit adequate circulation of air; and
- meat held on trays should be placed so as to avoid contact with the base of an upper tray.

Where fresh meat is held in a freezer room or store:

- the temperature of the meat should have been reduced to an acceptable level before placement;
- meat, whether in carcass form or in cartons, should not be stacked directly on the floor and should be positioned so that there is adequate air circulation;
- the freezer store should be operated and maintained under conditions appropriate to maintaining the safety and suitability of fresh meat;
- temperatures should be continuously recorded and monitored; and
- adequate inventory control should be maintained.

151. Where fresh meat is thawed for further processing, hygiene controls should be such that thawing will not result in growth of micro-organisms or the formation of toxins to the extent that they may constitute a risk to human health. Hygiene controls should include adequate drainage of liquid run-off.

152. Where establishments are approved, registered and/or listed for different animal species, all operations must be controlled in terms of space or time so that there is no possibility of mixing of meat from different slaughter species, and no mis-identification at the time of packaging.

9.8 HYGIENE REQUIREMENTS FOR EDIBLE PARTS OF ANIMALS AND MEAT THAT ARE CONDEMNED OR OTHERWISE DEEMED UNACCEPTABLE FOR HUMAN CONSUMPTION

153. Special hygiene measures should be applied to operations involving edible parts of animals and meat that have been condemned or otherwise deemed unacceptable for human consumption. These measures should prevent cross-contamination to other edible parts and meat, and prevent any possibility of substitution. Rooms and equipment used to handle these materials should be reserved for that purpose.

Edible parts of animals and meat that have been condemned or otherwise deemed unacceptable for human consumption should be:

- placed without delay into specifically identified chutes, containers, trolleys, or other handling facilities;
- identified by a specific means as appropriate to the type of tissue, e.g., cuts, inking; and
- if destruction is required, conveyed to a rendering station or other place of destruction in a way that prevents any removal of material and any contamination of the environment.

9.9 RECALL SYSTEMS

154. Establishments should have adequate systems in place to trace and withdraw fresh meat from the food chain if it is suspected or confirmed that the meat constitutes an unacceptable level of risk to the consumer.

155. Recalled product may be used for purposes other than human consumption, or reprocessed in a manner that ensures safety and suitability.

Recall systems designed by the establishment operator should:

- utilise the [registration/listing] number of the establishment as a means to identify fresh meat to its final destination;

- incorporate management systems and procedures that allow rapid and complete recall of implicated lots;
- keep records that allow trace-back to the place of origin of the animals; and
- keep records that allow investigation of any processing inputs, e.g., potable water, branding inks or packaging, that may be implicated as a source of hazards.

10. ESTABLISHMENTS: MAINTENANCE AND SANITATION

156. The principles and guidelines presented in this section are supplemental to the objectives and guidelines in Section VI of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

10.1 PRINCIPLES OF MEAT HYGIENE APPLYING TO MAINTENANCE AND SANITATION OF ESTABLISHMENTS, FACILITIES AND EQUIPMENT

- i. Establishments, facilities and equipment should be maintained and sanitised in such a manner that contamination of fresh meat is minimised to the greatest extent practicable.
- ii. Documented programmes for effective and appropriate maintenance and sanitation should be in place (refer to 9.2.1).
- iii. Monitoring of the effectiveness of maintenance and sanitation should be included as a basic component of meat hygiene programmes (refer to 9.2.1).
- iv. Special sanitation requirements should be applied to the slaughter and dressing of animals that are condemned or designated as “suspects”.

10.2 MAINTENANCE AND SANITATION

157. Establishments, facilities and equipment should be kept in an appropriate state of repair and condition to facilitate all sanitation procedures and prevent contamination of fresh meat, e.g., from metal shards, flaking plaster and chemical contaminants.

158. SSOPs should specify the scope of the cleaning programme, cleaning specifications, persons responsible, and monitoring and record keeping requirements.

Cleaning procedures and programmes should:

- be specified in SSOPs as appropriate to the circumstances;
- provide for removal and storage of waste;
- ensure that there is no consequential contamination of fresh meat with detergents, sanitising agents or disinfectants, unless allowable under conditions of use;
- before processing commences, routinely remove all traces of detergents, sanitising agents or disinfectants from sanitised rooms and equipment by rinsing with potable water; and
- be continually monitored for their effectiveness, e.g., organoleptic checks and microbiological sampling of meat contact surfaces, and be redesigned if and when necessary.

159. Particular cleaning programmes are required for equipment used in the slaughter and dressing of carcasses e.g., knives, saws, machine cutters, evisceration machines and flushing nozzles.

Such equipment should be:

- clean and disinfected at the start of each new period of work;
- cleaned, and disinfected, by immersion in 82 degree C water or alternative methods, with appropriate frequency during and/or between periods of work;
- immediately cleaned and disinfected when coming into contact with abnormal or diseased tissue that may harbour food-borne pathogens; and
- stored in designated areas in such a manner that it will not become contaminated.

160. Containers and equipment should not pass from an “inedible” area to an “edible” area before being cleaned and disinfected.

161. Pest control programmes are an essential part of maintenance and sanitation and should follow GHP as described in the Recommended International Code of Practice: General Principles of Food Hygiene.⁴¹

In particular:

- the programme should be properly documented and supervised, and be subject to verification by the competent authority;
- treatment of areas or rooms with an approved pesticide should be carried out according to the conditions of use, and with the full knowledge of the inspector;
- following pesticide treatment, facilities and equipment should be thoroughly washed to remove residues; and
- pesticides and other pest control chemicals should be kept in secure storage, with access being limited to authorised persons.

11. PERSONAL HYGIENE

162. Slaughter and dressing of animals, and handling and inspection of meat, presents many opportunities for cross-contamination. Personal hygiene practices should prevent undue general contamination, and prevent cross-contamination with human pathogens that may cause food-borne disease. The guidelines presented in this section are supplemental to the objectives and guidelines in Section VII of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

11.1 PERSONAL CLEANLINESS

163. Persons who come into direct or indirect contact with edible parts of animals or meat in the course of their work should maintain appropriate personal cleanliness and behaviour, and should not be clinically affected by zoonotic agents likely to be transmitted by fresh meat.

Persons who come into direct or indirect contact with edible parts of animals or meat should:

- maintain an appropriate standard of personal cleanliness;
- wear protective clothing appropriate to the circumstances, and ensure that non-disposable protective clothing is cleaned before and during work;
- if wearing gloves during the slaughter and dressing of animals and the handling of meat, ensure that they are of an approved type for the particular activity, e.g., chain-mail stainless steel, synthetic fabric, latex, and they are used according to specifications, e.g., washing of hands before use;
- immediately wash and disinfect hands and protective clothing when there has been contact with abnormal animal parts that are likely to harbour food-borne pathogens;
- cover non-infected cuts and wounds with waterproof dressings; and
- store protective clothing and personal effects in amenities that are separate from areas where meat may be present.

11.2 PERSONAL HEALTH STATUS

164. The establishment should maintain relevant personal health records of personnel.

Persons who come into direct or indirect contact with edible parts of animals or meat in the course of their work should:

- have a medical examination prior to or during employment if the establishment operator or competent authority considers it necessary;

⁴¹ Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1 - 1969, Rev. 3-1997)

- not work while clinically affected by, or suspected to be carrying, meat-borne zoonotic agents; and
- be aware of reporting requirements to the establishment operator in respect of zoonotic diseases.

12. TRANSPORTATION

165. Due to the potential for growth of pathogenic and spoilage micro-organisms under conditions of inadequate temperature control, fresh meat must be transported at appropriate temperatures. Equipment for continuous monitoring and recording of temperatures should accompany transport vehicles and bulk containers wherever appropriate. Additionally, the conditions of transport should provide adequate protection from exogenous contamination and damage, and should prevent growth of pathogenic and spoilage micro-organisms.

166. The guidelines presented in this section are supplemental to the objectives and guidelines in Section VIII of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997).

Special transportation requirements for meat include:

- transport of carcasses, sides or quarters as a hanging load or on racks, unless they are wrapped and frozen;
- transport of stomachs and intestines only after removal of contents and cleaning;
- transport of heads only after skinning;
- transport of unwrapped, chilled offals in closed containers; and
- in the case of pigs, transport of feet only after scalding and dehairing.

167. If meat is inadvertently exposed to adverse temperature conditions or exogenous sources of contamination that may affect safety and suitability, an evaluation should be carried out by a suitably competent person before further transport or distribution is allowed.

13. PRODUCT INFORMATION AND CONSUMER AWARENESS

168. Appropriate product information and adequate knowledge of food hygiene is necessary to prevent mishandling at later stages in the food chain. Further, pre-packaged foods should be labelled with clear instructions to enable the next person in the food chain to handle, display, store and use the product safely. Principles and guidelines for product information and consumer awareness in the context of safety and suitability of fresh meat are described in general terms in Section IX of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

14. TRAINING

169. Adequate training of competent persons is of fundamental importance in the production of fresh meat that is safe and suitable for human consumption. The principles and guidelines presented in this section are supplemental to the objectives and guidelines in Section X of the Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 1997).

14.1 PRINCIPLES OF TRAINING IN MEAT HYGIENE

- i. Persons engaged in meat hygiene should be trained, and/or instructed to a level of competence that is appropriate to the activities and operations they perform.
- ii. The level of competence should be proportional to the potential of the particular meat hygiene activity to impact on food-borne risks to human health.
- iii. The competent authority should establish and verify the levels of competency of all personnel involved in meat hygiene activities.
- iv. Competent authorities should recognise third party training and accreditation systems where they have been shown to meet regulatory requirements for competence.

14.2 TRAINING PROGRAMMES

Training programmes should:

- provide inspectors with the technical skill to carry out meat hygiene tasks at specified levels of competency, e.g., hazard analysis, verification of statistical process control, HACCP;
- provide practical training to the extent required;
- arrange for formal competency testing of inspectors;
- ensure that inspectors involved in supervisory roles have appropriate management skills;
- recognise and build on professional qualifications; and
- provide for the continuing education of competent persons.

APPENDIX I**POST-MORTEM INSPECTION PROCEDURES: GUIDELINES FOR DEVELOPMENT
OF A RISK-BASED SYSTEM**

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

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

- Routine procedures should be supplemented by additional procedures at the discretion of the post-mortem inspector.
- Young animals are likely to need less intensive inspection than older animals.
- In the case of farmed game, post-mortem inspection procedures for cattle and pigs should be applied as appropriate.
- In the case of farmed game birds, post-mortem inspection procedures for poultry should be applied as appropriate.
- In the case of wild game and wild game birds, post-mortem inspection procedures should reflect the particular circumstances of harvesting and transport to the establishment.
- Special post-mortem inspection procedures may need to be applied to animals that have reacted to screening tests, e.g., animals which have reacted positively to a tuberculin test should be slaughtered under special hygiene conditions and be subject to more intensive inspection procedures than non-reactor animals.
- Special post-mortem judgements may need to be applied to animals that have reacted to screening tests, e.g., irrespective of detection of lesions suggestive of infection, the udder, genital tract and blood of animals which have reacted positively to a brucellosis test should be judged as unfit for human consumption.

Table 1: Guidelines for routine post-mortem inspection of the head of animals intended for human consumption

	Cattle	Pigs	Sheep/goats	Horses	Deer	Poultry
External surfaces/oral cavity	V	V	V ^a	V	V	—
Submaxillary lymph nodes	V, I ^b	V, I	—	V, P	V, I	—
Parotid lymph nodes	V, I	—	—	V, P	V, I	—
Retropharyngeal lymph nodes	V, I	—	—	V, P	V, I	—
Tongue	V, P ^c	V	—	V, P	V, P	—
Muscles of mastication	V, P, I ^d	V, P, I	—	—	—	—
Other	—	—	—	— ^e		

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

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

^b Incision of lymph nodes of the head is not necessary in calves

^c Palpation of the tongue is not necessary in calves

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

^e The nasal septum should be removed and examined if glanders is present in the slaughter population

Table 2: Guidelines for routine post-mortem inspection of the carcass of animals intended for human consumption

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

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

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

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

^a Castration sites should be palpated

^b Supramammary lymph nodes should be incised in lactating animals

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

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

^e The muscles and lymph nodes beneath one of the two scapular cartilages should be examined for melanosis in all grey and white horses

Table 3: Guidelines for routine post-mortem inspection of the viscera of animals intended for human consumption

	Cattle	Pigs	Sheep/goats	Horses	Deer	Poultry
Lungs	V, P ^a	V, P	V, P	V, P	V, P	V, P
Oesophagus	V	V	V	V	V	—
Trachea	V	V	—	V	—	—
Bronchial lymph nodes	V, I ^b	V, P	V, P	V, P	V, I	—
Mediastinal lymph nodes	V, I	V, P	V, P	V, P	V, I	—
Heart	V, P, I ^c	V, P, I ^c	V, P	V, P, I	V, P	V
Pericardium	V	V	V	V	V	V
Liver	V, P	V, P	V, P	V, P	V, P	V
Portal lymph nodes	V, P	V, P	V	V, P	V, P	—
Gall bladder	V, I ^d	—	V, P	—	V, P	—
Kidneys	V	P	V	V ^e	V	V
Renal lymph nodes	V	—	—	—	V	—
Spleen	V	V	V	V	V	—
Gastrointestinal tract	V	V	V	V	V	V
Mesenteric lymph nodes	V, P	V, P	V	V, P	V, P	—
Genital organs ^f	V	V	—	V	V	V

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

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

^b Incision of the bronchial and mediastinal lymph nodes is not necessary in calves

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

^d An alternative to incision of the bile ducts for the detection of distomatosis is incision through the gastric surface of the liver. Inspection for distomatosis is not necessary in calves

^e Kidneys should be palpated if intended for human consumption; kidneys of grey or white horses should be incised

^f Palpation and incision should be carried out as appropriate if tissues are intended for human consumption e.g. uterus of heifers

APPENDIX II

JUDGEMENT OF EDIBLE PARTS OF ANIMALS AS UNSAFE OR UNSUITABLE FOR HUMAN CONSUMPTION**All edible parts judged unsafe or unsuitable for human consumption**

Following ante- and/or post-mortem inspection,³⁷ all edible parts from animals affected with the following conditions should be judged unsafe or unsuitable for human consumption:

Specific zoonotic diseases

For example: BSE, acute salmonellosis, acute leptospirosis, acute brucellosis (unless specified otherwise by the competent authority), glanders, melioidosis, anthrax, Q fever, blackleg (*Clostridium chauvoei*), braxy (*Cl. septicum*), lamb dysentery (*Cl. perfringens*), acute erysipelas, toxoplasmosis, listeriosis, haemorrhagic septicaemia (*Pasteurella multocida*), *Trichinella* spp., *Cysticercus cellulosae*, *C. bovis*

Generalised infectious disease, including septicaemia, pyaemia, toxæmia, viraemia and mycosis

For example: tetanus, botulism, rabies, bovine leucosis, avian leucosis complex, necrobacillosis, caseous lymphadenitis, tuberculosis, actinobacillosis and actinomycosis

Acute infectious conditions where there is a likelihood of generalised involvement

For example: acute infectious conditions affecting the brain, lungs, heart, liver, kidneys, pleura, peritoneum, gastro-intestinal tract, bones, joints, uterus, udder or umbilicus, either alone or in combination

Extensive chronic suppurative conditions of viscera where there is a likelihood of generalised involvement

For example: pleurisy, peritonitis, pericarditis, hepatitis, nephritis, cystitis, retained placenta

Generalised intoxication

For example: consumption of toxic plants or heavy metals, ochratoxin in porcine kidneys above allowable levels

*Malignant tumours**Tumours with widespread distribution**Presence of residues or contaminants in excess of permitted levels**Generalised conditions that render edible parts unsuitable for human consumption*

For example: parasitic infestations (such as sarcosporidiosis, *Cysticercus ovis*) xanthosis, icterus, physiological conditions (such as cachexia, oedema, ascites, pronounced sexual odour, "immaturity", severe non-infectious anaemia), metabolic disorders (such as bovine ketosis, hypomagnesaemia)

Multiple and serious injuries

³⁷ If animals have not undergone ante-mortem inspection (except in the case of wild game), or some edible parts, e.g., viscera, have not undergone post-mortem inspection, the inspector should declare all edible parts unsafe and unsuitable for human consumption unless special circumstances apply

Extensive defects of technological origin

For example: post-mortem damage from machinery, excessive scalding (such as “cooked” poultry), dressing cuts

*Insufficient bleeding, generalised blood or serum infiltration, and extensive echymoses**Diseases transmissible to animals, as designated in relevant national legislation**Any other condition as prescribed by the inspector*

For example: The presence of widespread contamination that cannot be effectively removed, any evidence of a chemical substance (administered or consumed) that may be a risk to human health, the presence of conditions in wild game that suggest the possibility of a risk to human health (such as significant abnormalities of colour, texture or smell of edible parts, presence of gas in the intestines, putrefaction of parts), the appearance of wild game that suggests death other than by killing (such as natural death, death by trapping)

Edible parts judged unsafe or unsuitable for human consumption

Following post-mortem inspection, edible parts that exhibit the following conditions should be judged unsafe or unsuitable for human consumption:

*Gross evidence of contamination*³⁸

For example: faecal material, ingesta, feathers, dirt, oil, ingesta in lungs intended for human consumption

Localised pathological lesions and defects of infectious, parasitic, traumatic, toxic or other origin

For example: skin lesions, arthritis, nephritis, hepatitis, abscesses, other suppurative diseases³⁹, paratuberculosis, hepatic and renal aflatoxicosis, mycosis, distomatosis, hydatidosis, warbles, sarcoptic mange, tumours, fatty infiltration, degeneration, white muscle disease, other localised changes in muscle, pigmentation, fractures, bruising, wounds, haemorrhage, scarring, technological defects

*Cysts and malformations**Any other localised condition as prescribed by the inspector*

For example: injection site lesions, other evidence of administration of chemical substances, presence of physical hazards, gunshot wounds in wild game

³⁸ Carcasses may be judged as safe and suitable for human consumption where gross evidence of contamination can be removed in a manner that does not lead to further contamination

³⁹ Carcasses may be judged as safe and suitable for human consumption where gross evidence of contamination can be removed in a manner that does not lead to further contamination

Edible parts judged unsafe and unsuitable for human consumption unless subjected to specified processing conditions

Following post-mortem inspection, edible parts from animals that exhibit the following conditions may be judged safe and suitable for human consumption if subjected to cooking, freezing or another process as prescribed by the competent authority⁴⁰:

Light infestations of *C. cellulosa*

Light infestations of *C. bovis*

Localised lesions of swine erysipelas

Localised lesions of bovine tuberculosis

Extensive lesions of sarcoptic mange

Excessive male odour i.e. male pigs used for breeding

Other localised infectious conditions as judged by the inspector

⁴⁰ Where an edible part is affected by caseous lymphadenitis but the condition is not generalised or associated with emaciation, the affected part together with its associated lymph node(s) should be judged unsafe for human consumption