Recommendations For The Development Of Policy Related To Raw Foods Of Animal Origin

A Report To Health Canada From The Steering Committee For Raw Foods Of Animal Origin

September 24, 2001
Prepared for RFAO Steering Committee
By the RFAO Secretariat
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List of Abbreviations

AAFC  Agriculture and Agri-Food Canada
CARD Fund  Canadian Adaptation and Rural Development Fund
CCA  Canadian Cattlemen’s Association
CCGD  Canadian Council of Grocery Distributors
CFA  Canadian Federation of Agriculture
CEMA  Canadian Egg Marketing Agency
CFIA  Canadian Food Inspection Agency
CMC  Canadian Meat Council
COFFS  Canadian On-Farm Food Safety Program
CPFSE  Canadian Partnership for Consumer Food Safety Education
CPC  Canada Pork Council
CQA  Canadian Quality Assurance
CTMA  Canadian Turkey Marketing Agency
DFO  Department of Fisheries and Oceans
DSP  Diarrhoetic Shellfish Poisoning
EC  European Community
FAO  Food and Agriculture Organization
FSEP  Food Safety Enhancement Program
FSO  Food safety objectives
GMP  Good Manufacturing Practices
GPP  Good Production Practices
GRAS  Generally Regarded as Safe
HACCP  Hazard Analysis Critical Control Points
HC  Health Canada
MUST  Management Uniform Safety Training
OIE  Office International des Épizooties
PSP  Paralytic Shellfish Poisoning
QMP  Quality Management Program
RFAOs  Raw Foods of Animal Origin
SOP  Standard operating procedures
SPS  Sanitary and Phytosanitary Agreement
USFDA  United States Food and Drug Administration
WHO  World Health Organization
WTO  World Trade Organization
Executive Summary

Raw foods of animal origin (RFAOs) pose a food safety risk to the consumer. Efforts are being made to address the issues associated with these risks. Government resources have focused primarily on the practices used by the processing and food retail/service sectors. However, all sectors of the food industry – production, processing, retail/food service and consumer – have a role to play in ensuring a safe food supply. An appropriate level of education and training for personnel involved in the food continuum is vital. Above all, consumers must be aware of the health risks posed by RFAOs, as well as the measures they can use to minimize these risks. This document summarizes the deliberations of the Steering Committee on Raw Foods of Animal Origin (hereafter known as “the committee”), organized by Health Canada. The committee divided its work into four sectors of the food continuum: primary production, processing, retail/food service and consumer handling and education. Working groups for each sector identified concerns and made recommendations that were aimed at improving food safety and contributing to a comprehensive food safety policy. The committee used this information as a basis for discussion during the development of this document, which took shape through nine meetings over two years. Stakeholders were consulted during the process, providing input through the working groups. The committee gave highest priority to the following overall recommendations:

1. DEVELOPMENT OF INTEGRATED RISK-BASED FOOD SAFETY PROGRAMS ACROSS THE FOOD CONTINUUM:

The Government of Canada should encourage the development of risk-based food safety programs that adhere to or surpass internationally recognized food safety guidelines and principles. The programs should be applied across all sectors of the food continuum, while reflecting each sector’s unique characteristics. Each program should include all the essential elements of a risk assessment. Food safety objectives (FSOs) must be established and hazards prioritized to ensure the areas of greatest risk are effectively managed. To these ends, the committee recommends that the Government of Canada base food safety programs on the principles embodied in the Hazard Analysis Critical Control Point (HACCP) management system.

The Government of Canada should standardize the process for recognizing, accrediting and auditing risk-based control programs. In conjunction with this, baseline studies of current and
emerging food safety hazards should be supported. The studies should be updated on a regular basis, and the control programs amended as necessary to reflect new scientific evidence. This information would also assist in evaluating and encouraging continuous improvements in food safety systems.

2. HARMONIZATION AND COORDINATION OF FEDERAL, PROVINCIAL AND MUNICIPAL FOOD SAFETY OBJECTIVES, POLICIES and PROGRAMS:

Canada’s food safety system operates in a complex jurisdictional context involving federal, provincial and municipal governments, with responsibilities divided among departments within government including agriculture, health and fisheries. Among the consequences are gaps in services, layering of costs, and disproportionate allocation of resources in the food continuum. We require a harmonized, seamless food safety system. The Government of Canada – in cooperation with provincial and municipal governments – should give high priority to establishing a standing committee for developing a strategy, and coordinating the implementation and delivery of food safety programs throughout the food continuum. This committee should routinely identify minimum food safety standards/programs required in each sector, suggest which jurisdiction is responsible for acting as the lead agency for program delivery, and create a template which can track a national assessment of the resources being devoted to the various sectors. Ultimately the Government of Canada should regularly publish a national assessment of the status of food safety systems in Canada.

The hazards associated with the safety of RFAOs cause concern throughout the food continuum. Therefore, it is essential that food safety objectives, policies and programs are harmonized and applied to all sectors within the food continuum, by all levels of government. To maintain a consistent level of confidence in the safety of RFAOs, imported foods should meet the same codes, guidelines and standards as domestic foods. Food inspection programs should be integrated with risk-based food safety programs to ensure hazards causing the greatest concern are controlled throughout the food continuum, regardless of what level of government is responsible for inspection and food safety. All personnel performing audits, whether government or 3rd party, should receive standardized training in food safety principles and auditing to ensure the responsibilities of all stakeholders have been communicated and interpreted in a consistent and fair manner.
3. FOOD SAFETY EDUCATION AND TRAINING:

Education should be an essential element of all risk-based food safety programs for RFAOs. Consumer education is extremely important and every effort should be made to build on the FightBAC™ program. This would ensure school-aged children, as well as adults, are presented with appropriate food safety messages. The retail/food service sector has a major role to play in consumer education, considering the majority of consumers purchase RFAOs from retail/food service establishments. All levels of government should support these educational programs for consumers. Educational and training programs on food safety should be required for all workers within all sectors of the food continuum and, especially, food handlers working in the retail/food service sector. Governments should work together to assist in the establishment and recognition of uniform course curricula. Finally, the effectiveness of these various programs and initiatives should be regularly evaluated. Adjustments in educational strategies can be made when changes in consumer habits or patterns related to food safety are noted.
1 Introduction

1.1 Rationale for developing a food safety policy for raw foods of animal origin

Raw foods of animal origin (RFAOs) reach the consumer in a raw state. They may, or may not, undergo additional processing before consumption. RFAOs form an important component of the diet of Canadians. They include meats, poultry, game, eggs, fish, marine invertebrates (including crustaceans and molluscs), marine mammals and other related products. Concerns regarding Bovine Spongiform Encephalopathy (BSE) or Mad Cow Disease and raw milk products are addressed under another initiative and are therefore not considered within the scope of the work of the Steering Committee on RFAO (hereafter called “the committee”).

RFAOs may be contaminated by physical, chemical or biological hazards during production, processing, distribution, storage and marketing (ICMFS, 1998). Many of these hazards may result in foodborne illnesses in humans. It has been estimated that foodborne illnesses in humans cost over one billion dollars (1985 dollar equivalency) per year. Eighty-eight per cent of these costs are associated with microbiological diseases (Todd, 1989). Microbial Hazards are a subset of biological hazards and include bacteria, viruses, yeasts, moulds, algae, parasitic protozoa and helminths and their toxins and metabolites. Developing an RFAO policy is considered necessary and timely because of increasing public concern about the safety of RFAOs, as well as the need to achieve consistency in addressing the risks associated with domestic and global markets for RFAOs. It is anticipated that a comprehensive food policy would identify measures to control a range of biological agents (e.g. *Escherichia coli* O157:H7 in beef, *Campylobacter jejuni* and *Salmonella* spp. in poultry) as well as reduce the risk associated with physical and chemical hazards.

In 1998, the Government of Canada organized a committee to help minimize the risk of foodborne illness associated with the consumption of RFAO. This committee’s purpose was to provide the government with recommendations for developing a broad and comprehensive food safety policy for all RFAOs. The recommendations were to encompass all aspects of RFAO production, processing, distribution, retailing and consumer handling and preparation. Of the Biological hazards, Microbial hazards were the primary concern to be addressed by the committee, but recommendations related to chemical and physical hazards were also in its scope. Four working groups were struck to represent the production, processing, food
retail/service, and consumer sectors, and formulate recommendations on a food safety policy. These recommendations were to help minimize the risk of biological, chemical or physical hazards which could compromise RFAO safety in the food continuum.
2 Approach

2.1 Terms of Reference
The committee developed and confirmed the terms of reference (Appendix A) during its first meeting December 10-11, 1998 in Ottawa, ON. The terms of reference specified the committee’s purpose, scope, role and mandate, reporting structure, membership, meetings, management and administration.

2.2 Structure of the Steering Committee on Policy Development for Safety of Raw Foods of Animal Origin
It was acknowledged that all sectors within the food industry, including consumer groups and other levels of government, had a role to play in this initiative to develop a policy for RFAOs. At a minimum, each could ensure that progress was made toward improving the protection of the health and safety of consumers. A multi-sectoral committee, which drew on expertise from all stakeholders, (including the food industry, academia, health professionals, consumer organizations and provincial and territorial governments) was formed in 1998 (Appendix B). The entire committee met nine times during the following two years. Members of the secretariat met before and after each meeting and four working groups met as required between the meetings. The mandate of the committee was to assist the federal government in developing a comprehensive food safety policy for RFAOs that could be effectively implemented by the appropriate stakeholders. From the committee’s perspective, the most appropriate and feasible measures possible should be taken to prevent or reduce hazards associated with foodborne illness in humans.

2.3 Guiding Elements
The committee used the following elements as a guide when drafting recommendations for developing an RFAO policy.

- **Primacy of Health Protection**: The safety of the food supply is a cornerstone for Canadians’ health. Maintaining and improving their health and safety is driving the RFAO policy initiative.
- **Shared Responsibility**: The Government of Canada recognizes that promoting and preserving a safe food supply is a shared responsibility with other governments, health specialists, industry, communities and consumers.
• **Openness**: Involve the public in the decision-making process regarding issues related to public health and safety.

• **Gate-to-Plate Approach**: Food safety hazards must be identified and assessed in a consistent manner throughout all sectors of the food continuum.

• **Risk Analysis**: Risk analysis tools – such as risk management, assessment and communication to control hazards associated with RFAOs – is an integral part of eliminating or minimizing these hazards.

• **Food Safety Objective**: Appropriate food safety objectives (FSOs) should be established for any hazard that has a reasonable potential of occurring in the raw product throughout the food continuum.

• **Risk Management**: Feasibility and cost are important considerations when identifying risk management options and interventions that can achieve the desired food safety objectives. Specific interventions for controlling reducing or eliminating hazard will depend on the likelihood of the hazard’s occurrence in the food supply, the severity of the consequences and the location where the intervention is applied. Interventions applied earlier in the food continuum will prevent the compounding of risk.

• **Monitoring and Surveillance**: A monitoring system that includes analysis of foodborne pathogens is needed to determine the effectiveness of the interventions. Appropriate surveillance mechanisms will reveal if interventions have been effective.

• **Evaluation**: A predetermined timetable should be established for reviewing food safety objectives. When more effective interventions are introduced, new hazards are identified, or when trend analysis indicates current interventions are no longer effective in controlling an outbreak in humans, FSOs should be revised.
3 Fundamental Principles for Developing Policy

The committee based its work on the following fundamental principles when drafting recommendations for the development of policy related to RFAOs (sections 4.0 to 7.0).

- The safety of the food supply depends on safe practices at all stages of the food continuum (e.g. production, processing, distribution, retail/food service, consumers and import controls). The participation and cooperation of all sectors and regulatory authorities is vital.
- Food safety policies should reflect comprehensive and integrated strategies that effectively mitigate identified hazards throughout the food continuum.
- The Government of Canada is responsible for ensuring food safety programs are developed and implemented for domestic and imported food. This includes assuring that resources allow for food safety program harmonization throughout government and industry and promoting greater efficiency, including a reduction in the duplication of services.
- Government (federal, provincial and municipal) is responsible for ensuring the effective delivery of an integrated food safety system. This includes legislation and regulatory controls, inspection, third-party delivery of programs, and certification/audit of industry-based safety programs.
- Food safety policy, at all levels of the food system, should be based on the principles of risk analysis. Wherever practical, policies should reflect internationally recognized systems such as Codex Alimentarius, recognize the need for science-based programs such as Hazard Analysis Critical Control Point (HACCP) and be based on acceptable levels of risk determined using scientific evidence.
4 Production Sector

4.1 Background

Each sector of the food continuum must be assessed for food safety. Primary production of food animals (livestock, poultry and aquatic animals) – including inputs such as feed and water used to produce the animals and animal production practice – represents one source where food safety hazards can be introduced in raw foods of animal origin. However, with appropriate programs in place, these hazards can be addressed. On-farm, risk-based food safety systems have been developed for most domestic food animals. These programs can help to improve food safety by controlling certain hazards or ensuring they are below an acceptable level. When they are coupled with other good production practices and other effective interventions at points further along the food continuum risks can be reduced. Microbial hazards, however, cannot be eliminated from the live animal on the farm in the same way they can through effective processing. Some on-farm food safety programs have existed for many years, and have developed national standards for primary food production practices. They rely on extensive training for producers and verifiers/auditors, third-party verification processes and cost-effective delivery systems.

4.2 Objective

The objective of the committee in consultation with the production-sector working group was to formulate recommendations to the Government of Canada on a food safety policy to help minimize the risk of biological, chemical or physical hazards already present or introduced at primary production, which could compromise the safety of RFAOs produced at a subsequent step in the food chain.

4.3 Concerns

Within the production sector, the hazards of greatest concern to all RFAOs are mainly biological in nature and examples of these are presented in Table 4.1, although some chemical and physical hazards are also mentioned. Chemical hazards identified include residues from drugs used during the production of food animals and biotoxin accumulation in certain shellfish. Physical hazards identified included needles and foreign matter. Table 4.2 lists hazard control strategies associated with the production sector.
Governments are challenged to ensure compliance with on-farm food safety programs and assure that consistency across commodities is maintained. Governments alone cannot provide the means to implement such programs on a national scale. Committee members differed on the extent of government involvement at the farm level. Some said the Government of Canada should develop a single, national process for recognizing and implementing on-farm programs, such as those being designed under the COFFS program. Others said the voluntary nature of these programs could never ensure consistency; they thought more regulatory on-farm inspection programs should be developed. The ultimate delivery of these programs will have to be collaboration between industry and government.

Although wild animals represent a relatively small portion of the diet they are important regionally and present some unique challenges for food service establishments. There are virtually no production controls in the wild. Therefore, assessment of the safety of raw food of wild animal origin begins post slaughter.

The spread of antimicrobial resistance poses a significant and increasing threat to public health in developed and developing countries. Antimicrobials are commonly used in animal agriculture to combat infectious diseases and sometimes as growth stimulators at sub-therapeutic levels and their extensive use may be a factor in the spread of antimicrobial resistance. Some scientists warn that an immediate response is required to prevent the loss of antibiotics as useful weapons against infectious disease. The committee recognizes this problem and therefore supports the work of Health Canada’s Advisory Committee on Animal Uses of Antimicrobials and Impact on Resistance and Human Health in reviewing the situation and in developing policy to protect the safety of the food supply, particularly RFAOs.
Table 4.1: An assessment of the biological, chemical and physical hazards associated with the production of raw food of animal origin within the production sector.

<table>
<thead>
<tr>
<th>Component of Risk Assessment</th>
<th>Commodity</th>
<th>Examples of Hazards</th>
<th>Intervention</th>
</tr>
</thead>
</table>
| Biological                   | Beef      | • Bacterial pathogens (*E. coli*, *Salmonella spp.*)  
                                |           | • Parasites (*Cysticercus sp.*)  
                                |           | • Moulds                        |              |
|                              | Chicken   | • Bacterial pathogens (*Salmonella spp.*, *E. coli*, *Campylobacter spp.*) |              |
|                              | Eggs      | • *Salmonella spp.*  
                                |           | • *Campylobacter spp* |              |
|                              | Pork      | • Bacterial pathogens (*Salmonella spp.*, *Yersinia enterocolitica*, *Campylobacter coli*)  
                                |           | • Moulds |              |
|                              | Seafood   | Molluscan Shellfish
                                |           | • Bacterial pathogens (from fecal pollution e.g., *Salmonella spp.*, or naturally occurring *Vibrio parahaemolyticus*) |              |
|                              |           | • Viruses (from fecal pollution: Norwalk virus, hepatitis A virus) |              |
|                              |           | • Parasites (e.g., *Anisakis sp.*) |              |
|                              | Turkey    | • Bacterial pathogens (*Salmonella spp.*, *E. coli*, *Campylobacter sp.*) |              |
| Chemical                     | Beef      | • Pharmaceuticals residues  
                                |           | • Pesticides, Herbicides, Fertilizers  
                                |           | • Environmental Toxins |              |
|                              | Chicken   | • Pharmaceutical residues |              |
|                              | Eggs      | • Pharmaceutical residues  
                                |           | • Chemicals in packaging |              |
|                              | Pork      | • Pharmaceuticals (tetracycline, sulfamethazine)  
                                |           | • Pesticides, Herbicides, Fertilizers  
                                |           | • Mycotoxins |              |
|                              | Seafood   | Molluscan shellfish
                                |           | • Marine biotoxins
                                |           | (e.g. paralytic, amnesic or diarrhetic shellfish poisons)  
                                |           | Cultured Finfish |              |
|                              |           | • Pharmaceutical residues  
                                |           | Some species |              |
|                              |           | • Chemical contaminants (e.g., mercury, dioxin) |              |
|                              | Turkey    | • Pharmaceutical residues |              |
| Physical                     | Beef      | • Needles |              |
|                              | Chicken   | • None identified |              |
|                              | Eggs      | • None identified |              |
|                              | Pork      | • Needles |              |
|                              | Seafood   | • None identified |              |
|                              | Turkey    | • None identified |              |
Table 4.2: Management strategies to control the hazards associated with raw food of animal origin within the production sector. Currently, these strategies are in use, or are being considered for use, in Canada.

<table>
<thead>
<tr>
<th>Risk Management Strategy</th>
<th>Commodity</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs</td>
<td>Beef</td>
<td>• Quality Starts Here</td>
</tr>
<tr>
<td></td>
<td>Chicken</td>
<td>• Safe, Safer, Safest</td>
</tr>
<tr>
<td></td>
<td>Eggs</td>
<td>• Start Clean - Stay Clean</td>
</tr>
</tbody>
</table>
|                          | Pork      | • CQA™ of the Canadian Pork Council  
|                          |           | • Feed mills have their own HACCP system |
|                          | Seafood   | • Canadian Shellfish Sanitation Program  
|                          |           | • Quality Management Program  
|                          |           | • Healthy Salmon Program |
|                          | Turkey    | • Raising Turkeys - Producing Food - implemented 1997 and currently under review |

| Regulations              | Beef      | • Health of Animals Act and Regulations  
|                          |           | • Feeds Regulations  
|                          |           | • Food and Drugs Act for licensed products (Drugs)  
|                          |           | • Proposed Medicated Feeds Regulations |
|                          | Chicken   | • Health of Animals Act and Regulations  
|                          |           | • Feed Regulations  
|                          |           | • Food and Drugs Act and Regulations  
|                          |           | • Proposed Medicated Feed Regulations |
|                          | Eggs      | • Canadian Agricultural Products Act and Regulations  
|                          |           | • Health of Animals Act and Regulations  
|                          |           | • Feed Regulations  
|                          |           | • Food and Drugs Act |
|                          | Pork      | • Health of Animals Act and Regulations  
|                          |           | • Federally inspected plants perform sulfas tests and have the power to ensure an on-farm follow-up if a test is positive.  
|                          |           | • Food and Drugs Act and Regulations and provincial regulations for drugs  
|                          |           | • Feed Regulations |
|                          | Seafood   | • Fish Inspection Regulations  
|                          |           | • Management of Contaminated Fisheries Regulations |
|                          | Turkey    | • Health of Animals Act and Regulations  
|                          |           | • Feed Regulations  
|                          |           | • Food and Drugs Act and Regulations  
|                          |           | • Proposed Medicated Feed Regulations |

| Interventions            | Beef      | • QSH |
|                         | Chicken   | • Safe, Safer, Safest |
|                         | Eggs      | • Start Clean - Stay Clean, Diversion to Pasteurization as needed |
|                         | Pork      | • CQA |
|                         | Seafood   | |
|                         | Turkey    | • Raising Turkeys - Producing Food |

| Inspections             | Beef      | • CFIA for animal health |
|                        | Chicken   | • Validation program in development |
|                        | Eggs      | • Annual Inspections |
|                        | Pork      | • On farm by CFIA, following the finding of sulfas in slaughterhouse |
|                        | Seafood   | |
|                        | Turkey    | • Validation program in development |
| Extension/Education | Beef | • Since 1995, QSH has concentrated extensively on the development and implementation of education and extension programs. |
| Chicken | • Training sessions for producers were developed by CFC in 1998-1999 and implemented in 1999-2000 |
| Eggs | • Trained technicians visit farms annually and promote SC-SC |
| Pork | • CQA involves an on farm visit and counseling, plus many producers, technical advisors and veterinarian conferences or presentations, plus video produced for public dissemination |
| Seafood | • Provincial Boards, Processing Plants, Feed Mills and the Canadian Turkey Marketing Agency (CTMA). Each have their one training programs. |
| Turkey | • Agricultural Colleges |

| 3rd Party Accreditation | Beef | • N/A at this time. Implementation on a voluntary basis targeted for 2001 |
| Chicken | • Provincial Marketing Boards in the process of accrediting CFC Safe Safer Safest program |
| Eggs | • Awaiting national accreditation |
| Pork | • Waiting for the recognition of the written program by CFIA. |
| | | • At the present a standard is being elaborated in collaboration with the Bureau de Normalisation du Québec (BNQ) |
| Seafood | • Canadian Shellfish Sanitation Program - audited jointly by CFIA, DFO as well as EU and USFDA |
| | • Quality Management Program - audited by CFIA |
| Turkey | • N/A at this time. Implementation on a voluntary basis. Accreditation mechanisms being discussed with other national commodity organizations |

| HACCP/risk-based control | Beef | • The QSH program is risk-based and is based on GPPs and CCPs where applicable. Each sector is treated uniquely. |
| Chicken | • Safe, Safer, Safest being implemented |
| Eggs | • HACCP based farm food safety program |
| Pork | • For the CQA, the Food Safety Enhancement Program (FSEP) risk-based approach of the CFIA was applied to a furrow-to-finish operation and the resulting HACCP model was translated into the 37 questions of the CQA. |
| Seafood | • Canadian Shellfish Sanitation Program - risk-based control |
| | • Quality Management Program (QMP) – HACCP |
| Turkey | • Extensive pre-requisite program being developed |
4.4 Recommendations

The committee, in consultation with the production-sector working group, recommends the following points be considered during the development of policy aimed at identifying and managing food safety risks associated with the production of RFAOs:

1. The Government of Canada should ensure that equitable and uniform standards for on-farm food safety are applied to all commodities, while taking into account the unique production attributes of each commodity.

2. The following minimum standards should be addressed:
   a. Rearing environments and management practices for livestock, poultry and aquatic animals should minimize the risk of biological, chemical and physical hazards.
   b. Licensed veterinary drugs should be used responsibly and appropriately. This includes the fundamental principle of observing all withdrawal times as indicated on the product label.
   c. On-farm programs should provide for the identification and appropriate disposal of animals that exhibit an increased risk of biological, chemical or physical hazards associated with food safety.
   d. Components of on-farm food safety programs that are specific to each commodity should include a consistent system to address the hazards associated with feed and water as delivery agents for medications. Every effort should be made to ensure that these systems are achievable and in keeping with regulatory requirements. They should be recognized by the Government of Canada as being in compliance with the regulations.
   e. An identification system within the food continuum that can trace the origin and chain of custody of a product from the consumer back to the appropriate point of production or processing should be implemented. This system will also support information exchange and communication throughout the food continuum.
   f. Transportation and distribution systems for animals and animal products should comply with the principles of food safety, particularly those related to foodborne pathogens.
   g. Minimizing the load of foodborne pathogens in animals destined for slaughter should be a cornerstone of the primary production commodity organizations. This should be underpinned by following good production practices and risk-based food-safety programs implemented by the respective organizations, in collaboration with the Canadian Food Inspection Agency (CFIA), Agriculture and Agri-Food Canada (AAFC) and Health Canada (HC). These programs should be based on risk assessment and scientific principles recognized or recommended by Codex Alimentarius, the Office International des
Épizooties (OIE) and the Sanitary and Phytosanitary (SPS) Agreement of the World Trade Organization (WTO).

3. Governments should work collaboratively and in harmony with the COFFS program.

4. The Government of Canada should formally recognize on-farm food safety programs based on established criteria and provide leadership in having these programs recognized globally.

5. The Government of Canada should ensure the effective delivery of food safety programs between all levels of government and departmental agencies to eliminate gaps and duplication of services.

6. The Government of Canada should work collaboratively with provincial governments and the production sectors to promote and implement agricultural practices, which will minimize the use of antimicrobial agents in animals to be used as food.
5 Processing Sector

5.1 Background
Raw foods of animal origin are excellent hosts for many types of microorganisms, especially bacteria. Under the right conditions, some of these microorganisms can cause foodborne illness in humans. The challenge of harvesting and processing RFAOs is to produce a safe product in an environment where there are many opportunities for contamination. For example, some types of potentially harmful bacteria reside in the gastro-intestinal tracts of food-producing livestock, poultry and aquatic animals. As well, fish and seafood may be raised in or harvested from areas contaminated with human pathogens. If appropriate procedures are not followed and interventions designed to reduce risks are not applied during harvest, potential pathogens may contaminate the food and survive during the processing, storage, distribution and handling of the raw products. The time required for these raw foods to travel through the food continuum to the consumer is often relatively short and the initial microbial load on the raw product is generally low, but the microorganisms still may grow to levels that cause illness in humans. When all these factors are taken into account, it is a challenge to identify and eliminate problems before the foods are consumed. Consequently, many factors should be considered when managing these risks. Government inspection programs, such as Food Safety Enhancement Program (FSEP) and Quality Management Programs (QMP), address some of these problems.

5.2 Objective
The objective of the committee, in consultation with the processing-sector working group, was to formulate recommendations to the Government of Canada on a food safety policy that helps minimize the risk of biological, chemical or physical hazards already present or introduced during processing, which could compromise the safety of RFAOs produced at a subsequent step in the food chain.

5.3 Concerns
Within the processing sector, the hazards related to RFAOs are mainly biological (Table 5.1). Chemical hazards include residues from drugs used during production and products used for livestock, poultry and aquatic-animal processing. In aquaculture, biotoxins are also a significant hazard. Table 5.2 lists strategies that are (or could be) used to control the hazards associated with the processing sector.
While a single food-safety policy should provide useful guidance during the analysis of risks associated with RFAOs, each commodity has unique characteristics and risks that may require ancillary policies to address specific concerns about food safety management, and facilitate efficient recall procedures. For example, the pathogens of concern are different in red meat than in poultry (Table 5.1). Fish and shellfish also have commodity-specific risks. As well, each industry representing these various commodities has characteristics and requirements that may warrant consideration during the development of policies on RFAOs.

To determine the best methods for managing the risks associated with RFAOs, baseline data and performance criteria should be established for each commodity, along with a risk assessment of each commodity-specific hazard. Policies should be based on sound scientific principles and appropriate data. Interim, ancillary policies may be adopted in some situations until adequate data are collected or a reliable risk assessment is conducted.

The processing sector has been subjected to the most intense scrutiny vis-à-vis historical and existing programs aimed at ensuring the safety of RFAOs. However, it relies on producers to supply animals that are in good health with minimal exposure to hazards that may cause food safety concerns. As well, it counts on the retail/food service and consumer sectors to store, handle and prepare RFAO products in a safe manner. This complexity suggests a comprehensive risk analysis – including risk assessment, risk management and risk communication – should be developed for the entire food continuum associated with RFAOs. The adoption of risk-based food safety programs, as well as validated interventions and best practices, should serve a key role in the risk-management strategy for each sector. Programs should be compatible with principles established by world food safety and health organizations, so that the potential for global trading of Canadian RFAOs is not compromised. Policies should be written to encourage each sector to deal with the concerns of their respective commodities. Risk-based food safety programs should be evaluated on a regular basis, internally and externally. As well, the Government of Canada should develop a consistent way to recognize and verify food safety programs. This would help to build consumer confidence in the food safety system.

Many regulations for the processing sector exist under several different regulatory authorities. Harmonization of regulations, as well as better cooperation among various government jurisdictions, is needed to catalyze a seamless food safety system. A closer working relationship
and better understanding among all levels of government, researchers and industry is necessary, so research results can be rapidly incorporated into the food processing system. The rapid approval of proven interventions by government is important for maintaining and improving food safety programs. Better understanding by all stakeholders (government, industry and research) would ensure that policies are interpreted consistently. Proper education and training of government personnel involved in implementation, auditing and related activities in risk-based food safety programs, is essential. Worker education and training within the food continuum is imperative. Companies are responsible for, and must demonstrate, routine and ongoing worker training. Continued support and extension of current educational and training programs is important so that employees handling raw product are better educated and fulfill their responsibilities in maintaining safe product.
Table 5.1: An assessment of the biological, chemical and physical hazards, sources of the hazards and possible interventions associated with the production of raw food of animal origin during the slaughter and processing phases within the processing sector.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Component of Risk Assessment</th>
<th>Commodity</th>
<th>Examples of Hazards</th>
<th>Source / Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slaughter</td>
<td>Biological</td>
<td>Beef</td>
<td>• <em>Escherichia coli</em> (O157:H7)</td>
<td>• Carcass pasteurization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Listeria monocytogenes</em></td>
<td>• Steam vacuuming</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Salmonella spp.</em></td>
<td>• Proper hide removal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Clostridium spp.</em></td>
<td>• Chemical sprays and rinses e.g., chlorine dioxide, acid rinse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poultry</td>
<td>• <em>Campylobacter spp.</em></td>
<td>• Rapid chilling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Salmonella spp.</em></td>
<td>• Hot water wash</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Clostridium spp.</em></td>
<td>• Good sanitation practices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pork</td>
<td>• <em>Salmonella spp.</em></td>
<td>• Good hygiene practices</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Yersinia enterocolitica</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <em>Trichinae sp.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All</td>
<td></td>
<td>• Pests</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Birds, flies, rodents carrying pathogens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemical</td>
<td>All</td>
<td>• Pharmaceutical residues</td>
<td>• On farm education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Pesticides</td>
<td>• Chemical testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Allergens</td>
<td>• Approved films</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Agricultural chemicals</td>
<td>• CFIA surveillance and monitoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sanitation chemicals</td>
<td>• Sanitation SOPs and chemical backups</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Packaging films</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical</td>
<td>All</td>
<td>• Broken injection needles</td>
<td>• Visual by buyer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Carcass metal tags</td>
<td>• Visual on farm, tag the animal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Head shot</td>
<td>• On-farm education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Knife chips</td>
<td>• Deboners on grinders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Bone fragments</td>
<td>• No wood pallets in the process</td>
</tr>
</tbody>
</table>
## Table 5.1 (continued)

| Biological Processing | Beef | Source: | • Raw material  
| | • Escherichia coli (O157:H7)  
| | • Salmonella spp.  
| | • Listeria monocytogenes  
| | • Clostridium spp.  
| | • Cysyicurbus bovis  
| | Pork | • Salmonella spp.  
| | • Yersinia spp.  
| | • Trichinella spiralis  
| | Molluscan Shellfish | • Pathogenic microorganisms  
| | Finfish | • Parasites  
| | e.g. Anisakis sp.  
| | Scombroid Species | • Histamine  
| | All | • Staphylococcus aureus  
| | • Birds, flies and rodents which can carry pathogens  
| Chemical Processing | Molluscan shellfish | • Marine biotoxins  
| | - paralytic, amnesic and diarrhetic shellfish poison  
| | Cultured finfish | • Pharmaceutical residues  
| | All | • Allergen cross contamination  
| | • Pharmaceutical residues  
| | • Pesticides  
| | • Growth promotants  
| | • Chemical residues  
| | e.g. sanitation  
| Physical Processing | All | • Foreign objects  
| | e.g. gloves, hair, bone, metal  
| | • Injection needles  
| | • Packaging materials  
| | • Wood e.g. pallets  
| | Source: | • Raw material  
| | • Employee carelessness  
| | • Poorly maintained equipment  
| | Intervention: | • Covered containers  
| | • Metal detectors  
| | • Preventative maintenance programs  
| | • Trace back systems  
| | • Employee training  

Source:
- Raw material  
- Poorly designed facilities and equipment  
- Poor hygiene  
- Poor sanitation  
- Cross contamination  
- Contaminated water  

Intervention:
- Good GMPs  
- Ingredients  
- Good hygienic practices  
- Good sanitation practices  
- Proper design of facilities and equipment  
- Good temperature control  
- Good processing criteria  

Source:
- Raw material  
- Feed  
- Water  
- Improper use  
  e.g. fail to follow directions  

Intervention:
- Farm food safety programs  
- Good sanitation  
- Government evaluation and approval  
- Good sanitation practices  
- Rapid test kits  
  e.g. allergens  

Source:
- Raw material  
- Employee carelessness  
- Poorly maintained equipment  

Intervention:
- Covered containers  
- Metal detectors  
- Preventative maintenance programs  
- Trace back systems  
- Employee training  

Intervention:
Table 5.2: Management strategies for hazards associated with raw food of animal origin during the slaughter and processing phases within the processing sector. Currently, these strategies are in use, or are being considered for use, in Canada.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Risk Management Strategy</th>
<th>Commodity</th>
<th>Strategies</th>
</tr>
</thead>
</table>
| Slaughter      | Programs or regulations  | All except fish | • Regulations to mandate interventions such as irradiation, steam pasteurization  
                           |                           | • Regulations should have performance criteria for food processing i.e. national guidelines - all plants should follow  
                           | Fish                      | • Canadian Shellfish Sanitation Program |
|                | Inspection               | All             | • Integration of traditional inspection with risk-based food safety programs  
                           |                           | • Fish Inspection Regulations  
                           |                           | • Food & Drug Regulations |
|                | Extension/Education      | All             | • Educate government officials that zero tolerance defeats improvement.  
                           |                           | • Educate retailers and customers of positive interventions they control  
                           |                           | • HACCP for distribution, food retail/services  
                           |                           | • Consumer education  
                           |                           | • Research on effectiveness of multiple interventions |
|                | 3rd party accreditation  | All             | • Required by government to validate product labels and processing designs and systems  
                           |                           | • Require government to recognize risk-based food safety programs and organize 3rd party audits |
|                | HACCP/risk-based control | All             | • Validation of critical control points  
                           |                           | • Legislated requirements for the total food continuum not just federally registered meat plants and certain commodities |
| Processing     | Programs or regulations  | Seafood         | • Canadian Shellfish Sanitation Program  
                           |                           | • Quality Management Program  
                           |                           | • Fish inspection Regulations |
|                | Inspection               | All             | • Current pathogen testing legislation is punitive to the processors making the improvements |
|                | Extension/Education      | All             | • Integration of traditional inspection with risk-based food safety programs  
                           |                           | • Multiple systems, multiple reasons, multiple levels all doing the same  
                           |                           | • Harmonization of regulations  
                           |                           | • Require reciprocity agreements |
|                | 3rd party accreditation  | All             | • Science based approvals for processes and equipment from non-Canadian sources should be accepted as GRAS  
                           |                           | • Research on multiple interventions |
|                | HACCP/risk-based control | All             | • Risk-based food safety programs need 3rd party accreditation to maintain customer confidence in the food process  
                           |                           | • Very effective system that requires initial government certification for consistency and authority  
                           |                           | • Validation of critical control points  
                           |                           | • Legislated requirements for the total food continuum not just federally registered meat plants and certain commodities |
5.4 Recommendations

The committee, in consultation with the processing sector working group, recommends the following points be considered during the development of policy aimed at identifying and managing risks associated with RFAOs:

1. A comprehensive risk management system is necessary for the entire food continuum associated with RFAOs. The system should cross all governmental jurisdictions (federal, provincial, municipal) and result in one synchronized inspection system.
2. A risk-based food safety program is necessary throughout the food continuum.
3. Inspection procedures should be integrated with risk-based food safety programs to improve the effectiveness and application of food safety objectives and science-based decisions. Adoption and adaptation of the Meat Code and Food Code would help this process at the various levels of government inspection.
4. Food safety programs developed by industry should be recognized and the adoption of third-party audits should be considered. The Government of Canada should develop guidelines for establishing a third-party auditing system of risk-based food safety programs. These guidelines should specify the minimum acceptable standards and outline a framework to be used by the certifying agency when evaluating food safety programs.
5. FSOs that exceed current performance levels and are demonstrably attainable should be identified. Baseline studies that benchmark the best practices for each major sector and commodity within the food continuum should be conducted. These studies help recognize best practices and encourage continuous improvement in food safety programs. The database arising from these studies should be maintained and updated regularly (e.g. a baseline study is needed to establish the current level of microbial contamination at various steps in the food continuum for the major raw meat commodities). This information would assist in evaluating and encouraging continuous improvements in the food safety system.
6. Surveillance databases need to be developed and maintained, to improve the precision and time required to relate human foodborne illness with specific food products. These databases should function as early warning systems by assisting in the identification of emerging pathogens. They should help also to evaluate the efficacy of the current food safety system. It is important to determine the source of all foodborne illnesses, and whether additional measures are necessary to control the risk, and if so, at what step(s) in the food continuum they should be applied.
7. Risk assessment tools such as models that predict microbial growth should be developed.
and used to identify weaknesses in food safety systems. These tools should assist personnel in making science-based decisions about food safety and identify areas where further research is needed. Models should also identify how risk can be reduced or eliminated using appropriate interventions, to ensure the risk is not exaggerated.

8. The use of validated interventions should be encouraged. The effect of two or more interventions at different steps within the process is cumulative and should be assessed and recognized for total effect.

9. The development and evaluation of promising new interventions should be fast-tracked to assist Canada in maintaining its position as a producer of safe food in a global economy.

10. To ensure the continuous improvement of the food safety system, an efficient and effective system for identifying, funding and reviewing research should be developed.

11. An emergency response protocol, agreed to by all stakeholders, should be established to deal with outbreak situations involving foodborne illness in humans and, if necessary, product recalls. The protocol should include a mechanism for rapid response, communication, and request the assistance of others in the industry when necessary.

12. All sectors of the food continuum should work together to establish and achieve the FSOs for RFAOs. In particular, all parties within the Government of Canada should work closely together during policy application and "applied" risk assessment.

13. To assure consistency of use, detailed interpretations and applications of policies need to be drafted for specific pathogens (e.g. *Escherichia coli* O157:H7 in beef, *Salmonella* spp. in poultry and pork).

14. The Government of Canada should ensure the effective delivery of food safety programs among all levels of government and departmental agencies to eliminate gaps and duplication of services.
6 Retail/Food Service Sector

6.1 Background
The retail/food service sectors constitute a major link in the food supply chain and are the main point of direct contact with the consumer. Retail/food service establishments are required to comply with extensive food safety standards and have implemented a variety of voluntary programs to further reduce the risk of potential hazards and reinforce consumer confidence in the safety of food. Systems for enhancing food safety at the retail level are varied, but use common principles of sanitation, personal hygiene, training and education of employees, good retail practices and standard operating procedures. However, each establishment is responsible for its own food safety program and each employee is responsible for ensuring the principles of food safety are maintained, according to the responsibilities of their position in the company. Ultimately, accountability rests with the executive or manager in charge of perishable goods. Proper staff training is the most important activity aimed at ensuring the safety of RFAOs within the retail/food service sector. All employees should understand the importance of food safety and follow appropriate procedures when handling RFAOs.

6.2 Objective
The objective of the committee, in consultation with the retail/food service sector working group, was to formulate recommendations to the Government of Canada on a food safety policy that will help minimize the risk of biological, chemical or physical hazards already present or introduced during handling and preparation at retail/food service establishments, which could compromise the safety of raw foods of animal origin sold to consumers as food for humans.

6.3 Concerns
Within the retail/food service sector, the hazards related to RFAOs are similar to those identified within the processing sector (Table 6.1). Table 6.2 lists those strategies that are, or could be, used to control the hazards associated with the retail/food service sectors.
Table 6.1: An assessment of the biological, chemical and physical hazards, sources of the hazards and possible interventions associated with the production of raw food of animal origin (boneless beef, poultry and pork), during the retail, distribution and food service phases within the retail/food service sector.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Component of Risk Assessment</th>
<th>Commodity</th>
<th>Product</th>
<th>Hazards</th>
<th>Source / Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>Biological</td>
<td>Beef, Poultry, Pork, Fish, Seafood</td>
<td>Tray pack/retail ready product</td>
<td>• For tray pack/retail ready product, the elements addressed by slaughter and processing apply.</td>
<td>• Safety is addressed through the continuum by adherence to temperature controls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retail prepared product</td>
<td>• Temperature fluctuations • Cross contamination • Hepatitis A virus • Norwalk virus • Air borne pathogens</td>
<td>• Maintenance of cold chain; monitoring • Separate work stations and/or cleaning and sanitizing between species • Sanitation protocol • Staff training</td>
</tr>
<tr>
<td></td>
<td>Chemical</td>
<td>All</td>
<td></td>
<td>• Antibiotics • Pesticides • Allergens • Nitrite • Salt • Ag. Chemicals • Sanitation Chemicals</td>
<td>• Surveillance and monitoring by CFIA and others • Public Health visual surveillance at establishment level • Sanitation SOPs • Regulatory controls • Government approved products and processes</td>
</tr>
<tr>
<td></td>
<td>Physical</td>
<td>All</td>
<td></td>
<td>• Injection needles • Foreign materials • Bone fragments</td>
<td>• Perform sensory evaluation • Metal detectors • Programs with CMC, CCA and CPC to address foreign materials • Code dating</td>
</tr>
<tr>
<td>Distribution</td>
<td>Biological</td>
<td>All</td>
<td></td>
<td>• Meat products carried by CCGD food service members are received and sold by frozen case lot • Some food service distributors also handle fresh ground meat</td>
<td>• Temperature control maintained</td>
</tr>
<tr>
<td></td>
<td>Chemical</td>
<td>All</td>
<td></td>
<td>• As above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical</td>
<td>All</td>
<td></td>
<td>• Sold to end user (restaurant) in frozen case to be inspected by final user</td>
<td>• Perform sensory evaluation</td>
</tr>
</tbody>
</table>
Table 6.1 (continued)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Component of Risk Assessment</th>
<th>Commodity</th>
<th>Product</th>
<th>Hazards</th>
<th>Source / Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Service</td>
<td>Biological</td>
<td>All</td>
<td></td>
<td>• Bacacterial: Salmonella spp. E. coli Campylobacter sp. Yersinia sp. C. botulinum Listeria monocytogenes • Viral: Norwalk Hepatitis A • Parasites: Anisakis sp. • Toxin: Scombroid PSP DSP</td>
<td>• Incoming products, particularly raw foods, infected food handlers, cross contamination. • Safe food handling procedures, e.g. cooking, cooling, reheating, cross contamination control, good personal hygiene</td>
</tr>
<tr>
<td></td>
<td>Chemical</td>
<td>All</td>
<td></td>
<td>• e.g. sanitizers, cleaners, pesticides</td>
<td>Sources: • Agents used in the establishment. Interventions: • Safe handling, storage and application procedures; education of staff.</td>
</tr>
<tr>
<td></td>
<td>Physical</td>
<td>All</td>
<td></td>
<td>• e.g. allergens, hair, foreign material</td>
<td>Sources: • Food service environment. Interventions: • Education of staff, particularly of allergen hazards, sanitation/quality control.</td>
</tr>
</tbody>
</table>
Table 6.2: Management strategies for hazards associated with raw food of animal origin during the retail, distribution and food service phases within the retail/food service sector. Currently, these strategies are in use, or are being considered for use, in Canada.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Risk Management Strategy</th>
<th>Commodity</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETAIL</td>
<td>Programs or regulations</td>
<td>All</td>
<td><strong>Meat code</strong>&lt;br&gt;• MUST (Management Uniform Safety Training)&lt;br&gt;• Individual corporate food safety training programs&lt;br&gt;• Third party audits&lt;br&gt;• CCGD/CFIA food recall system addresses the non compliance issues</td>
</tr>
<tr>
<td>Inspection</td>
<td>Interventions</td>
<td>All</td>
<td>• Municipal/provincial/federal inspection apply to retail &amp; distribution;&lt;br&gt;• Reciprocity agreements would expedite efficiency and better use of resources</td>
</tr>
<tr>
<td>Extension/</td>
<td>Education</td>
<td>All</td>
<td>• Educate government officials that zero tolerance defeats improvement.&lt;br&gt;• Educate retailers and customers of positive interventions they control&lt;br&gt;• Risk-based systems for distribution, retail/food services;&lt;br&gt;• Consumer education and <em>FightBAC</em>™&lt;br&gt;• Collaborative work re the Cold Chain Study conducted for the Canadian Cattlemen’s Association</td>
</tr>
<tr>
<td>3rd party accreditation</td>
<td>All</td>
<td>For validation of information on product labels and processing designs</td>
<td></td>
</tr>
<tr>
<td>DISTRIB</td>
<td>HACCP/risk-based control</td>
<td>All</td>
<td>• Emphasis on risk-based&lt;br&gt;• CCGD Food Safety Committee is addressing</td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td>Programs or regulations</td>
<td>All</td>
<td>• ServSafe&lt;br&gt;• MUST&lt;br&gt;• CCGD/CFIA food recall system addresses the non compliance issues&lt;br&gt;• Individual corporate programs&lt;br&gt;• Third party audits</td>
</tr>
<tr>
<td>Inspection</td>
<td>Interventions</td>
<td>All</td>
<td>• Municipal at (restaurant) operator level&lt;br&gt;• Provincial/federal inspection apply to retail &amp; distribution</td>
</tr>
<tr>
<td>Extension/</td>
<td>Education</td>
<td>All</td>
<td>• CCGD examining possibility of creating standard recall manual for food service members.</td>
</tr>
<tr>
<td>3rd party accreditation</td>
<td>All</td>
<td>For validation of information on product labels and processing designs</td>
<td></td>
</tr>
<tr>
<td>HACCP/risk-based control</td>
<td>All</td>
<td>• Very effective system that requires initial government certification for consistency and authority</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Risk Management Strategy</td>
<td>Commodity</td>
<td>Strategy</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Programs or regulations</td>
<td>All</td>
<td>• Provincial and Federal Acts, supported by sector specific regulations e.g. Food Premises Regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Third party audits</td>
</tr>
<tr>
<td></td>
<td>Interventions</td>
<td>All</td>
<td>• Licences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Ticketing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Prosecution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Inspections</td>
</tr>
<tr>
<td></td>
<td>Inspection</td>
<td>All</td>
<td>• Variable but usually a minimum of once /year and more frequent based on resource and inspection history and prioritizing hazards.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Conducted by provincial, municipal officials</td>
</tr>
<tr>
<td></td>
<td>Extension/</td>
<td>All</td>
<td>• Some provinces have a mandatory food safety education requirement FOODSAFE, ServSafe, National Sanitation Training Program</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3rd party accreditation</td>
<td>All</td>
<td>• None at this time</td>
</tr>
<tr>
<td></td>
<td>HACCP/risk-based control</td>
<td>All</td>
<td>• Recommended requirements in National Food Retail/Food Service Regulation/Code</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Some provinces have incorporated risk-based requirements into Provincial regulations for food service.</td>
</tr>
</tbody>
</table>
6.4 Recommendations

The committee, in consultation with the retail/food service sector working group, recommends the following points be considered during the development of policy aimed at identifying and managing risks associated with RFAOs.

1. Retail/food service establishments should develop and implement risk-based food safety programs for RFAOs.

2. A national strategy to evaluate and recognize food safety employee training programs should be developed. The Food Retail and Food Services Regulation and Code may serve as a basis for the development of such a program. Personnel working in operations associated with RFAOs, who are directly or indirectly in contact with food, should be trained, instructed and supervised at a level appropriate for the work they perform. Training programs should be routinely reviewed and updated. Although current food safety programs in the retail/food service sector are generally adequate to address microbial risks or hazards, there are some variations in these programs between establishments. Special attention should be given to the following critical areas, as outlined in the education section of the Food Retail and Food Services Code: time and temperature of cooking processes, cross-contamination, personal hygiene and allergens.

3. Members of the retail/food service sector should support an ongoing process to educate consumers regarding consumption of RFAOs. Food safety education should include proper storage, handling and preparation of RFAOs to prevent contamination and growth or survival of foodborne pathogens. Using key messages such as those included in the FightBAC!™ program and labelling are two ways to ensure that the next person to handle, store or prepare the RFAO product can do so safely and correctly.

4. RFAO products that reach the consumer in the raw state should be identified by the lot or day code indicating when the products were produced or packaged. Records to this effect should be kept by the establishment for a reasonable time period (e.g. one year).

5. Harmonization of federal, provincial and municipal food safety objectives and policies is an essential element for any further development of policy related to RFAOs.

6. An expert panel should be established to provide scientific advice to the Government of Canada on sensitive matters related to RFAOs.

7. The National Food Retail/Food Services Regulation and Code should be adopted by all provinces and territories.

8. The Government of Canada should ensure the effective delivery of food safety programs between all levels of government and departmental agencies to eliminate current gaps and duplication of services.
7 Consumer Sector

7.1 Background
Consumers have limited control over the biological, chemical and physical hazards inherent in the production, processing and retailing of RFAOs. Increasing consumer awareness of risk-based food safety and related inspection programs in place at various stages of the food continuum can build confidence in the safety of foods prior to point-of-purchase. However, from the point-of-purchase, and until the food is prepared and consumed, the consumer is responsible for ensuring food safety. To fulfil this responsibility, each consumer should understand how to safely handle RFAOs. This knowledge is an essential element in the prevention of foodborne illness within the consumer sector.

Education is the major tool in raising consumers' awareness of their role in keeping food safe and in learning about safe food handling practices. The food industry, consumer groups and all levels of government are responsible for consumer education. A coalition of more than 60 organizations including governments, industry and consumer groups formed the Canadian Partnership for Consumer Food Safety Education (CPCFSE) in 1998 to address the problem of foodborne illness in Canada. The resulting FightBAC!™ program is designed to educate consumers, using four basic messages: clean, separate, cook and chill. The Partnership has also developed food safety educational tools for school-aged children. Broader dissemination of these messages and resource material would enhance consumer awareness of food safety.

7.2 Objective
The objective of the committee, in consultation with the consumer sector working group, was to prepare recommendations to the Government of Canada on a food safety policy that will help to minimize the risk of foodborne illness caused by the handling, storage, preparation and cooking procedures used by consumers following point-of-purchase.

7.3 Concerns
Consumers have little control over the biological, chemical or physical hazards present in RFAOs at the time of purchase. However, the way these products are handled or prepared from the time they are purchased until they are consumed can affect the level of certain biological hazards (Table 7.1). These hazards may be augmented by cross contamination of other foods during transportation from the point-of-purchase to the home or during storage or preparation in the
home. Improper storage temperature or time in the home could allow growth of microbial hazards and undercooking could allow pathogens to survive. Table 7.2 lists the strategies that are, or could be, used to control hazards associated with the consumer sector.

Table 7.1: An assessment of the biological, chemical and physical hazards associated with raw food of animal origin within the consumer sector.

<table>
<thead>
<tr>
<th>Component of Risk Assessment</th>
<th>Commodity</th>
<th>Hazard</th>
<th>Source/Intervention</th>
</tr>
</thead>
</table>
| Biological                  | All       | Refer to Tables 4.1, 5.1 and 6.1 | • Limited control over hazards prior to time of purchase  
• Include proper storage and handling instructions e.g. keep refrigerated, refrigerate after opening, etc. |
| Chemical                    | All       | Refer to Tables 4.1, 5.1 and 6.1 | • Limited control over these at the time of purchase |
| Physical                    | All       | Refer to Tables 4.1, 5.1 and 6.1 | • Limited control over these at the time of purchase  
• Check integrity of package prior to purchase |

Table 7.2: Management strategies to control the hazards associated with raw food of animal origin within the consumer sector. Currently, these strategies are in use, or are being considered for use, in Canada.

<table>
<thead>
<tr>
<th>Risk Management Strategy</th>
<th>Commodity</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs</td>
<td>All</td>
<td>• Use same key messages (e.g. FightBAC™) in a variety of programs to maximize exposure and minimize costs</td>
</tr>
<tr>
<td>Regulations</td>
<td>All</td>
<td></td>
</tr>
</tbody>
</table>
| Interventions           | All       | • Read and follow label directions  
• Separation of hand washing and preparation areas  
• Temperature control (cooking, refrigeration)  
• Proper sanitation and hygiene  
• Prevention of cross-contamination  
• Observation of code dates e.g. best before dates |
| Inspections             | All       | • Establish an inspection plan to routinely spot check products offered for sale to the consumer using a risk based approach. |
| Extension/Education     | All       | • Support an ongoing education process e.g. labels to inform consumers regarding hazards associated with specific commodities, as well as proper storage, handling and preparation of RFAOs to prevent contamination, growth or survival of foodborne pathogens. |
| 3rd Party Accreditation | All       |          |
| HACCP/risk-based control| All       |          |
7.4 Recommendations

The committee, in consultation with the consumer sector working group, recommends that, during the development of policy aimed at identifying and managing risks associated with RFAOs, the following points should be considered:

1. The Government of Canada should develop and disseminate standardized food safety information for RFAOs. The material should be effectively presented to consumers and include information on proper storage to prevent growth, proper handling to prevent cross-contamination, and proper cooking to prevent the survival of foodborne pathogens. Suggestions for the format of this information should be sought from consumer groups and commodity marketing organizations. The information should carry a consistent message (e.g. using the four basic messages of the Fight BAC!™ campaign).

2. The safety of 'Minimally Processed' Foods of Animal Origin should be reviewed to determine if an RFAO-like strategy can be implemented. Minimally processed foods of animal origin could include raw fermented sausages, jerky products or raw milk cheese.

3. The Government of Canada should substantially increase the financial support for consumer food-safety education programs. Government should continue to promote and provide long-term support to the Fight BAC!™ program to ensure that consumers receive consistent food-safety information from all stakeholders.

4. Consistent recommendations for endpoint temperatures should be established for consumers cooking various RFAOs.

5. The Government of Canada should fund research to assess the effectiveness of RFAO consumer education programs and safety strategies.

6. The Government of Canada should verify food safety programs in place at the retail level.

7. The Government of Canada should encourage food retail establishments to promote the Fight BAC!™ messages at point-of-sale. Such strategies might include the development of highly visible, illustrative posters, a national toll-free food safety hot-line and the provision of incentives for promoting the Fight BAC!™ messages on store grocery bags and handouts.

8. The Government of Canada should increase communication among all jurisdictions responsible for the safety of the food supply and encourage integration of all programs concerned with food safety from on-farm programs through to the sale of foods to consumers.

9. A national educational program should be established that would provide retail/food service personnel with consistent answers when responding to frequently asked consumer questions.
or concerns about proper storage and cooking procedures for RFAOs.

10. The Government of Canada should ensure the effective delivery of food safety programs among all levels of government and departmental agencies to eliminate gaps and duplication of services.
8 Conclusions and Overall Recommendations

The committee formulated the following recommendations as a summary of those that were the most important recommendations from each of the sector working groups (see sections 4.4, 5.4, 6.4 and 7.4). Although all the recommendations are important, the members believe the Government of Canada should give highest priority to advancing policies based on these recommendations.

1. DEVELOPMENT OF INTEGRATED RISK-BASED FOOD SAFETY PROGRAMS ACROSS THE FOOD CONTINUUM:
The Government of Canada should encourage the development of risk-based food safety programs that adhere to or surpass internationally recognized food safety guidelines and principles. The programs should be applied across all sectors of the food continuum, while reflecting each sector’s unique characteristics. Each program should include all the essential elements of a risk assessment. Food safety objectives (FSOs) must be established and hazards prioritized to ensure the areas of greatest risk are effectively managed. To these ends, the committee recommends that the Government of Canada base food safety programs on the principles embodied in Hazard Analysis Critical Control Point (HACCP) management systems.

The Government of Canada should standardize the process for recognizing, accrediting and auditing risk-based control programs. In conjunction with this, baseline studies of current and emerging food safety hazards should be supported. The studies should be updated on a regular basis, and the control programs amended as necessary to reflect new scientific evidence. This information would also assist in evaluating and encouraging continuous improvements in food safety systems.

2. HARMONIZATION AND COORDINATION OF FEDERAL, PROVINCIAL AND MUNICIPAL FOOD SAFETY OBJECTIVES, POLICIES and PROGRAMS:
Canada’s food safety system operates in a complex jurisdictional context involving federal, provincial and municipal governments, with responsibilities divided among departments within government including agriculture, health and fisheries. Among the consequences are gaps in services, layering of costs, and disproportionate allocation of resources in the food continuum. We require a harmonized, seamless food safety system. The Government of Canada – in cooperation with provincial and municipal governments – should give high priority to establishing
a standing committee for developing a strategy, and coordinating the implementation and
delivery of food safety programs throughout the food continuum. This committee should routinely
identify minimum food safety standards/programs required in each sector, suggest which
jurisdiction is responsible for acting as the lead agency for program delivery, and create a
template which can track a national assessment of the resources being devoted to the various
sectors. Ultimately the Government of Canada should regularly publish a national assessment of
the status of food safety systems in Canada.

The hazards associated with the safety of RFAOs cause concern throughout the food
continuum. Therefore, it is essential that food safety objectives, policies and programs are
harmonized and applied to all sectors within the food continuum, by all levels of government. To
maintain a consistent level of confidence in the safety of RFAOs, imported foods should meet
the same codes, guidelines and standards as domestic foods. Food inspection programs should
be integrated with risk-based food safety programs to ensure hazards causing the greatest
concern are controlled throughout the food continuum, regardless of what level of government is
responsible for inspection and food safety. All personnel performing audits, whether government
or 3rd party, should receive standardized training in food safety principles and auditing to ensure
the responsibilities of all stakeholders have been communicated and interpreted in a consistent
and fair manner.

3. FOOD SAFETY EDUCATION AND TRAINING:
Education should be an essential element of all risk-based food safety programs for RFAOs.
Consumer education is extremely important and every effort should be made to build on the
FightBAC!™ program. This would ensure school-aged children, as well as adults, are presented
with appropriate food safety messages. The retail/food service sector has a major role to play in
consumer education, considering the majority of consumers purchase RFAOs from retail/food
service establishments. All levels of government should support these educational programs for
consumers. Educational and training programs on food safety should be required for all workers
within all sectors of the food continuum and, especially, food handlers working in the retail/food
service sector. Governments should work together to assist in the establishment and recognition
of uniform course curricula. Finally, the effectiveness of these various programs and initiatives
should be regularly evaluated. Adjustments in educational strategies can be made when
changes in consumer habits or patterns related to food safety are noted.
References


Anon. 1993-1997 Food Safety Enhancement Program, Implementation Manuals Volumes 1-4 Agriculture and Agri-Food Canada and Canadian Food Inspection Agency.


Glossary

**Canadian Shellfish Sanitation Program**: a program jointly managed by Environment Canada, the Department of Fisheries and Oceans and the Canadian Food Inspection Agency. The program establishes the standards and protocols to guarantee the quality and safety of shellfish products.

**Commodity**: a specific agricultural or aquaculture product including beef, eggs, turkey or salmon.

**Food continuum**: the agri-food system starting with production and ending with consumption by the consumer.

**Food Safety Enhancement Program (FSEP)**: a Government of Canada program designed to encourage the establishment and maintenance of risk-based systems in federally registered agri-food processing establishments and shell egg grading stations.

**Food safety objectives**: a statement of the frequency or maximum concentration of a microbiological hazard in a food that is considered acceptable for consumer protection.

**Hazard Analysis Critical Control Point (HACCP)**: an internationally recognized and recommended approach to ensure food safety. Its application consists of a logical sequence of 12 steps encompassing seven basic principles.

**Sector**: a specific part of the food continuum including production, slaughter (also called harvesting), processing, distribution, retail, food service and consumer.

**Performance criterion**: the required outcome of a step, or combination of steps, which will assure a food safety objective is met.

**Quality Management Program (QMP)**: the federally legislated fish inspection and control system, that includes procedures, inspections and records, for the purpose of verifying and documenting the processing of fish and the safety and quality of fish processed in, exported from, or imported into Canada.
**Third party accreditation:** the official recognition of a food safety program across one or more sectors or commodities of the food continuum by a nationally accepted authority such as the federal government.

**Third party audits:** the periodic examination and verification of the food safety program following a system recognized by a nationally accepted authority and conducted by an agent approved by the government.
Appendix A: Terms Of Reference, Steering Committee To Oversee The Development Of Policy Related To Raw Food Of Animal Origin (RFAO)

PURPOSE OF THE PROJECT:
In conjunction with the Canadian Food Inspection Agency (CFIA), and other stakeholder groups, the Health Canada - Food Program will develop a comprehensive overarching policy aimed at identifying and managing risks associated with raw food of animal origin (RFAO).

SCOPE:
The primary focus of the steering committee will be on the microbiological safety of RFAO, across the food production continuum. This will include consideration of present and emerging hazards and could also include uncommon concerns such as BSE/TSE.

ROLE AND MANDATE OF THE STEERING COMMITTEE:
The role of the steering committee will be to provide advice and assistance to the Director, Bureau of Microbial Hazards, Food Directorate, in the development of policy options related to RFAO by:

- Identifying issues relevant to a broad range of stakeholders.
- Overseeing, reviewing, commenting on, and providing expertise during the preparation of draft policy documents, based on the issues previously identified.
- Identifying sources of, and facilitating access to, information and expertise relevant to the policy development project.
- Acting as stakeholder representatives to analyse issues, generate options and make recommendations concerning potential solutions.
- Providing feedback to stakeholder groups as appropriate.
- Recommend approaches to communicating risks associated with RFAO and the strategies identified to mitigate the risks.
- Reviewing, in consultation with the Bureau of Microbial Hazards, Food Directorate (Health Canada) and the Canadian Food Inspection Agency (CFIA), a draft policy paper, prior to its implementation as a policy document.
In cases where there are enquiries by the media, on the RFAO policy development process, the chair of the steering committee will consult with the Director, Bureau of Microbial Hazards, in deciding the appropriate response.

**REPORTING STRUCTURE:**
Provides advice to the Director, Bureau of Microbial Hazards of the Food Directorate, Health Protection Branch, Health Canada.

**MEMBERSHIP:**
A small multi-sectoral group of knowledgeable individuals capable of providing advice and assistance to the Food Directorate. It will incorporate a balanced perspective from a wide range of interested external parties, including the food industry, academia, dietetic and other health professionals, provincial governments, consumers, and disease-based health organizations, etc.

**TERM:**
Members are appointed by the Director, Bureau of Microbial Hazards, Food Directorate, Health Protection Branch, Health Canada, for the duration of the project (expected to be approximately two years).

**MEETINGS:**
A large portion of the work will be conducted through a variety of communication means, including telephone or video conference interaction with the steering committee and various working groups. It is anticipated that there will be about four to six steering committee meetings per year.
MANAGEMENT AND ADMINISTRATION:
The project is under the management of the Director of the Bureau of Microbial Hazards and administrative support is provided through the Chief of Microbiology Evaluation Division. You can contact the Director or the Chief at the numbers indicated below:

Paul Mayers A/Director
Bureau of Microbial Hazards
Sir Frederick Banting Bldg, 2203C1
Tunney’s Pasture
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Tel: 613-957-0881
Fax: 613-954-1198
E-mail: Paul_Mayers@hc-sc.gc.ca

Ashton Hughes A/Chief
Microbiology Evaluation Division
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Fax: 613-952-6400
Email: Ashton_Hughes@hc-sc.gc.ca

Unfortunately, it will not be possible to pay a per diem for the time spent on work for this panel. Reimbursement of expenditures by panel members related to meeting attendance will be in accordance with Treasury Board guidelines on travel and accommodation.
Appendix B: Membership, Steering Committee To Oversee The Development Of Policy Related To Raw Food Of Animal Origin

The contributions of those involved in the work of the steering committee and the preparation of this report are gratefully acknowledged.

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Organization</th>
<th>City</th>
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<tbody>
<tr>
<td>Chair:</td>
<td>Dr. D. Anderson</td>
<td>NS Agriculture College</td>
<td>Truro</td>
<td>NS</td>
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<tr>
<td>Co-Chair:</td>
<td>J. Cruikshank</td>
<td>Canadian Council of Grocery Distributors</td>
<td>Halifax</td>
<td>NS</td>
</tr>
<tr>
<td>Co-Chair:</td>
<td>Dr. R. Usborne</td>
<td>Caravelle Foods</td>
<td>Brampton</td>
<td>ON</td>
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<tr>
<td>Members:</td>
<td>Larry Copeland</td>
<td>British Columbia Ministry of Health</td>
<td>Burnaby</td>
<td>BC</td>
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<td></td>
<td>Rob McNabb</td>
<td>Canadian Cattlemen's Association</td>
<td>Calgary</td>
<td>AB</td>
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<td></td>
<td>Anne Kennedy</td>
<td>Canadian Egg Marketing Agency and National Institute of Nutrition</td>
<td>Ottawa</td>
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<tr>
<td></td>
<td>Ellie Topp</td>
<td>Canadian Home Economics Association</td>
<td>Nepean</td>
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<td></td>
<td>Dr. C. Powell</td>
<td>Fishery Products International Ltd.</td>
<td>St. John's</td>
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<td></td>
<td>Richard Davies</td>
<td>Food Safety Consultant</td>
<td>Belle River</td>
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<td>Dr. Jane Boles</td>
<td>Montana State University</td>
<td>Bozeman</td>
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<td>Pierre Groulx</td>
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<td>Gloucester</td>
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<td></td>
<td>Dr. C. Van Dijk</td>
<td>Poultry Consultant</td>
<td>Guelph</td>
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<td></td>
<td>Dr. S. Quessy</td>
<td>University of Montreal</td>
<td>St-Hyacinthe</td>
<td>PQ</td>
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<tr>
<td></td>
<td>Dr. Venket Rao</td>
<td>University of Toronto</td>
<td>Toronto</td>
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Secretariat: J. Cruikshank Canadian Council of Grocery Halifax NS
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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Dr. R. Usborne</td>
<td>Caravelle Foods</td>
<td>Brampton ON</td>
</tr>
<tr>
<td>Dr. F. Moulin</td>
<td>Foods of Animal Origin Division, CFIA</td>
<td>Ottawa ON</td>
</tr>
<tr>
<td>Dr. Alf Bungay</td>
<td>Integrated Inspection Systems, CFIA</td>
<td>Ottawa ON</td>
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<td>Dr. J. Kamanzi</td>
<td>Laboratory Services Division, CFIA</td>
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<td>Ashton Hughes</td>
<td>Microbiology Evaluation Division, HC</td>
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<tr>
<td>Paul Mayers</td>
<td>Policy and Integration, HC</td>
<td>Ottawa ON</td>
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Appendix C: Organizations That Were Contacted During The Development Of The Recommendations

**PRODUCTION SECTOR:**

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<th>First Name</th>
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</tr>
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**PROCESSING SECTOR:**

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**RETAIL/FOOD SERVICE SECTOR:**

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<td>CCGD, Quality Assurance Committee</td>
<td>Grant</td>
<td>Al</td>
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<td>Sands</td>
<td>Gary</td>
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<td>Canadian Restaurant and Food Service Association</td>
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<td>Loblaw Companies Ltd.</td>
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**CONSUMER SECTOR:**

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<td>Phylis</td>
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<td>LeClair</td>
<td>Chris</td>
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<td>Robinson</td>
<td>Ruth</td>
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<td>Nutrition Action Health Group</td>
<td>Jacobson</td>
<td>Michael</td>
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<tr>
<td>Partnership for Consumer Food Safety Education</td>
<td>Byers</td>
<td>Leanne</td>
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Appendix D: The Canadian On-Farm Food Safety Program

The COFFS program was established in 1997 and is a partnership between producers and Agriculture and Agri-Food Canada (AAFC). The food safety initiatives developed by each commodity group are consistent with the Codex Alimentarius recommendations for Hazard Analysis Critical Control Point (HACCP) principles and definitions. It is also consistent with the Canadian Food Inspection Agency’s (CFIA) Food Safety Enhancement Program (FSEP).

All on-farm commodity groups including beef cattle, hogs, broiler chickens, seafood, eggs, turkey, bison and sheep are actively involved in the Canadian On-Farm Food Safety (COFFS) program. Specifically, the CFFS program was developed to:

1. permit national commodity groups to complete the development, implementation and accreditation of their national on-farm food safety initiatives;
2. provide an opportunity for new national commodity groups, including the grains and oilseeds sector, to enter the program and complete the development, implementation and accreditation of their on-farm food safety initiatives;
3. allow national commodity organizations to collaboratively develop a national certification and training program for on-farm food safety validators; and
4. ensure that Canadian on-farm food safety initiatives and accreditation structures are consistent with the ‘emerging’ international standard and are perceived as innovative and leading edge by Canadian and international customers.

As a direct result of this producer-led, industry/government partnership, Canada is an international leader in the development and implementation of on-farm food safety initiatives. In Canada, 12 major national commodity groups representing the full spectrum of the poultry, livestock and fresh fruits and vegetable sectors, are all working within a common framework to develop consistent and compatible on-farm programs. Canada’s primary producers, with the assistance of AAFC and CFIA, have engaged in a unique and innovative initiative that is positioning Canadian agriculture as a leader in food safety. The resulting national programs will share a common approach and be available to all producers on a cost-effective basis.

Under the COFFS program, the Working Group on Accreditation is coordinating discussions with CFIA on the establishment of a framework to provide accreditation/recognition of national on-farm food safety programs. It facilitates the review of a wide range of accreditation issues including liability, risk management, validator training and third-party auditing. The working group coordinates the contributions of producer groups relative to guidelines for quality assurance.
programs, the development of Canadian positions and the Codex Alimentarius industry groups interested in the development and implementation of food safety accreditation mechanisms. The following organization are members of the COFFS program:

Canadian Cattlemen’s Association
Canadian Pork Council
Canadian Sheep Federation
Canadian Bison Association
Canadian Broiler Hatching Egg Marketing Agency
Canadian Hatchery Federation
Canadian Mushroom Growers Association
Dairy Farmers of Canada
Chicken Farmers of Canada
Canadian Egg Marketing Agency
Canadian Horticulture Council

Other Stakeholders include

Canadian Federation of Agriculture
Animal Nutrition Association of Canada
Salmon Health
Union des producteurs agricoles
Canadian Aquaculture Industry Alliance
Appendix E: Summaries Of Minutes Of Meetings, RFAO
Steering Committee

RFAO STEERING COMMITTEE – 1st MEETING SUMMARY
December 10 & 11, 1998
Ottawa, Ontario

Dr. George Paterson welcomed the new committee and emphasized the importance of the its work in advising and assisting the Director, Bureau of Microbial Hazards in the development of a food safety policy for RAW FOODS OF ANIMAL ORIGIN (RFAO). Dr. Jean Kamanzi, CFIA explained the integrated inspection system (IIS) and said one very good reason for such a RFAO Policy is the pressure being exerted from the US for pathogen reduction on all these products. Dr. Karen Dodds reviewed the HPB Food Program’s Policy Framework which contains a number of key principles including the focus on Health Risks / Health Benefits to protect and/or improve the health of Canadians, consideration of credible scientific evidence, and impact assessments based on objective evidence. A process was outlined for proceeding which included issue/problem identification, issue definition, issue prioritization, health risk/health benefit, and the identification and evaluation of potential risk management options. Mark Samadhin, RFAO Project Manager, reviewed some of the details of procedure, time-lines, and presented a draft terms of reference and policy development framework for the committee to review and consider.

Each member presented their expectations of the committee’s work, HC/CFIA involvement, project initiatives, and planning and procedures. A review of the draft policy framework, terms of reference, and time-lines was done by the committee. The purpose of the project is to develop a comprehensive policy aimed at identifying and managing risks associated with the consumption of raw foods of animal origin. The primary focus of the Steering Committee is on the microbiological safety of RFAO, across the food continuum. This should also include the consideration of present and emerging hazards as well as uncommon concerns such as BSE/TSE. Considerable time was spent on discussing the objectives contained in the framework before a consensus could be reached.
The membership of the committee is very diverse with a range in interest and experience from different sectors across the food continuum. It was generally decided that some time should be spent on gathering information about the concerns of each sector so issues could be identified and defined. These would then be prioritized and assessed for consideration in the policy development. At least five sectors were identified starting with production, slaughtering/processing, retailing, food service, and consumption. Transportation and distribution must not be overlooked and will be worked in at each interface between each sector. At the next meeting in January the production sector will be reviewed with presentations from members of the committee on chickens & turkeys, beef, pork, laying hens & eggs, other (sheep, exotic species, etc.) and aquaculture. Dr. Ewen Todd will also be asked to make a presentation on the “Ten most wanted foodborne pathogens” and what we might expect to find in the next millennium. The March meeting will deal with the slaughter/processing sectors. Other meetings are scheduled for June and September. At each of these meetings issues will be identified and working groups struck, if necessary, to define and massage them for policy consideration. The Listeria Policy and interim policy on E.coli O157:H7 will also be tabled as “case studies” for study and discussion by the committee.
This second meeting of the RFAO Steering Committee focused on primary production. Chairman Dr. Derek Anderson indicated that the focus on the on-farm side of animal production for this meeting compliments the discussion at the first meeting of proceeding through the food continuum. As introduction to this background building, the terms of reference were also revisited, as well as the goals and outcomes for the Committee. It was concluded that the Secretariat put together a document terms of reference and provide for the Committee’s response. These terms of reference will endeavour to encompass the numerous other initiatives that would feed into the RFAO policy.

Mr. Albert Chambers – Program Consultant, Canadian On-Farm Food Safety Program

The Canadian On-Farm Food Safety Program is a partnership between the Federal Government and the national producer associations. It is funded by a contribution from Agriculture and Agri-Food Canada of $5 million over the 1997-98, and 1998-99 fiscal years from the Canadian Adaptation and Rural Development (CARD) fund, and will be administered by the Canadian Federation of Agriculture. The key and important elements of this program include it’s producer lead focus, and consistency of national programs. Eleven national commodity organizations are presently involved and the program allows for recognition in the production sector of market driven and commodity group interests. There was recognition that the transportation sector is one that needs to be considered and some attention will continue to be placed on that. For further information on the program, the web-site address is www.cfa-fca.org.

Dr. Myron Roth – The Canadian Aquaculture Industry Alliance and Salmon Health

Dr. Roth’s presentation focused on salmon production and the raw food safety issues primarily of
microbiology. His presentation provided an overview of the Canadian Shellfish Sanitation Program and its elements; aquaculture drug residue testing (focused on therapeutant use), the Healthy Salmon Program, and Pilot Compliance, Certification and Accreditation.

Follow up questions and comments included discussion around the problems with labelling, the movement from antibiotic use on fish farms (reduction of 90% due to the development of vaccines), distribution times (possibly up to 6 days), and issues relative to sushi (should be frozen first before eating because of parasites).

Mr. Rob McNabb – Assistant Manager, Canadian Cattlemen’s Association

Mr. McNabb provided a thorough overview of the Quality Starts Here Program, its purpose, rationale, and emphasized that food safety is a share responsibility. Through his presentation he provided dialogue and visuals of on-farm intervention, identification of risks (physical, chemical, microbiological). Rob McNabb provided the very positive aspect that the packers are driving this issue, feed lots also comply, and almost $2 million has been spent, to date, on the program. The Canadian industry is miles ahead of the U.S. and because of our industry we have better implementation.

Dr. Conrad Van Dijk – Vice President, Integrated Poultry Ltd.

Dr. Van Dijk gave a presentation overview of chicken and turkey production and the statistics per province. He addressed the issues of the Salmonella model and HACCP on-farm food safety programs. He also talked about the preventive measures being taken by the Code of Good Production Practices with regard to Biosecurity and addressed some differences between turkey and chicken.

A video emphasized the biosecurity elements that had been provided during his presentation.

Ms. Anne Kennedy – Nutrition Program Manager, Canadian Egg Marketing Agency
Anne Kennedy addressed, on behalf of the Canadian Egg Marketing Agency, the food safety program, which is based on F.S.E.P. Ms. Kennedy indicated there is great individual commitment and initiative, and the Canadian industry is very committed to their “Start Clean – Stay Clean” program. An additional element, i.e. compensation, is included in the program. Should recovery of losses be necessary, it is paid to those who have participated in the program.

While all questions included a clarification of free range and free run as well an explanation of the environmental salmonella testing program.

Dr. Sylvain Quessy – Veterinary Microbiologist, Health of Animal Labs, Health Canada (representing the Canadian Pork Council)

Dr. Quessy gave an overview of the Canadian Pork Council and the history of the hazards associated with hog production. Dr. Quessy also shared a comparison with other exporting countries, i.e. Denmark and U.S.A., and their quality assurance programs. He indicated the importance of the validation process and showed the elements of the producer’s manual. This program has just commenced but shows great promise and in follow-up questions an area that was brought to the Committee to address is the need for recognition by the Canadian Food Inspection Agency as a key driving force of this is compliance with new markets and the importance of dealing with national authorities rather than dealing with provincial.

All presentation materials were available at the meeting or information provided to access the full presentation.

Dr. Ewen Todd – Bureau of Microbial Hazards, Health Canada

Dr. Todd did a presentation on food-borne pathogens since the 1960’s, which was provided by e-mail to interested participants.
Summary of Progress

General consensus was reached that no new members will be added to the Steering Committee at this time. Various groups and organizations will be invited for input as the need arises, and on agreement by the Steering Committee. It was proposed that working groups from various sectors that are not currently represented might be an important element to provide input to the process. It was reconfirmed that the purpose of the Steering Committee is to steer the process and provide guidance to the food program, in conjunction with external inputs.

There was unanimous opinion, following some discussion, that the name of the committee stays as Raw Food of Animal Origin Steering Committee.
Plant Tours
Better Beef Guelph Ontario, is the third largest Canadian beef processor with a production volume of 180 cattle/hr and is HACCP recognized by the CFIA. The presence of broken hypodermic needles in muscle was identified as a health concern.

Caravelle Foods, Brampton is a HACCP certified secondary beef processing plant supplies hamburgers under contract to MacDonald’s Canada Inc. Caravelle uses cryogenic freezing which can extend the shelf-life of the frozen burgers to 90 days. Six critical control points were identified including: temperature and visual inspection at receiving, physical inspection and defect eliminator for bone metal and foreign matter during production, freeze storage temperature and visual inspection and temperature of reefer during transportation. Caravelle’s quality assurance program included microbiological analysis of raw and finished product and the environment, fat analysis and physical properties. Drug residue in meat products was identified as a concern.

Presentations
A presentation was made regarding production and processing at Maple Leaf Poultry, Toronto. Per capita poultry consumption has increased markedly in the last 20 years. HACCP has been introduced and plant production personnel have been trained to replace Government inspectors on the line. Physical hazards include bone and bone chips while chemical hazards included drug residues from medicated feeds.

Summary of Deliberations
It was agreed the “draft” should be removed from the framework document and the terms of reference document and that they should be posted on the HC web site. A summary of the minutes for each committee meeting should be posted on the web site.
Minutes of the meeting will be sent in “draft” form to members who will be given two weeks to provide comments or suggestion for change to the project leader.

The next meeting in Truro Nova Scotia June 3-4 will focus on the retail and food service sectors.

**RFAO Policy Development**

There is a need for accreditation/certification of On Farm HACCP based programmes. Every sector of the food continuum must be made aware that they have a role to play in food safety. Appropriate food safety objectives need to be set for each sector. A number of documents were referenced to help in this process including: the Food Retail and Food Services Code developed as a model code by the Canadian Food Inspection System Implementation Group, as well as food safety codes and legislation from other countries. New Zealand was mentioned in particular.
The primary focus of the meeting was to identify food safety concerns in the handling and preparing of raw foods of animal origin in the Retail Sector and at Food Service and to assess whether the various controls measures that are in place are adequate to address concerns identified. The meeting started with a tour of the Sobey’s Distribution Centre, Debert, Nova Scotia and included an explanation of the purchasing specifications and recall procedures. Sobey’s does not accept raw beef for example unless it meets internal temperature and age requirements and all deli items must have an expiration date of at least 28 days. More and more poultry product is being supplied “retail ready” to avoid any preparation, cutting or repackaging at the retail level. Sobey’s retail outlets grind their own meat and do a complete wash-up and sanitation at four different times during the day. Sobey’s is developing methods to ensure that retail packaged ground meats can be traced to their contributing raw sources. Ground meat is regularly sampled for Sobey’s at the retail level and assessed for microbial quality. Sobey’s is preparing to label ground beef with three messages: cook throughly, use a thermometer, and use a clean plate for the cooked product. Fish is supplied daily to all retail outlets from a sole source supplier, AC Colbert.

An afternoon trip to the recently opened Atlantic Superstore “Truro Market” provided an opportunity to assess food safety at the retail level. The group had special interest in safety procedures used in different parts of the store including: the meals-to-go section, the bakery, the fish counter, the deli area and the raw meat preparation and display areas as well as the dairy case.

Mike Horwich of the Nova Scotia Department of the Environment made a presentation on the Nova Scotia Inspection System which has as its mandate food safety from pasture to plate. He indicated that CFIA has a program for the recognition of HACCP
systems in registered establishments but there were was no equivalent program at the federal level for the non-registered establishments. Five issues of concern were identified in his presentation: inspection intervention; microbial standards; HACCP; roles and responsibilities of Government, industry and consumer; and impact on population health.

Estelle Byrant, Nova Scotia Department of Fisheries made a presentation on seafood safety. As of 1998 all fish processing plants in the province are federally registered. She outlined several concerns including drug residues in aquicultured fish, natural toxins in wild caught fish and microbial concerns in shellfish. The CFIA requirement for histamine determination in fish was also identified as a concern.

The focus remained on food service and retail issues on Friday with a visit to Beaver Food’s Cafeteria at Nova Scotia Agriculture College. Jackie Creighton of Loblaws identified a number of employee training issues at retail including: proper dress, the use of hair nets and removal of jewellery. She also addressed consumer complaints regarding foreign matter in ground meat. Paul Clark, of McDonald’s Restaurants reviewed a food safety check list used by McDonald’s Corporation. Discussion focussed on cooking temperatures, sanitation, equipment specifications and design, and follow-up to consumer complaints.

**SUMMARY OF DELIBERATIONS**

The Steering Committee decided to establish four working groups based on a division of the food continuum from primary production through to the consumer. Each working group will have a “Team Leader” or “Facilitator” from the Steering Committee to provide oversight and guidance. Interested representatives from each food commodity will be invited to assist in preparing a document summarizing issues and recommendations appropriate to their sector. Using the Role and Mandate section under the Terms of Reference, as a guideline, summary documents from each of the working group should address a) current food safety programs used in each sector; b) accountability
(voluntary or regulated); c) responsibility; d) jurisdiction; e) standards of measurement (HACCP GMP’s etc); f) technical support; g) recognition or certification issues; h) educational components identified; i) innovative or novel approaches as well as any major obstacles or barriers to progress. The working groups so far identified are:

1) Primary production (production to the slaughter plant)
2) Processing (slaughter to retail distribution and food service)
3) Retail/Food Service (retail distribution and food service to the consumer)
4) The consumer level.
Presentations

William Yan of HC gave an update on the policy initiative for Controlling Antibiotic Resistant Bacteria in the Food Chain. The first meeting a Health Canada Steering Group on this topic is planned for November.

Diane Kirkpatrick Senior Branch Advisor HPB made a presentation using Prion Diseases as a case study for Developing a Systematic Process for Decision Making.

Alf Bungay of CFIA made a presentation on the Integrated Inspection Strategy (IIS). CFIA is integrating 26 identifiable inspection programs. The IIS is based on a five step program including strategies for the following: hazard analysis, hazard identification and control, validation, communication, and implementation.

Working Groups

Four working groups covering the food continuum were set up after the last meeting: the primary production group, the processing group, the retail and food service group and a consumers group. Although each of the group is at a different stage, industry stakeholders have been identified and contacted to provide their opinions on food safety issues. The processing group developed a series of questions which the other groups felt would be used with some modifications and it may serve as a basis for obtaining background information on the issues from each segment of the food continuum. The working groups are to provide background or documentation identifying the issues in their sector of the industry, the steering committee and working groups will then try to identify food safety gaps across the food continuum and make recommendations that can be used as the basis for the policy.
Summary of Deliberations
Some gaps in food safety were identified during committee deliberations. The following are some examples: There is a need for government or third party accreditation/recognition of on-farm food safety initiatives. Animals that have broken needles are not identified prior to slaughter. There are no programs to assist primary producers of finfish and seafood in the development or implementation of HACCP type programs. Primary producers that are not part of a national association may not be knowledgable about best practices that control or prevent the growth or spread of pathogens. Criteria for assessing imported RFAO's need to be developed. There is a need for education at the retail, food service and consumer level to address cross-contamination and sanitation concerns. Safe handling labels are still not found on most raw meat and poultry. Trucks that are used to transport RFAO's or the live animal for human food are sometimes not adequately sanitized. There are concerns regarding the disposal of contaminated products to ensure that they do not re-enter the food chain at some other point or that they are destroyed in such a way that they do not result in further contamination of the environment.
RFAO STEERING COMMITTEE – 6th MEETING SUMMARY
December 9th and 10th, 1999
Ottawa, Ontario

Presentations

Dr. Anne Deckert from the Health Canada, Laboratory Centre for Zoonosis, in Guelph gave a presentation on Government and Industry projects designed to capture surveillance information on foodborne pathogens and projects that are assessing the extent of antibiotic use in animals used for food.

Rob McNabb indicated the Production Working Group was preparing a table that summarizes the hazards that have been identified at the farm level, as well as the on farm programs that have been developed by each commodity. Where interventions are used this is will be noted and the status of government/industry recognition/accreditation of the programs will also be noted. The report was not complete but Rob will supply this to the committee once completed.

Jane Boles indicated that the Processors Working Group identified training as a major issue. Both CFIA inspectors and Industry officials needed adequate training and resources to ensure proper implementation of HACCP. It was suggested that health and safety concerns should drive the process for change not trade issues. Public education is important to ensure susceptible consumers are aware of the hazards when handling/preparing/eating RFAO’s. Baseline studies on all commodities are important to know where we are and where we are going.

Jeanne Cruikshank (for Pierre Groulx) indicated the Retail/Food Service Working Group agreed with the goal as stated in the RFAO report document: to handle and prepare foods in a way that does not increase the microbial, chemical or physical hazards that could compromise the safety of the food. Retailers again expressed concerns about food recalls carried out by suppliers that have an impact on the reputations of retailers.

Vanket Rao (for Ellie Topp) indicated that the consumers working group has had contact with several groups including CCA, Nutrition Action Health Group and Consumer Food Safety
Education Group. It was suggested that the “Fight BAC!™” program might be an effective means of educating the consumer regarding RFAO concerns. Most consumer groups felt that a HACCP based policy that addressed the whole food continuum from production to retail sale should be satisfactory.

Summary of Deliberations

- The role that epidemiology should/could play as a tool to identify hazards was discussed
- Labelling was suggested as an important means of educating consumers
- Data is needed in order to assess which methods of consumer education work best
- The RFAO initiative should support the National Meat Code and the Retail/Food Services Codes (CFIS) and push for their implementation federally and provincially.
- Each working group is to prepare a table similar to that being worked on by the production working group. The table is to summarize the hazards identified by commodity, the control procedures in place, as well as the resources allocated by each commodity and sector. Commodity groups identified so far include: chicken, turkey, egg, beef, pork, lamb, veal, aquacultured and wild fish, shellfish, and wild game. Each sector is to consider the hazards introduced during transportation to the next level in the continuum.
- Each sector is to use the completed tables to identify gaps and needs as well as strengths in each of the sectors and to draft recommendations such as reallocation of resources or the need to include hazards that have been overlooked or prioritize them differently. These recommendations could then serve as the basis for the development of a policy.
The primary focus of the meeting was to review the summary tables from each working group to determine whether the hazards identified thus far completely and accurately represent Canadian food safety concerns from farm-to-fork, boat to throat for raw foods of animal origin and to assess the types of control measures are being used at each stage of the continuum. The four working groups, each had a chance to provide comments concerning the information in their summary tables. General principles and specific recommendations were drafted and discussed to see if they could be improved upon.

PRESENTATIONS

Committee members had an opportunity to tour Pierre and Mario's Your Independent Grocer, 1619 Orleans Blvd, Orleans, Ontario.

Ashton Hughes provided an update on the Health Canada approach to establishing recommended cooking temperatures. Some of the results from a study conducted by the Chicken Farmers’ of Canada involving cooking temperatures for poultry were discussed.

Each of the working groups had an opportunity to present and discuss their summary tables.
SUMMARY OF COMMITTEE DELIBERATIONS ON PRINCIPLES PROPOSED FOR THE
DEVELOPMENT OF RFAO POLICY:

1. The RFAO Policy should be based on the general principles of risk assessment following the Codex approach using hazard identification, exposure assessment, dose-response assessment, hazard characterization, risk estimation.
   - by using realistic levels for the variables assessed and using Canadian data wherever it is available.
   - by standardizing risk assessment models.
   - by developing cooking time-temperature recommendations based on realistic factors.
   - by developing a food monitoring program that maintains a microbial profile of potentially hazardous foods sold in Canada.
   - by finding a way to “fast track” urgent research projects that are needed to develop risk assessment/risk management policies.

2. The policy should use sound science to establish an acceptable level of risk for identified hazards.
   - by setting up an expert “science panel” to advise on delicate or controversial matters such as portion size, worst case scenarios vs mean + acceptable number of standard deviations, and establishment of socially acceptable levels of risk.

3. Develop a well designed, active, timely, human and animal surveillance system that is adequately funded at all levels of Government that can consistently capture all the pertinent information.
   - by identifying the leading and emerging food safety concerns.

4. Work towards harmonizing federal, provincial, and municipal food safety objectives and policies across all sectors of the food continuum.
   - by reviewing the approach taken at the provincial, municipal levels,
   - by developing MOU’s that agree to use the highest standards not the minimum standards.
   - by better co-ordination of inspection activity in all jurisdictions including adequate training for inspection staff.
by working towards risk-based resourcing of inspections to avoid duplication.
- by encouraging all jurisdictions across Canada to adopt the National Food Code, the National Meat Code and the Transportation Code.
- by ensuring that the same criteria are used regardless of the jurisdiction involved or the origin of the product.

5. Imported foods must meet the same standards as domestically produced foods and in addition are also assessed for hazards known to exist in the commodity in the country of origin.
   - by establishing a system for obtaining knowledge of hazards in imported foods by country of origin.
   - by developing appropriate methods to detect the presence and severity of these hazards.

6. HACCP-based food safety systems are to be developed and implemented across all sectors of the food continuum.
   - by developing clear standards of what hazards need to be controlled where in the food continuum controls need to be applied.
   - by providing the appropriate level of oversight (recognition, certification, monitoring, auditing, inspection, licensing, regulation, enforcement) at each level of the continuum to ensure health and safety issues are controlled.
   - by collecting and compiling data such as HACCP records, baseline studies and surveys, and monitoring samples in order to develop national baseline levels or standards for different food commodities. These national baseline levels or standards will be used to measure the effectiveness of the RFAO policy.
   - The HACCP-based policy for each sector of the food continuum should also include the transportation system involved in that sector.

7. Develop and implement a National Food Safety Consumer Education programs
   - by promoting the four messages of the FightBAC™ program
   - by adapting the message and delivery mode to all age groups
   - by requiring safe handling labeling on high risk raw foods of animal origin where experience has shown it is effective
- by establishing and maintaining a 1-800 number that consumers can call to receive consistent food safety information for any raw food commodity.
- by investing more resources to support a National Food Safety Consumer Education program.

8. Develop a strategy to deliver a National Food Safety Employee Training Program that address the food safety concerns across the food continuum,
   - by requiring every food handler to receive an adequate level of training prior to contacting food.

9. The policy should be based on the principle of continuous improvement.
   - by establishing performance based standards that can be used to assess the effectiveness of the food safety programs.
Michel LeMay of MAPAQ made a presentation on the Integrated Inspection approach they use to assess hazards when inspecting establishments producing, processing or selling food. Their approach is risk based and takes into account parameters such as sources of raw materials, production and processing methods, potential for environmental contamination, sanitation practices and employee habits, previous history or potential for causing foodborne disease and laboratory findings.

Each of the Working Groups provided an update on comments from stakeholders to proposed recommendations. (See summary of the meeting of March 23-24, 2000) These recommendations will provide the basis of the report from the Steering Committee. The following timelines were proposed: Electronic copies of the following documents from each working group are to be provided to the project manager by June 30, 2000 1) a copy of the summary table, 2) a written summary of the same table, including background or history, 3) recommendation for each of the groups. First draft report on the recommendations of the Steering Committee to be sent to members by August 30, 2000 for their consultation with stakeholders. Sept 30, 2000 was proposed as the deadline for comments on the first draft to be sent to the project manager. A second draft will be prepared as necessary and another face-to-face meeting of the committee was proposed.
Jane Sadler Richards of the George Morris Centre, Guelph, Ontario was contracted to assistance in formatting the reports from each of working group into a coherent document. Several versions of the report were circulated by email to committee members and a conference call of the entire committee was held in November to complete a section-by-section review of the document. A final draft version was sent to the committee in last December and members were asked to review and indicate whether there were any areas where they still had major concerns. No major objections had been identified and a face-to-face meeting was planned for Ottawa January 11-12 to give the document one final review and to update senior government officials at Health Canada and the Canadian Food Inspection Agency (CFIA) on the progress of the committee.

Several additional concerns regarding the report were identified at the meeting on January 11th. Some members noted significant differences in the style of different sections of the documents, especially the Production sector report that focused on the details of the COFFS program. Other members expressed the need for a recommendation from the committee that would support the need for measures to limit the potential spread of antimicrobial resistance bacteria. Others indicated that the document recommends 3rd party auditing and accreditation but that these terms were not defined in the report. The Secretariat took all the comments under advisement and appropriate changes were made in the final report.

Senior management at both CFIA and Health Canada expressed their appreciation for the work of the committee and encouraged them to finalize the report.

The final report was presented to officials of Health Canada and the Canadian Food Inspection Agency at a meeting in Ottawa at the Ramada Hotel on September 7, 2001.