FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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Agenda Item 4.1 GF 02/4

SECOND FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS
Bangkok, Thailand, 12-14 October 2004

Defining the responsibilities and tasks of different stakeholders within the framework of a national strategy for food control

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Introduction

Over the past few decades the issue of food safety has been in the public eye as never before. A chronology of food scares has damaged consumer confidence in the safety of food, has raised doubts about industries' commitment to produce safe food and has raised questions regarding the ability of the regulatory agencies to police the food chain. In the past the emphasis of food control systems was placed on the stimulation of trade and commerce. More recently that balance has moved to ensuring foods are safe and consumers' interests are protected. The responsibility for food safety is shared among all stakeholders involved in the production and marketing of foods. To ensure consumers' health and consumers' interests are adequately protected, the co-operation of many organizations and individuals both in the regulatory agencies and in the food industry is required. Consumers also have their own part to play in choosing healthy diets and ensuring hygienic handling and proper cooking of food to protect their own and their family's health.

The concept of a national strategy for food safety control has gained prominence in recent years in many countries worldwide. It has become a realization that effective food control at national level can be undermined by the existence of fragmented legislation, multiple jurisdictions, and inconsistencies in enforcement and weaknesses in food surveillance and monitoring. Many possible options exist as to how food safety controls can be organized at national level. Guidelines have been produced by Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) that provide advice to national authorities on strategies to strengthen food control systems to protect public health, prevent fraud and deception, avoid food adulteration and facilitate trade (FAO, 2003). These guidelines can facilitate the development of national policies for choosing the most suitable options for their food control systems in terms of legislation, infrastructure and enforcement mechanisms. A national strategy enables a country to develop an integrated and effective food safety control system and to determine consumer protection priorities and promote economic development.

There are many stakeholders involved in ensuring the safety and quality of foods moving in both national and international trade. Responsibilities are shared by national governments, farmers, food processors and manufacturers, food retailers, caterers and consumers. A positive interaction is required between all of these players if the system is to be successful.

This paper attempts to describe the responsibilities and tasks of the different stakeholders within the framework of a national strategy for food safety control.

Integrated controls from farm-to-fork

The food chain has become more complex in recent years with increasing liberalization of trade and expanding global distribution of food and feed. Meeting the requirements of trade agreements such as the World Trade Organization's Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) is essential for countries wishing to have access to international food markets. Countries are now obliged to demonstrate that food safety measures provide appropriate public health protection and are not unnecessarily restrictive to trade. The ability to demonstrate adequate national food controls are in place at all stages of production, processing and marketing is also necessary to remain competitive in the international market. There are many links in the chain which is only as strong as its weakest link. Integrated controls are required at all stages of production and in all sectors in line with the "farm to fork" principle. The introduction of the "farm-to-fork" principle to food control allows the creation of a systematic, comprehensive system covering all food in all sectors, replacing the current sector specific, patchwork of rules. Experience both at national and international level, has shown that inn order to ensure consumer protection it is necessary to consider all aspects of the food production chain as a continuum, from and including primary production up to and including sale or supply of food to the consumer because each element may have a potential impact on food safety.

In recent years the concept of integrated controls across the food chain has expanded from national level to regional trading blocks, such as those of the European Union (EU 2004), Australia and New Zealand, North American Free Trade Agreement (NAFTA), Asian Free Trade Association (AFTA) and the Gulf Cooperation Council (GCC). The intent is to achieve sufficient uniformity such that food businesses do not have to comply with different consumer protection regulations and standards when trading across borders. The most effective method of demonstrating harmonized controls is to ensure that regulations are based on sound science and are consistent with the international standards developed by the Codex Alimentarius Commission.

Responsibilities for food control at government level

National governments have the overall responsibility for food safety policy and for ensuring that adequate resources are allocated for food safety control. For successful implementation, a national food control system must have support at the highest level of government. In reality the responsibility for food control in many countries is shared between different agencies or ministries. The roles and responsibilities of these agencies or ministries may be quite different and duplication of regulatory activity, fragmented surveillance and a lack of coordination are common. There may also be wide variations in expertise and resources between the different agencies or ministries, and the responsibility for protecting public health may conflict with obligations to facilitate trade or develop an industry or sector. Additionally responsibilities may be shared between central and local government, with central government having more of a policy role and local government enforcing regulations.

The key responsibilities at government level are for the development of food laws and regulations that will facilitate integrated controls across the food chain; ensuring the infrastructure exists for the effective management of official controls; ensuring officers in the food inspection service

are qualified and adequately trained; and that an official laboratory network exists to monitor the food chain and to support the food surveillance and food borne disease surveillance networks.

Box 1

Key responsibilities for national governments are that:

- Food safety control policies address the central issues of protecting consumers' health and consumers' interests; and facilitating trade;
- Adequate resources are available for the operation of an effective and efficient food control system;
- Systems are in place for coordination and integration of food control policies within central government departments;
- Legislation exists for adequate cooperation between central and local government agencies;
- Food legislation clearly identifies and limits the functions, authority and activities of statutory food control agencies;
- Food regulations, standards and codes of practice are risk based and are harmonized with international requirements;
- Structures are in place for the effective management of food inspection services;
- Risk management decisions are based upon risk assessment and sound science;
- An official food laboratory exists to support food monitoring and surveillance;
- Effective risk communication structures are in place.

- ***Food laws and regulations***

Food laws are the set of legal rules governing the growth, production, harvesting, processing and sale of food. An effective food control programme must be based on appropriate food law that prioritizes food safety and consumer protection. Such laws should be sufficiently flexible to meet the needs of a changing food sector, the introduction of modern technology and the development of new food products. While food laws have been traditionally concerned with the introduction of a control system to address problems of food quality and contamination and to protect the consumer against fraud, it is now widely recognized that there is a need to pay greater attention to the safety of consumers. As a consequence, there is a worldwide trend to move away from detailed, compositional, commodity-based (or "vertical") requirements and place more emphasis on risk analysis and on "horizontal" food safety standards that can apply to many or all foods. Where once the focus was on food hygiene, such as in slaughter houses or dairies or on adulteration of food with harmful substances, the focus has now extended to deal with a myriad of issues including natural contaminants, flavours, additives, labelling, food composition, nutrition, food supplements, genetic modification as well as the traditional food hygiene issues. Also in recent years there has been a growing trend for food law to take into account broader issues such as animal health, welfare, plant health and the environment. In addition to basic legislation, governments require up-to-date and internationally accepted food standards, such as those of the Codex. The FAO and WHO have published guidelines for the development of a national food law (FAO/WHO, 2003). Many examples of food laws exist, both at national and regional level (Table 1).

- ***Management of official food controls***

A clear responsibility at national level is for coordination and collaboration between all government agencies to ensure the effective operation of a food control system. It is important that food legislation clearly identifies the role of each agency to avoid duplication of effort and to bring about a measure of coherence among them. Where the competence to carry out official controls has been delegated from central level to a regional or local level, effective and efficient coordination between all levels must be ensured. Within the context of integrated food controls from "farm-to-fork" many countries are re-evaluating how they manage their systems of food control. The current trend in developed countries is to establish food safety agencies with the view coordinating official controls. This practice has not been so widespread in developing countries.

Box 2

Core responsibilities in the management of official food controls include:

- the establishment of regulatory measures;
- consistency of enforcement;
- use of a risk based approach to determine priorities for action;
- monitoring and verifying system performance;
- facilitating continuous improvement;
- development of codes of best practice;
- ensuring sufficient numbers of qualified and trained food inspectors; and,
- providing overall policy guidance.

It is often not possible to have a single unified structure or an integrated food control system at national level, due to various historical and political reasons. In such cases, it is necessary to develop a national food control strategy to clearly identify the role of each agency to avoid duplication of effort and to bring about a measure of coherence among them. There are at least three types of organizational arrangements at national level for the management of official food controls. These are where many agencies are responsible for food control (a multiple-agency system), where a single agency is responsible for a unified system (single agency system) or where a national integrated approach has been taken (an integrated system). The advantages and disadvantages of each type of system have been discussed (FAO/WHO, 2003). What is evident is that there is not a universal system in existence; the reality is that each country must adapt the management of their food controls to suit their national needs. Some examples of food safety agencies are provided in Table 2.

- ***Inspection services***

The administration and implementation of food laws require a qualified, trained, efficient and honest food inspection service. The food inspector is the key functionary who has day-to-day contact with the food industry, trade and often the public. The reputation and integrity of the food control system depends, to a very large extent, on their integrity and skill. The food inspection services are responsible for enforcing food laws and verifying whether food business operators fulfill the relevant requirements of the law at all stages of production, processing, distribution and sale of food. For these purposes, food inspectors must be trained and have experience in enforcement and prosecution. Different qualifications are required by food inspectors at different stages of the food chain, for instance at primary production agricultural officers, veterinarians, meat inspectors and fisheries

inspectors; in retail and catering environmental health officers or food inspectors; and public health specialists and medical doctors in the investigation of food borne illness. There is a requirement for a multi-agency, multi-disciplinary approach to food inspection to ensure that there are no gaps in the enforcement of food law.

Box 3

The responsibilities of the inspection services include:

- Inspecting food premises for compliance with hygiene regulations;
- Auditing food safety management systems based on HACCP;
- Official food sampling and testing;
- Collection of evidence and prosecution;
- Developing code of best practice;
- Ensuring inspection programmes meet international quality standards;
- Promoting training and education in food safety;
- Continuous professional development;
- Acting ethically and to the highest professional standards.

- ***Monitoring and surveillance***

The surveillance and monitoring of food for chemical and microbiological contaminants is essential for the protection of public health. Collection and analysis of data on contaminants in the food supply is also essential for underpinning risk assessment work and for setting standards. The application of risk assessment in setting national food standards is a requirement under the Sanitary and Phytosanitary Agreement of the World Trade Organization. A food monitoring and surveillance programme is essential to ensure that consumers are not exposed to unacceptable levels of chemical contaminants or harmful microorganisms in the food supply. Such programmes also detect if controls at industry level are effective in reducing exposure to unacceptable levels of pesticides and veterinary drug residues, chemical contaminants or pathogens. It is the responsibility of national governments to ensure that an official laboratory network exists to monitor the food chain and to support the food surveillance and food borne disease surveillance networks.

Laboratories involved in the analysis of official samples should work in accordance with internationally approved procedures or criteria based performance standards and use methods of analysis that have been validated. Data collected on pathogens isolated from food should be coupled with data from outbreaks, data on human disease and data on animal disease and used to provide a composite picture of the animal reservoirs, the food vehicles and the pathogens of public health importance. Information obtained from monitoring and surveillance programmes form the basis of risk management decisions and underpin control and prevention programmes.

In line with good management practice national agencies performing official controls should meet a number of operational criteria so as to ensure their impartiality and effectiveness. They also should have a sufficient number of suitably qualified and experienced staff and possess adequate facilities and equipment to carry out their duties properly.

- ***Information and communication***

In addition to the responsibilities of government for ensuring the effective management of food controls, an increasingly important role is the delivery of information, education and advice to stakeholders across the farm-to-table continuum. These activities include the provision of balanced factual information to consumers; the provision of information on food safety; ensuring that quality educational programmes are available for key officials and workers in the food industry; and the development of train-the-trainer programmes. Food control agencies should address the specific training needs of their food inspectors and laboratory analysts as a high priority. These activities provide an important means of building food control expertise and skills in all interested parties, and thereby serve an essential preventive function.

Responsibilities of the food industry

Food production, processing and marketing systems have grown more complex in recent years. Food production can range from very sophisticated state-of-the-art facilities to small artisan operations producing traditional foods for local communities. Modern food manufacturing and processing involves the use of highly technical and complex methods to facilitate product stability, extend shelf-life and preserve food quality. Rapid advancement in food technology provides new avenues for improving food manufacturing and processing and for the development and introduction of new products. Global sourcing of ingredients and expansion of international trade in foods all present new challenges and risks.

The primary responsibility for the production of safe food is that of the food sector. They must ensure that control systems are in place at all stages of the food production chain that will prevent, eliminate or reduce to acceptable levels risks to consumers. To complement and support the efforts of food businesses, there must be adequate and effective official controls organized and implemented by national governments. It is therefore essential that the food industry, at all levels, engages in proactive dialogue with regulatory bodies to agree food safety standards and ensure efficient and effective integration of industry and official food safety control systems.

Food industry organizations have a key role to play in working with their members in developing and promoting codes of best hygienic practice and food safety assurance programmes. Food industry organizations at national, regional and international levels have roles in advocating the use of the highest possible food safety standards in their respective sectors. Food legislation applies to all food sectors, both large and small, and sets down the objectives to be achieved by industry. How to achieve objectives set out in legislation is a matter for each food sector and industry organizations can develop agreed codes of practice, guidance documents and industry standards that are food sector specific. Such organizations also have a role to play in assisting in the development of international codes of practice, recommendations and guidelines, and in the provision of technical support and expert advice. An example of the role of industry organizations in working with international agencies in the development of food standards is the large number of such organizations that currently have observer status with the Codex Alimentarius.

- ***Primary production***

With the increasing intensification of animal production in recent years, the farmer has been divorced from the consumer. In industrialized farming systems there has been a tendency for farmers to

underestimate the potential health consequences of their actions and focus only on their direct customers rather than the ultimate consumer. In Europe, the BSE crisis redressed this balance and today there is a developing understanding amongst farmers that food safety issues on the farm directly affect consumers' health and hence their purchasing patterns and consequently the market dynamics. Quite simply, what happens on the farm will influence the safety and quality of foods throughout the remainder of the food chain.

Farmers must focus on the safety and quality of their raw materials and their production methods and understand the effects these may have on the safety and quality of the final product be it an animal or a crop. Contamination of animal feeding stuffs or the farm environment will lead to contamination of the final foodstuff and potentially affect consumers' health. Consequently, farmers must think beyond the farm and exert food safety controls on all the inputs into the farm. In this respect farmers should keep detailed records of their raw materials, husbandry practices, animal movements and customers to facilitate quality and food safety control as well as traceability to serve consumer information or food recall purposes. While exemptions may exist for small farmers in developing countries, these general principles should apply.

Risks exist regarding the inappropriate use of veterinary drugs resulting in residues in foods of animal origin. Similar risks exist regarding the inappropriate use of plant protection products such as pesticides and biocides and harmful residues in cereals, fruit and vegetables. Additionally poor hygiene on the farm may lead to contamination of fresh fruit and vegetables and milk or dairy products with increased risks for consumers.

Farmers are responsible for the application of the basic principles of good agricultural practices and good management practices when growing, harvesting, sorting and packing plant crops. Animal medicines, including vaccines, play an important role in the control and prevention of animal disease. Farmers and veterinarians have the responsibility for following strict controls governing the authorization, distribution and use of animal medicines. Ensuring product safety at all points in the chain is essential. This includes the supply, storage, use and disposal of animal medicines. A key requirement is that adequate records of animal remedy usage should be maintained. Farmers have similar responsibilities for the use and monitoring of farm chemicals such as pesticides and biocides. Products should comply with the International Code of Practice – General Principles of Food Hygiene and with other standards set by the Codex Alimentarius Commission on pesticides and veterinary drugs.

Many fresh fruits and vegetables are eaten with little or no cooking and can be a source of disease-causing bacteria, viruses or parasites. Food borne disease outbreaks have been associated with a broad range of vegetables including raw tomatoes, carrots, sprouts, lettuce, cantaloupe and cabbage (FSAI, 2001; Hillborn, *et al.*1999; Solomon, *et al* 2002). It is essential that fruit and vegetables are free from contamination and are produced, handled and packaged under good standards of food hygiene. It is the responsibility of growers and packers to ensure that only safe produce is placed on the market. Guidelines have been published on good agricultural and management practices during growing, harvesting, washing, sorting, packing, and transporting of fruits and vegetables (see Codex texts and references under Primary Production).

Complying with animal health regulations is essential; only foods from healthy animals should go into the food chain. The World Organization for Animal Health (OIE) is working on scientific standard-setting activities for animal production food safety. In this area it is working with other

organizations in reducing food borne risks to human health due to hazards arising from animals, prior to primary processing of animal products (OIE, 2004). There is general recognition that zoonoses and diseases transmissible to humans through food, whether or not animals are affected by such diseases, may occur and such risks need to be identified and managed.

Farming is becoming more competitive and controls used to assure food safety can often reap rewards in enhanced product quality with subsequent access to markets and increased margins. However, full compliance with all relevant legislation is only a baseline. From there farmers may have to exert enhanced controls in response to consumers' demands as signalled by their direct customers. Hence the development of on farm quality assurance schemes that build on basic legal compliance. Because farmers are the first step in the food chain they are the foundation of food safety control systems and therefore they have a fundamental role in ensuring food safety.

- ***Food processing and manufacture***

Food processors can be divided into primary processors and secondary processors. Primary food processing activities may be carried out on or off the farm. In either event the highest standards of food hygiene are required when animals are slaughtered at abattoirs; on harvesting and slaughtering of farmed fish; during milking and on-farm milk storage; during the milling of seed crops or washing of fruits and vegetables and during the handling of such products as eggs and honey. Secondary food processing is almost exclusively an off farm activity where the products of primary processing activities are further processed for the manufacture of complex consumer foods. Poor standards of hygiene may result in these foods serving as vectors in the transmission of disease.

Food processors must know who is supplying them with food materials and agree standards for the quality and safety of these products. They have an obligation to apply controls to assure the safety of their products and this is best achieved through a food safety management system consisting of a Hazard Analysis and Critical Control Point (HACCP) system (ref. CCFH documents) built upon a sound pre-requisite programme involving good hygienic practices, good manufacturing practices; and equipment and structures that are fit for the purpose. Sometimes in primary processing the emphasis of food safety control is more towards maintenance of hygiene. For example, the safety of milk and dairy products are reliant to a large extent on hygiene standards on the farm. Good dairy hygiene practices should include the integrity of farm buildings, pest control and cleanliness of milking equipment and storage facilities for milk. Similarly good hygienic practices should be followed in the primary processing of fish, meat and eggs. The Codex standards and codes of practice give excellent examples of the standards of hygiene required to assure consumer protection and food safety (WHO/FAO Codex 2004).

Where feasible, primary processors should also monitor the safety of the materials they are supplied with as well as the products they produce as a means of verifying the effectiveness of their food safety management systems. Processors must set specifications for their raw materials that take account of legal limits for chemical and microbiological contaminants and legal requirements for labelling and traceability as well as quality characteristics. This also requires them to maintain records for traceability purposes and develop efficient recall systems.

Full compliance with food safety regulations and co-operation with regulatory authorities is necessary to ensure the effectiveness of food safety control programmes. However, quality assurance schemes are also becoming prevalent in this sector resulting in the operation of independently audited,

certified food safety and quality standards that are more stringent than legal requirements. Future developments will inevitably involve the recognition of independent certification to agreed standards by regulators attempting to design cost efficient and effective national control programmes.

- ***Food retailing***

Food retailing involves the sale of food to the consumer and as such consists of both grocery and catering businesses. Today, the distinction between grocery and catering businesses is eroding as more and more grocery retailers extend their businesses into offering hot take-away food and delicatessen items. Similarly, some caterers now supply a more traditional grocery line on their premises, usually focusing on the artisan ingredients used in the preparation of their food.

It is essential that food retailers like processors adopt a food safety management system to control the safety of their food products. Even businesses whose activities only involve the distribution of pre-packaged food must adhere to good hygienic practices and use the HACCP approach to proactively identify and manage food safety hazards. In traditional grocery businesses where packaged and unpackaged food is sold to the consumer for home preparation or consumption, the control of the foods they receive and control of the foods they display on a first-in-first-out principle is a vital element of a food safety management system. This coupled with hygienic practices; traceability systems and an effective food recall system comprise the basis of effective food safety controls. In retail businesses where food is prepared for consumption by consumers on or off site, the preparation of the food can lead to food safety issues. Catering businesses must therefore implement HACCP systems and be especially diligent about staff personal hygiene, the hygiene of the equipment and premises as well as staff training. The transient nature of workers in the catering business can put a particularly heavy burden on the ability of the business to train its staff. However, unless staff are trained appropriately in food hygiene the risks of food poisoning increase and many outbreaks of food borne illness can be attributed to lack of adequate hygiene knowledge and consequential poor practices in catering establishments.

HACCP systems can be effective in the catering retail business but their application is more difficult than in manufacturing due to the diverse non-linear arrangement of the food preparation processes. A particular challenge for businesses and regulators in this area is to adapt the traditional HACCP approach to achieve proactive food safety control. Caterers have a role in dialogue with regulators to achieve successful adaptation and application of the HACCP system. Regulators have a role in simplifying the HACCP concept and facilitating ease of application in the catering environment.

There are important food safety concerns associated with “street foods” in developing countries where street food vendors are an important component of the food supply chain. These foods are generally prepared and sold under unhygienic conditions, with limited access to safe water, sanitary services, or garbage disposal facilities. Hence street foods pose a high risk of food poisoning due to microbial contamination, as well as improper use of food additives, adulteration and environmental contamination. Specific guidance on the responsibilities of street food vendors has been provided by WHO (WHO, 1996).

- ***Consumer food preparation***

Consumers have a responsibility to protect themselves and their families from risks associated with the preparation and consumption of foods. Food borne illness can occur as a result of foods being

incorrectly stored, not fully cooked, or when cross-contamination between raw and cooked "ready-to-eat" food is allowed to happen. Consumers need to be aware of the practices and precautions that need to be taken to prevent the spread if disease. Consumer education in the basic principles of food hygiene and safety is a necessity. A good example of the basic information the consumer needs to protect themselves and their families is outlined in the WHO - Five Keys to food safety; cook, clean, separate raw and cooked foods, store at correct temperature and use safe water and materials (http://www.who.int/foodsafety/publications/consumer/5keys/en/).

Role of international agencies

International organizations play a major role in facilitating international dialogue, in building consensus towards a science-based risk analysis process and in harmonizing food safety standards. It is important that these activities engage both developing and developed countries and are both open and transparent. The need for technical assistance in strengthening food control systems in developing countries is well recognized. FAO and WHO are the two main specialized agencies of the United Nations involved in food quality and safety technical cooperation programmes with developing countries. In the area of food safety, the SPS Agreement formally recognizes the standards, guidelines and recommendations established by the Food and Agriculture Organization (FAO)/World Health Organization (WHO) Codex. The recognition of Codex standards eliminates the need for each country individually to do its own risk assessment for any given hazard for which a standard, recommendation or guideline exists. If countries adopt national food safety standards based on the Codex standards, and have mechanisms for monitoring compliance among food producers with these standards, then their food safety measures are presumed to be consistent with SPS provisions.

Both the SPS Agreement (Article 9) and TBT Agreement (Article 11) specifically refer to the need to provide technical assistance to developing countries. Such assistance may be in areas of processing technologies, research and infrastructure, establishment of national regulatory bodies, etc. In particular, developed countries which import food from developing nations are required, upon request, to provide technical assistance to the developing exporting countries to enable these countries to meet their SPS or TBT obligations in international food trade.

The specialist international agencies in the area of food safety and food quality technical assistance, such as FAO, OIE, UNESCO, UNIDO and WHO should collaborate to avoid overlaps and duplication and strengthen formal and informal relationships.

Conclusion

The responsibility for food safety is shared among all stakeholders involved in the production and marketing of foods. The way forward is for integrated food controls at all stages of production and in all sectors in line with the "farm to fork" principle which allows the creation of a systematic, comprehensive system covering all food in all sectors, replacing the current sector specific, patchwork of rules. Communication and consultation with stakeholders on all aspects of food safety at all stages of the decision-making process are key to a credible, open, transparent and accountable food safety system.

TABLES

Table 1 Examples of food laws

Australia/New Zealand
http://www.foodstandards.gov.au/foodstandardscode/

Canada
http://www.hc-sc.gc.ca/food-aliment/friia-raaii/food_drugs-aliments_drogues/act-loi/e_index.html

European Union
http://europa.eu.int/comm/food/food/controls/index_en.htm

Ireland
http://www.fsai.ie/legislation/index.asp

United Kingdom
http://www.foodstandards.gov.uk/enforcement/foodlaw/

United States
http://www.cfsan.fda.gov/~dms/foodcode.html
http://www.fda.gov/default.htm

Table 2 Examples of food safety agencies

Austria - Agricultural Inspection Service and Research Centre, Vienna
www.lwvie.ages.at

Belgium - The Food Agency
www.afsca.be

Cyprus - Cyprus Safety & Health Association (CySHA)
www.cysha.org.cy

Czech Republic - Czech Agriculture and Food Inspection Authority
www.szpi.gov.cz/eng/

Denmark - The Danish Veterinary and Food Administration
www.fdir.dk

Estonia - Veterinary and Food Board
www.vet.agri.ee

Finland - National Food Agency
www.elintarvikevirasto.fi/english

France - French Food Safety Agency
www.afssa.fr

Germany
Bundesamt für Verbraucherschutz und Lebensmittelsicherheit (BVL)
www.bvl.bund.de/

Federal Institute for Risk Assessment
www.bfr.bund.de

Greece – The Hellenic Food Authority
www.efet.gr

Ireland - Food Safety Authority of Ireland
www.fsai.ie

Korea - Food and Drug Administration (KFDA)
http://www.kfda.go.kr/

Netherlands - The Dutch Food and Non-Food Authority
www.vwa.nl

Norway
Norwegian Agricultural Inspection Service - www.landbrukstilsynet.no
Statens næringsmiddeltilsyn - www.snt.no/
Matportalen (the Food Portal) - http://matportalen.no

Spain - Ministerio de Sanidad y Consumo
www.msc.es

Sweden - National Food Administration
www.slv.se

United Kingdom - Food Standards Agency
www.foodstandards.gov.uk

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Primary Production

Guide to minimize microbial food safety hazards for fresh fruits and vegetables
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Center for Food Safety and Applied Nutrition (CFSAN), USA.
http://www.foodsafety.gov/~dms/prodguid.html#intro

Safe Use of Livestock Medicines for Cattle and Sheep Farms, The Irish Agriculture and Food Development Authority (Teagasc), Dublin, Ireland
http://www.teagasc.ie/publications/2003/vetbooklet.htm#head8

Good Agricultural Practices, Agriculture Department, Crop and Grasslands Services, Food and Agriculture Organization of the United Nations (FAO).
http://www.fao.org/ag/AGP/AGPC/doc/themes/5g.html

Good Agriculture Practice, Department of Agriculture and Rural Development, UK
http://www.dardni.gov.uk/core/dard0444.htm

Good Agriculture Practice, The Joint Institute for Food Safety and Applied Nutrition (JIFSAN), United States Food and Drug Administration (FDA) and the University of Maryland, USA.
http://www.jifsan.umd.edu/gaps.html

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Food Safety Begins on the Farm: A Grower's Guide: Good Agricultural Practices for Fresh Fruits and Vegetables. Anusuya Rangarajan, Elizabeth A. Bihn, Robert B. Gravani, Donna L. Scott, and Marvin P. Pritts. Cornell University, Cornell Good Agricultural Practices Program (607) 254-5383
eab38@cornell.edu

European Commission http://europa.eu.int/comm/food/fs/sc/index_en.html

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http://europa.eu.int/eur-lex/en/archive/2004/l_16520040430en.html

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http://www.oie.int/eng/en_index.htm

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