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FOOD SAFETY: AN OVERVIEW OF CANADA'S APPROACH

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INTRODUCTION

The development of agri-food processing and conserving technologies has made it possible to improve the quality of food, in terms of both health and nutrition. Incidents of food poisoning, for example, dropped steadily throughout the 20th century thanks, among other things, to pasteurization and refrigeration.

But the intensification of agriculture, made necessary by the expanding human population, has introduced new problems for both health and the environment. The risks associated with the use of antibiotics in livestock breeding and the effects of pesticides on health are two examples. These problems, amplified by mass production and consumption, have necessitated increased monitoring of the health quality of foods and heightened public awareness of the issue. Newspapers regularly feature new studies that have found negative health effects caused by products used in agricultural and agri-food production.

This paper looks briefly at the general process of formulating safety standards, reviews Canada's approach to food safety, and describes the federal food inspection system in Canada.

SAFETY STANDARDS: THE LEVEL OF CONSUMER PROTECTION

Formulating safety standards for food consists in determining, on the basis of scientific data, whether food additives, the tools used to boost agricultural production (pesticides, drugs for livestock, etc.) or even agri-food processing procedures compromise food safety. Food consumption can never be entirely risk-free, but the threshold below which the risk is minimal must be identified, thereby determining the desired level of consumer protection.

In Canada, this role belongs to Health Canada; in the United States, to the Food and Drug Administration (FDA); and within the European Union (EU), to the Health and Consumer

Protection Directorate-General (DG 24). Internationally, the *Codex alimentarius* Commission acts as the food-quality forum and sets standards that can be used by governments in drawing up their national regulations.

While the standards of the *Codex* are not legally binding, they do represent the international consensus on a given subject. Since the creation of the World Trade Organization (WTO), the *Codex* standards are used in resolving disputes between member countries. Standards can vary from country to country, and this can have consequences for international trade.

For example, bovine growth hormones are banned in the EU while they are widely used in Canada and the United States. Health Canada and the FDA consider that the hormones are not a public health issue as long as good veterinary practices are complied with. This view is shared by the *Codex alimentarius* Commission. The EU, however, considers that increased exposure to the hormones may be associated with an increased risk of cancer and harmful developmental effects. As a result, the EU has since 1988 banned the importing of Canadian and American beef produced using these hormones. This matter was brought before the WTO dispute resolution body, which ruled in favour of Canada and the United States. The two countries took retaliatory measures when the EU refused to lift its ban.

What explains these differences in levels of consumer protection? Risk analysis (also known as risk determination or risk management) is a complex process. Each agency or department responsible for evaluating the safety of food products has its own decision-making framework. Two main stages, however, are usual:

- *Risk assessment*: Essentially scientific, this stage is designed to determine the possibility that harmful effects on health could occur in an individual or a population following exposure to a particular agent – a food product, food additive, contaminant, etc. For example, on the basis of data already available, the probability of deaths caused by eating unpasteurized cheese can be calculated with considerable accuracy. There are four stages in a risk assessment: hazard identification, hazard characterization, exposure assessment and risk characterization. In the case of growth hormones, some people consider that the analysis on which the *Codex alimentarius* Commission based its decision was the complete one, while the EU did not go beyond the first two stages.(1) Benefits are assessed in the same manner.

- *Risk management*: Once the risks and the benefits have been identified, it may be decided, for instance, to ban the product, or to limit its use by regulation or by the voluntary observation of limits on the industry's part. It may also be decided to authorize the product but to inform consumers of risks through labelling or other means. Risk management

(1) Olivier Postel-Vinay, "Bœuf aux hormones : surprenant conflit," *La Recherche*, no. 339, February 2001.

> measures are taken depending on a number of factors, including consumer concerns, the product's benefits, national policy, international trade obligations, etc. The British government's reaction to mad cow disease illustrates a risk management decision. When they realized that the entire British beef industry was threatened, government officials chose not to warn the public of the suspected – but at the time unproven – relationship between bovine spongiform encephalopathy and Creutzfeldt-Jakob disease. It was the wrong decision, but this was not realized until later.(2)

The authorities responsible for setting safety standards are thus faced with two serious difficulties. First, scientific knowledge is evolving all the time, so that new discoveries or studies can often cast doubt on decisions made earlier. Second, while risk analysis is essentially a scientific process, it involves other concepts and values, particularly at the risk management stage, which may reduce the role of scientific evidence and the evaluation process. For regulatory bodies, it is imperative to keep these two limits to risk analysis in mind, because the ultimate objective remains the protection of consumers' health.

FOOD SAFETY IN CANADA: A SHARED RESPONSIBILITY(3)

A. The Legislative Framework

The *Food and Drugs Act* constitutes the foundation of Canada's food safety system. It derives its authority from the federal power to legislate in the area of criminal law, and requires that all food sold in the country be fit for human consumption.(4)

Some products (dairy products, shell or processed eggs, fresh or processed fruits and vegetables, honey, maple syrup, beef, pork, poultry and fish)(5) are also covered by other acts of Parliament,(6) passed under the federal jurisdiction over trade and commerce. For instance:

- Canadian establishments that process and distribute these products *interprovincially/ territorially or internationally* must register with the Canadian Food Inspection Agency (CFIA) in order to operate. Consequently, establishments that trade in these products are referred to as "federally registered establishments."

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(2) L. Busch, "Témérité américaine et prudence européenne?" *La Recherche*, no. 339, February 2001.

(3) This portion of the document is largely drawn from the report released by the Auditor General of Canada in December 2000, ch. 25, "Canadian Food Inspection Agency – Food Inspection Programs."

(4) *Food and Drugs Act*, Part 1, section 4.

(5) These products represent 56% of the average consumer grocery budget.

(6) The *Canada Agricultural Products Act*, the *Meat Inspection Act* and the *Fish Inspection Act*.

- Importers or foreign processing establishments may be subject to enhanced import controls, such as audits of importer quality systems, inspection of foreign establishments, etc.

- All other food establishments are referred to as "non-federally registered establishments" and are subject to an inspection system different from that for federally registered establishments.

B. Responsibilities

Under the *Food and Drugs Act*, Health Canada is responsible for establishing policies and standards relating to the safety and nutritional quality of food sold in this country. The Department must, for example, determine the residual quantities of pesticides allowed in foods, and the safety of new foods – such as those derived from genetically modified organisms (GMOs) – for health. Health Canada also defines standards for bottled water (whereas drinking water standards are a provincial matter). The standards and policies are partly based on risk assessment, research into food safety, and Health Canada's disease monitoring activities.

The CFIA,[7] which reports to the Minister of Agriculture and Agri-Food, is responsible for enforcing the standards and policies set by Health Canada and for applying the trade and commerce laws applicable to certain food products. The CFIA conducts all *federal* food inspection activities. It is also responsible for the administration and enforcement of the *Consumer Packaging and Labelling Act,* which applies to selected food products sold in Canada. The CFIA has further responsibilities for animal health and plant protection. It is the only agency in the world with responsibilities that cover the whole food continuum (before and after agricultural production). Health Canada is responsible for assessing the effectiveness of the CFIA's activities.

Under their public health and trade mandates, the provinces' and territories' jurisdiction extends to all food manufactured and sold within their borders. Provincial governments regulate not only food retailers and services, such as restaurants, but also requirements for all food premises, including federally registered establishments. For example, most provinces regulate the construction standards and basic sanitary requirements of certain establishments within their borders. In some provinces, municipal governments also enforce regulations.

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(7) Created in 1997, the CFIA brings together in a single agency all the federal food inspection services and animal health and plant protection programs previously provided by four different departments. It administers the application of 13 acts and their related regulations. Its annual budget is around $416 million. The CFIA reports to Parliament through the Minister of Agriculture and Agri-Food.

Because of this shared responsibility, mechanisms are needed to ensure that the system works effectively. The Canadian Food Inspection System Implementation Group is an interdepartmental/intergovernmental committee established to advance a fully integrated inspection system.. Among other things, it formulates harmonized regulations and model codes for certain industries. These regulations and codes provide a package of standards that any level of government can use to formulate its own laws and codes of practice. At present, there are codes and regulations for the dairy industry, food retailing and food services; others, relating to meat and poultry, produce and bottled water, are in the process of being drawn up.

Finally, there is the Federal/Provincial/Territorial Agri-Food Inspection Committee, a forum for discussing science issues, concerns about technical barriers to interprovincial trade, and agri-food inspection policies and programs.

FOOD INSPECTION AT THE FEDERAL LEVEL

The purpose of food inspection programs is to prevent products that might endanger health from reaching the market, either by ensuring compliance with safety standards or by encouraging the implementation of prevention programs. As noted above, this responsibility falls to the CFIA at the federal level. This section will look at the CFIA's food safety activities.

A. Food Products' Compliance With Federal Standards

The CFIA's primary function is to verify the compliance of Canadian and imported food products with federal safety standards, in order to ensure the safety of the food supply. Inspectors and veterinarians inspect and audit establishments and products, with the help of experts who examine and test food samples in the laboratory. In the event of non-compliance, the CFIA takes measures such as confiscation or seizure, withdrawal or recall of products, or if necessary prosecution.

1. Food Inspection Activities

The CFIA has 14 programs, of which 9 involve food inspection and deal with the entire range of food products.[8] The frequency and type of inspection differ, depending on

(8) These nine programs are: Meat Hygiene, Fish and Seafood, Eggs, Dairy, Honey, Fresh Fruit and Vegetables, Processed Products, Food Safety Investigation and Fair Labelling Practices.

whether the products are imported or come from Canadian establishments, and in the latter case on whether the establishment is federally registered or not.

Federally registered establishments are inspected regularly. For example, every animal slaughtered in an abattoir registered by the federal government is inspected (about 633 million animals in 1999). The rate of seizure (calculated by weight) was about 0.4% for red meat and about 3.0% for poultry in 1998 and 1999.

Non-federally registered establishments – which represent about half the food processing industry – are generally subject to a less rigorous federal inspection system than are federally registered processors. The CFIA's approach targets particular sectors of the industry (for instance, bean sprouts and non-pasteurized juice), accurate risk assessment, and controls for certain products, rather than regular inspections of all non-federally registered establishments. Since the provinces share responsibility for this sector, the CFIA is required to collaborate with each of them, taking into account the differences in legislation that this involves.

The booming imported food products sector demands a different management approach from that used for domestic production. The import services team formulates monitoring systems for imports and works in cooperation with the Canada Customs and Revenue Agency. Products targeted by the trade and commerce legislation – for example, meat and poultry – can be stopped and inspected at border entry points, while products that are not specifically mentioned in these laws are declared at entry points but can be inspected only on the importer's premises. Bill C-80, which was tabled in 1999 and died on the *Order Paper* following prorogation of the first session of the 36th Parliament, was intended to remedy this loophole in the existing legislation.

The following table sets out some of the CFIA's inspection activities.

Product	Type of Inspection	Number of Samples (2000-2001)	Compliance Rate (2000-2001)
Fresh fruit and vegetables	Chemical residues	13,000	98.9% (Canadian) 99.7% (imported)
	Irradiation	135	100%
Processed Canadian products	Labelling (quantity, container integrity, etc.)	1,516	82.4%
Shell eggs	Safety, quality and product integrity	456 million dozen	97%

Source: Canadian Food Inspection Agency, *2000-2001 Annual Report*.

When an inspection reveals non-compliance, several enforcement and compliance options are available to the Agency. These include suspending or withdrawing a licence or registration, ordering an imported product to be returned to its country of origin, or destroying a seized product. There are emergency situations in which it is necessary to recall food products that have already been distributed, for example where allergens not declared on the label are detected, or a dangerous level of contaminant is present in a product. The CFIA has an emergency intervention team ready to take action at all times. In 2000-2001, 370 recalls were issued. In 97% of cases, the public was advised within 24 hours following the decision to recall a product.

2. Remarks on the CFIA's Work[9]

To optimize the resources available to it, the CFIA uses a risk-based approach: the work of its inspectors is prioritized on the basis of possible risks, arising either from the dangers inherent in certain products or from the compliance records on certain products or establishments. According to the Auditor General, the CFIA has had difficulty establishing a process to support risk-based resourcing. As a result, it cannot demonstrate that it has appropriately resourced its food inspection programs, based on risk. In the Auditor General's view, such a process is needed particularly in the imported food sector and the non-federally registered sector, because inspection in those sectors is not systematic. It is therefore important to determine the overall level of threat to food safety in those sectors in order to determine an appropriate level of intervention.

There is, however, no international model for this type of approach, which makes it difficult to implement and to assess. To improve the system, the CFIA has undertaken a review of its resources to make sure they correspond to food inspection needs.

In addition, recalls of food or prosecutions for non-compliance led the Auditor General to comment that problems often persist in the establishments concerned for months, or even years. Limitations in the legislation, or the failure to take more serious compliance actions, sometimes prevent timely correction of compliance problems. As a result, the CFIA is seeking to formulate legislative options that would enable it to deal with this problem more effectively.

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(9) These remarks are drawn from the report released by the Auditor General of Canada in December 2000, ch. 25, "Canadian Food Inspection Agency – Food Inspection Programs."

B. Other Initiatives

1. Prevention

In addition to auditing the compliance of food products with the federal government's regulations and standards, the CFIA is involved in prevention activities. It encourages industry to apply hazard analysis and critical control point, or HACCP, principles, which are recognized as the best method of preventing problems with food safety.(10) The HACCP system is mandatory in federally registered fish processing establishments, as part of the Quality Management Program. As far as other products are concerned, the Canadian agri-food industry has gradually and voluntarily been implementing the HACCP system since the government introduced the Food Safety Enhancement Program in the early 1990s. The system is now used by many federally registered processing establishments (meat, poultry, eggs, dairy products, fruits and vegetables), and the CFIA is currently drafting amended regulations so the system can be imposed on federally registered meat and poultry processing plants.

The HACCP approach is also being introduced on farms and ranches, in order to guarantee the supply of healthy products. The Canadian On-Farm Food Safety Program, initiated in 1997, is a partnership between the federal government and the national producer organizations and specialized (single crop or commodity) organizations. It provides funding to associations and organizations so that they can formulate strategies and tools for educating producers and launching initiatives to implement the HACCP system. The Program is administered by the Canadian Federation of Agriculture, with scientific and technical support from the CFIA.

For example, the Chicken Farmers of Canada has drawn up a program for implementing the HACCP system on poultry farms. The program requires, among other things, certain management and record-keeping procedures. In August 2002, the CFIA evaluated the program's technical value from the point of view of food safety and verified that it respected the HACCP principles and the practices that promote the production of safe food. Before the program is fully recognized by the CFIA, the Chicken Farmers of Canada will have to formulate and validate an audit system at the farm level that meets accepted international standards. Similar programs are being developed for pig farms and egg producers.

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(10) The HACCP approach requires the processor to identify likely food safety hazards at all stages in the production process, and to avoid these hazards by monitoring critical control points.

2. Traceability

The "traceability" of foods is a theme that emerged in Europe several years ago, in particular in reaction to the debate over GMOs. Traceability consists in tracking and identifying all stages through which a food has passed, from raw material to finished product. By knowing the origin of each food product, sources of infection can be determined and the content of labels monitored (with respect to GMOs, for example).

The province of Quebec has said that it would like to introduce mechanisms for identifying and tracing products, "from farm to fork." At the Canadian level, certain initiatives have already been taken. The Canadian Cattle Identification Program, for cattle and bison, is an example.

Canada's cattle breeding sector came up with this program to assist the CFIA in determining and eliminating the sources of diseases and the problems with food that can compromise public health and safety. Since July 2001, any animal leaving any premises (not just the farm or ranch where the animal was bred) must have in its ear a tag approved by the Canadian Cattle Identification Program. The Program requires Canadian abattoirs to report to the Canadian Cattle Identification Agency all the tag numbers of the cattle they receive, to provide a starting point for research if a problem is found at the time of slaughtering.

CONCLUSION

In Canada, the food safety system involves various levels of government and, as elsewhere in the world, is built around safety standards and the monitoring of compliance with those standards. In his report of December 2000, the Auditor General of Canada noted that the CFIA's food inspection programs are regularly reviewed and generally well regarded by the main foreign countries that import our products, which provides a degree of assurance that our food inspection programs are contributing to the safety of the Canadian food supply.

Consumer confidence in the food safety system is essential both for export markets and for the domestic market. It is thus important for governments to maintain this confidence, for instance by providing high-quality scientific information and by communicating effectively when standards are breached or products must be recalled. The Canadian approach to food safety, with a single agency at the federal level, makes it possible to centralize information and avoid overlap; it constitutes an internationally recognized model that a number of countries are studying, adopting or adapting.