SHOULD CANADIANS BE CONCERNED?

FOOD SAFETY IN CANADA

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Introduction

Canada has one of the safest food safety systems in the world. It has created a system that includes regulation, inspection, enforcement, research and education. The various orders of governments, the food industries, retailers, the distribution networks, consumers and farmers all contribute to the safety of the food that we consume. Even so, our food safety system is not infallible as Canada, along with other countries, has experienced a number of serious food safety incidents in recent years.

Over the past decade Canadians have become increasingly aware and concerned about the safety of the food we consume. In particular, highly publicized incidents such as mad cow disease in the United Kingdom, Italy and Japan; *E. coli* 0157 in the United States; listeria in France and the United States; dioxin contamination in Belgium; salmonella in sprouts in the United States; and *E. coli* in unpasteurized juice and hamburger in the United States and Canada have heightened consumer concerns over food.

Not surprisingly, food safety has emerged as a significant global issue with enormous implication for public health and international trade (Satcher, 2000). Since its inception, the World Health Organization (WHO) has been working towards improving food safety. In 1992, it joined with the Food and Agriculture Organization of the United Nations to hold an international conference on nutrition and recognized that access to nutritionally adequate and safe food is a right of each individual. It has pointed out that contaminated food and drinking water cause hundreds of millions of people to suffer from communicable and noncommunicable diseases (WHO, 2000). Globally, of the 1.5 billion annual cases of diarrhea, 70 per cent of these have been attributed to biologically contaminated food (WHO, 2000).

In the United States, microbial pathogens such as bacteria, parasites, fungi and viruses in the food supply cause annually six to thirty three million cases of food-borne disease and up to 9,000 deaths. The United States Department of Agriculture’s Economic Research Service has estimated that diseases caused by the seven major pathogens found in food may result in between $U.S. 6.6 billion to $U.S. 37.1 billion annually in medical costs and productivity losses (Crutchfield et al., 1999). The Center for Disease Control in the United States estimates that 76 million people get sick, more than 300 thousand are hospitalized, and 5 thousand Americans die each year from food borne illness. In 1999, Health Canada estimated that 2.2 million cases of food borne illnesses occur annually in Canada.

Each day, consumers around the world are exposed to a number of food safety risks stemming from (Buzby 2001):

- Veterinary drug and pesticide residues;
- Pathogens (e.g. illness-causing bacteria, viruses, parasites, fungi and their toxins);
- Environmental toxins such as heavy metals;
- Organic pollutants such as dioxin; and,
• Unconventional agents such as prions associated with bovine spongiform encephalopathy (mad cow) in cattle.

This is not a phenomenon that happens somewhere else. The recent events of contaminated water in Walkerton, Ontario and North Battleford, Saskatchewan have caused considerable worry in Canada.

A recent Ipsos-Reid poll for the *Globe and Mail* and CTV found that 74 per cent of Canadians are concerned about food safety. The poll found that 35 per cent of Canadians are ‘very concerned’ about food safety issues, while 39 per cent are ‘somewhat concerned’. The poll found that the areas of most concern within the food safety system are the processing industry, restaurants and other food-service outlets and the farm (Globe and Mail, 2001a). What is evident is that Canadians do not realize that food-borne illness can be a result of consumers mishandling food during preparation and this should be an area of concern.

It has become a challenge in Canada, as it has elsewhere, to ensure the safety of our food, particularly as the production and consumption of food has changed. Why has our vulnerability to food-borne illnesses increased? There are a number of reasons (Canadian Food Inspection Agency, 2000a; President’s Council on Food Safety, 2001):

• People are eating a greater variety of foods. This is beneficial to our health, but it presents new food safety challenges. Shifting dietary preferences can lead to different patterns of exposure to chemicals and pathogens;
• More consumers desire a wide variety of foods year round, making food safety issues surrounding transportation and refrigeration increasingly important;
• As international trade expands with access to food products from a global marketplace, we face the challenge of ensuring the safety of imported food;
• We are eating more meals away from home. Not only is food purchased from grocery stores and restaurants, but also it is consumed in institutional settings such as schools, hospitals, nursing homes, and day care centers. As a result, a comparatively few people are involved in preparing large numbers of meals for others, increasing the potential impact of error in food preparation;
• With less time spent in the kitchen as compared to our parents and grandparents, proper skills in storage, handling and preparing food in a safe manner are not being transferred between generations; and,
• As our population ages, unsafe food is a greater health risk to older people.

Food recalls in Canada have also increased by 80 per cent since 1996-97 (Canadian Food Inspection Agency, 2000b) for a number of reasons:

• Increased Canadian Food Inspection Agency investigations;
• More reported allergens and emerging pathogens;
• Improved surveillance systems;
• Greater consumer awareness;
• Improved detection methodologies;
• More stringent Health Canada guidelines;
• Increased food imports, particularly from non-traditional sources; and,
• More complex and varied food production and distribution channels.

As Canadians are concerned about food safety, what is being done in Canada and internationally to reduce food-borne illnesses? This paper is written as an informative piece that reviews a number of food safety issues including the Canadian food safety system; international food safety standards; the importance of producing safe food for Canada’s agricultural export markets; the increased interest in organic food; and the debate on labeling and genetically modified food.

What is Canada Doing to Address Food Safety

The success of the Canadian food safety system depends on close working partnerships between federal, provincial/territorial authorities, industry, distributors, retailers and ultimately, consumers. The Canadian food safety system adheres to three principles (Canadian Food Inspection Agency, 2001):

• The health of the population must remain paramount;
• Policy decisions must be grounded on scientific evidence; and,
• All sectors and jurisdictions must collaborate to protect consumers.

The federal government has the primary responsibility for food safety, through Health Canada and the Canadian Food Inspection Agency (CFIA). Health Canada, through the Food and Drugs Act, establishes standards for the safety and nutritional quality of all food sold in Canada. It also carries out food-borne disease surveillance for early detection and warning and assesses the effectiveness of CFIA’s food safety inspection activities (Canadian Food Inspection Agency, 2001).

CFIA, created in 1997, brought together inspection and related services previously delivered by four federal departments – Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, Health Canada and Industry Canada. CFIA is responsible for the administration and enforcement of thirteen pieces of legislation dealing with food safety, food labeling practices, animal health and plant protection. It also delivers fourteen inspection programs related to food, plants and animals in eighteen regions across Canada. CFIA activities include inspection of federally registered meat processing facilities, border inspections for foreign pests, enforcement of practices related to fraudulent labeling, food investigations and recalls, laboratory and environmental assessments of seeds, plants, feeds and fertilizers (Canadian Food Inspection Agency, 2001).

Responsibility for regulations and inspections vary between the provinces and territories. For example, in some provinces, the departments of agriculture inspect provincially regulated meat and dairy plants and processing facilities while in others the department of
health is responsible for these activities. In some provinces, the inspection of food retail services is done at the municipal level. Provincially regulated meat and dairy plants and processing facilities only distribute their products within that respective province. Federal inspection is required in order to distribute the products outside of the province. The regulations for food safety are constantly being monitored and improved. There are a number of federal/provincial/territorial groups and committees working to do this in Canada. The Canadian Food Inspection System Implementation Group (CFISIG) is mandated by the federal, provincial and territorial governments with the process of harmonizing federal, provincial, territorial and municipal food inspection systems. As part of its mandate, CFISIG has worked on the development of regulations and codes. Recent accomplishments include the National Dairy Regulation and Code, the National Meat and Poultry Regulation and Code and the National Food Retail and Foodservice Regulation and Code. Not all of these new regulations and codes have been incorporated into new legislation by governments.

At the federal-provincial-territorial Ministers of Agriculture meeting in June 2001, the Ministers agreed in principle on an action plan to make Canada a world leader in food safety, innovation and environmental protection. The action plan will build on Canada’s reputation as a producer of safe, high quality food, by strengthening on-farm food safety systems and securing their international recognition, and through the development of identity-preserving tracking and tracing systems throughout the food chain (Federal-Provincial-Territorial Communiqué, 2001).

Food Safety Programs

The increased emphasis on food safety occurred in 1986 following the recommendations of the Nielsen Task Force (the Ministerial Task Force on Program Review). Upon review of the recommendations, the federal Cabinet concluded that Canada had an effective food inspection system but, Agriculture Canada was asked to place greater emphasis towards food safety. Agriculture Canada was requested to work more closely with other federal agencies responsible for food inspection (Health and Welfare Canada, Fisheries and Oceans Canada and Consumer and Corporate Affairs Canada). These federal departments agreed to establish minimum federal health and food safety inspection standards based on Hazard Analysis Critical Control Points (HACCP) principles that would be applied to registered and non-registered food processing establishments (Canadian Food Inspection Agency, 2000c).

HACCP was developed in the 1960s by the Pillsbury Company in collaboration with the U.S. Army and NASA to produce safe food for the U.S. space program. HACCP is a world recognized systematic and preventative approach to the identification and control of physical, biological and chemical hazards that have the potential to affect the safety of foods. Industries are increasingly required to have HACCP systems in their plants to export food products or to sell within Canada and the United States.
CFIA has promoted programs based on HACCP principles and regulatory requirements in 2,000 registered agri-food establishments and approximately 1,000 registered fish processing establishments in Canada during 1999-2000 (Canadian Food Inspection Agency, 2000b).

Moreover, CFIA provides support by designating and recognizing HACCP systems and verifying compliance with HACCP requirements. HACCP programs are mandatory in federally registered fish processing plants and the CFIA is moving towards mandatory HACCP systems in federally registered meat and poultry establishments. CFIA supports three programs based on HACCP principles: the Food Safety Enhancement Program (FSEP); the Modernized Poultry Inspection Program (MPIP); and the Quality Management Program (QMP) (Canadian Food Inspection Agency, 2000b).

The United States has implemented HACCP inspection systems for meat, poultry, seafood and juices. In 1996, the United States Department of Agriculture (USDA) Food Safety and Inspection Service issued a ruling on Pathogen Reduction and HACCP Systems. The ruling requires plants to implement science-based process control systems as a means of preventing food safety hazards, set certain food safety performance standards and establish testing programs to ensure those standards are met (United States Department of Agriculture, 1998).

Consumers want to know that their food is being produced in a safe manner on the farm. Food safety is being addressed on Canadian farms through national programs. On-farm food safety programs are also based on HACCP and twelve national commodity organizations (e.g. beef, dairy, turkey, pork, horticulture and eggs) are currently working on implementing and delivering these programs. An example of a national on-farm food safety program is the “Canadian Quality Assurance” program developed by the Canadian Pork Council. The majority of Saskatchewan’s swine producers are enrolled in this national program. The high enrollment can be attributed to a number of federally inspected packing plants requesting that pigs sold to the plants come from farms enrolled in the national program. The Canadian Quality Assurance program helps pork producers improve food safety and quality by documenting management practices and making improvements where required. All areas of pig barn management such as purchasing, animal handling, sanitation and building design, storage and use of medications, biosecurity, marketing and transport of pigs are documented. Each producer must demonstrate that program requirements have been met by undergoing an audit (Globe and Mail, 2001b).

The national on-farm programs are voluntary and market driven and will require formal recognition by the federal government in order for our international trading partners to recognize them. CFIA will provide official recognition of the technical soundness, including the requirement to meet regulatory standards and administrative effectiveness of these programs. There are no international standards for on-farm food safety programs, but the Codex Alimentarius Commission is in the process of establishing guidelines based on HACCP principles.
Countries including Canada, the United States, the European Commission, New Zealand, Australia and Japan base their food safety system on sound science and risk analysis. Risk analysis includes three components: assessment, management, and communication. Risk assessment looks at the scientific knowledge and characterizes or estimates the particular risk. Risk management is a process that looks at the factor of how this risk might be mitigated and could include components such as legislation, mandates and authority. Risk communication deals with providing information on the risk in order to have a better understanding of the decision made. In order to ensure that food safety policies are based on the best available science, research must continue to be funded by government to investigate the occurrence and incidences of food-borne illness, advance food technologies, find safer methods of food production and enhance surveillance systems that anticipate and prevent public health and food safety problems.

Would consumers be more at ease if they knew that animals could be traced back to their farm of origin? Canada has initiated such a registry. A national cattle identification program that individually identifies all cattle sold in Canada was launched on January 1, 2001. Having the ability to identify individual animals sold in Canada and trace and resolve any potential animal health concerns is a very important component in producing safe food. By law, all beef and dairy cattle sold must carry an approved eartag equipped with a unique identification number and bar code. This eartag stays on the animal until it is slaughtered and the carcass is inspected at the packing plant. If an animal is found to have a serious disease or other health problem, CFIA can trace the animal’s movements from its original owner to its current location.

Consumer awareness and education on safely handling food is very important in order to reduce food-borne illness. Consumer food safety is being promoted through a program called FightBAC! This awareness campaign was developed through the Canadian Partnerships for Consumer Food Safety Education which is a coalition of environment, health, consumer, industry and government groups. FightBAC! focuses attention on four key food safety messages: clean, separate, cook and chill. The program’s ultimate goal is to reduce food-borne illnesses.

**International Activities in Addressing Food Safety**

Food safety is a growing concern throughout the world. A number of countries have already developed strategic plans to reduce the incidence of food-borne illness. Three examples illustrate how food safety is being addressed on different continents.

Australia and New Zealand established an Australian New Zealand Food Authority in 1991 as a focus for cooperation between governments, industries and the communities for establishing and maintaining uniform food regulation in both countries. The Food Authority was created with the following goals (Australian New Zealand Food Authority, 2001):
• The creation of a high degree of consumer confidence in the quality and safety of food produced, processed, sold or exported from Australia and New Zealand;
• The establishment of an effective, transparent and accountable regulatory framework within which the food industry can work efficiently;
• The provision of adequate information relating to food to enable consumers to make informed choices; and,
• The establishment of common rules for both countries and the promotion of consistency between domestic and international food regulatory measures without reducing the safeguards applying to public health and consumer protection.

The two countries are currently working towards the establishment of harmonized food standards which will result in removing regulatory barriers to trade between Australia and New Zealand.

In January of 1997, U.S. President Bill Clinton announced a new Food Safety Initiative for the United States that would focus on enhancing the safety of food and reduce the number of food-borne illnesses. As part of the Food Safety Initiative, documents were prepared by several federal government departments for consultation with consumers, producers, industry, state governments and universities. The consultation document considered a number of elements including surveillance, coordination, risk assessment, research, inspections and education required in order to reduce the incidence of food-borne illnesses for the immediate and long term. The comments arising from the consultations were incorporated into a report for President Clinton.

As a result of a study done in 1998 by the National Academy of Sciences which looked at a broader scope of issues than that of the Food Safety Initiative, President Clinton established the President’s Council on Food Safety. The Council aimed to make the food supply safer through a seamless, science-based food safety system supported by research, risk assessments, standards, surveillance, inspection, enforcement, education and strategic planning. The Council released a comprehensive strategic plan for federal food safety activities in the United States in January 2001. The strategic plan provides a number of recommendations including: developing legislative proposals to strengthen existing food safety statutes; strengthening the reliance on science and risk assessment practices (analysis, management and communication); and, improving communication to the public and those working within the food system (President’s Council on Food Safety, 2001).

In September 2001, the United States Department of Agriculture released a report on food and agriculture policy for the new century. It reviews the infrastructure system that protects the food system but claims that government cannot just provide regulations as the only mechanism to produce safe food. More attention must be given to identifying appropriate roles for government, industry and consumers. Where, when and how government should partner with producers and food processors to improve food safety are important decisions. HACCP-based food safety programs are good examples to illustrate how government, industry and consumers have worked together to produce safer food (United States Department of Agriculture, 2001).
The European Commission has identified food safety as one of its top priorities. The European Commission wants to achieve the highest possible level of health protection for European food consumers through a comprehensive integrated approach. In January 2000, the European Commission released a White Paper on Food Safety which states food safety policy must be based on a comprehensive, integrated approach. Major recommendations include the establishment of an independent European Food Authority on Food Safety (in place by 2002) and secondly, improve, harmonize and consolidate food safety regulations from farm to table across the European Community. The European Food Authority on Food Safety would concentrate on risk assessment and risk communication and become the scientific point of reference for the whole European Union (Commission of the European Communities, 2000).

**International Standards**

For Canada and other importing countries to trade, they must follow international standards and rules established to protect public health and safety, protect animals and plants and facilitate the movement of safe, quality products. To safeguard Canadian exports, we must meet the standards of the importing countries. Our food safety inspection system must be able to provide the appropriate risk analysis and the necessary scientific assurances in order for Canadian products to meet food safety standards. For example, Canada must be able to demonstrate through routine laboratory sampling that Canadian cattle are free of bovine spongiform encephalopathy (mad cow disease). These results are provided to the Office International des Epizooties. This information is used to maintain our mad cow disease free status.

Through the use of memoranda of understanding, mutual recognition agreements, and equivalency agreements, importing countries can recognize the food safety, plant and animal health controls of an exporting country. CFIA administers about 1,500 international arrangements, protocols and certificates in order to have access to international markets and/or specify conditions for importation (Canadian Food Inspection Agency, 2001).

The following organizations have established international standards or rules to facilitate the movement of safe food products:

1. The Office International des Epizooties (OIE) was created in January 1924 to deal with animal disease outbreaks and currently has 158 member countries. OIE’s functions include disseminating information on animal disease outbreaks that occur in a respective member country to all other member countries; collecting, analyzing and disseminating veterinary scientific information on animal disease control; providing expertise and promoting international solidarity for the control of animal disease; and, developing sanitary rules for the international trade in animals and animal products.
2. The International Plant Protection Convention (IPPC) came into force in December 1952; there are 116 member countries of the Convention. The Convention provides the source of international standards to the Agreement on Sanitary and Phytosanitary (SPS) Measures. The international standards deal with the prevention of the spread and introduction of pests in plants and plant products and promote measures for the control of pests.

3. Codex Alimentarius Commission (Codex) was created in 1962 by the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO). Codex implements the Food Standards Program whose purpose is to promote the health and economic interests of consumers while encouraging fair international trade in food. The Program has adopted over 4,000 standards, recommendations and guidelines to date. The Food Standards Program determines priorities and provides guidance for the preparation and finalization of standards referred to in the World Trade Organization Agreement on Sanitary and Phytosanitary Measures, and published as regional or worldwide standards. Once a Codex standard has been adopted, the 165 member countries are encouraged to incorporate the standard into any relevant domestic rules and regulations (MacKenzie, 2000).

4. The Uruguay Round of the World Trade Organization (WTO), which concluded in 1994, was important for a number of factors including the establishment of the Agreement on Sanitary and Phytosanitary (SPS) Measures. The SPS Measures must be based on science and cannot be more trade restrictive than necessary to achieve the country’s appropriate level of protection. This Agreement established a framework of rules and disciplines to protect (Agriculture and Agri-Food Canada, 2001a):

- Human, animal and plant life or health from risks associated with pests and diseases; and,
- Human health from food additives, toxins, contaminants, and disease causing organisms in food.

Canada has taken a lead role in working with the OIE, IPPC, Codex and the WTO in developing international standards. As our trade increases with other countries, the importance of having international agreements becomes more apparent in order to ensure the import and export of safe food. Furthermore, the SPS Agreement provides for a level playing field among countries and cannot be used to restrict trade movement without scientific justification.
Canadian Trade of Agri-food Products

Agricultural trade is extremely important to the Canadian economy. Canada is the third largest exporter of agricultural products in the world and the fifth largest importer. In 2000, Canada exported $C 23.4 billion in agri-food products and imported $C 17.4 billion worth of goods. In 2000, the top export markets were the United States (60.5 per cent of export market share) followed by Japan, EU15, Mexico, China, Hong Kong, South Korea, Taiwan and Brazil; wheat, beef, canola seed, slaughter cattle, pork, frozen fries and whisky were the main exports. To be sold there, Canadian products must meet the importing country’s food safety standards. Ontario is the largest provincial exporter with Alberta second and Saskatchewan third. Saskatchewan exported $C 4.266 billion of agri-food products in 2000 (Statistics Canada, 2001).

The United States, especially California, is an important market for Saskatchewan’s agricultural products. The table clearly shows the importance of this market to Saskatchewan:

Table – Saskatchewan Food Product Exports to and Imports from the United States in 2000

<table>
<thead>
<tr>
<th>Food Product</th>
<th>Exports ($C million)</th>
<th>Imports ($C million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>$ 3.60</td>
<td>$ 9.50</td>
</tr>
<tr>
<td>Dairy Products, Eggs, Honey</td>
<td>$ 0.12</td>
<td>$ 4.90</td>
</tr>
<tr>
<td>Edible Vegetables</td>
<td>$ 12.00</td>
<td>$ 19.40</td>
</tr>
<tr>
<td>Fish</td>
<td>$ 1.30</td>
<td>$ 0.56</td>
</tr>
<tr>
<td>Meat and Edible Meat Offal</td>
<td>$114.40</td>
<td>$ 11.50</td>
</tr>
<tr>
<td>Oil Seeds, Oleaginous Fruits, Industrial or Medicinal Plants, Straw and Fodder</td>
<td>$ 85.00</td>
<td>$ 5.90</td>
</tr>
<tr>
<td>Products of the Milling Industry</td>
<td>$ 28.20</td>
<td>$ 10.70</td>
</tr>
</tbody>
</table>

Source: Industry Canada, 2001

Because our agriculture economy is so dependent on exports, it is paramount that Saskatchewan and indeed, all of Canada, continue to produce safe and quality food. It is extremely important to ensure that we have the proper standards and regulatory measures in place to compete in the world market. Canada has an international reputation for producing safe and quality food but if our standards and regulatory measures are not vigorously maintained, the importing countries might refuse our food products to avoid compromising the health of their consumers and livestock. Canadian consumers might be reassured that the stringent demands placed on food safety in some of our major food markets are also helping to maintain standards at home.

Organic Food

Recent and highly publicized food safety incidents such as mad cow disease, *E.coli* contamination, listeria and pesticide poisonings have prompted many consumers to turn to organic foods. As well, the concern with genetically modified (GM) foods has helped
increase the demand for organic food (Lohr, 2001). Surveys in Europe and Japan have shown that food safety is the primary reason why consumers purchase organic food, though other factors such as concern with health, environmental protection, taste, freshness and quality have all made organic food more desirable.

What makes organic foods distinguishable from non-organic foods are the methods used in their production and processing. Although there are no international regulations governing organic production, generally accepted organic rules prohibit the use of synthetic fertilizers, pesticides, genetically modified material, growth hormones and livestock feed additives and require long term soil management, emphasis on animal management and extensive record keeping and planning (Lohr, 2001).

Is organic food healthier and safer than conventional food? People believe that organic food is safer. A comparison in more than 150 studies of organically and conventionally produced foods found that there are only very slight differences in nutritional factors such as vitamins, trace elements, minerals, heavy metals, protein, starch and sugar. Recent research data shows that organic products are neither healthier nor safer than conventional or genetically modified foods (Bodenmuller, 2001).

Yet, over the past decade, the demand for organic foods in Canada, the United States, European Communities and other countries has risen steadily with annual growth rates in the range of 10 to 20 per cent. The retail market for organic food in Canada is worth an estimated $C 300 to $C 750 million with 80 per cent of the products being imported. This represents one per cent of total retail food sales, though sales are growing at an average annual rate of over 15 per cent (Agriculture and Agri-Food Canada, 2001b). Canada is among the top five producers of organic grains and oilseeds with an estimated retail value of $C 1 billion, including processed and non-processed products. Saskatchewan, Ontario, Quebec and British Columbia are the main exporters of bulk organic grain and oilseed products (Agriculture and Agri-Food Canada, 2001c).

Labeling and Genetically Modified Food

No food raises as much concern and fear as GM foods. Is GM food safe? Does it pose risks to human health? What are the health and environmental risks of GM foods versus non-GM foods? To date, several studies have shown that humans are not at risk when they consume foods that are genetically modified. Yet, it is uncertain and unpredictable to know what the risks are to humans after long term consumption of GM foods (Mitura et al., 2000; Prakash, 2001). The scrutiny for testing and a regulatory framework for GM food has been more intense than other foods introduced into the marketplace such as functional foods (food products consumed as part of a regular diet that have demonstrated physiological benefits and/or reduce the risk of chronic disease), health foods and nutraceuticals (products isolated or purified from foods which have demonstrated health benefits when used as a dietary supplement). Furthermore, there has not been the same kind of questions asked about the long term health implications in consuming functional
foods, health foods and nutraceuticals (Mitura et al., 2000; Prakash, 2001). Some consumers have questioned whether the creation of new foods using GM technology could cause allergic reactions in some people. For example, could the exposure to new proteins introduced into a food product cause an allergic reaction in some people? At this point, we do not know.

Should GM foods and products be labeled as such so that consumers can make informed choices on the foods they are purchasing? Proponents and opponents of GM foods within Canada have been debating mandatory versus voluntary labeling. Most consumers and organizations advocating mandatory labeling want the GM process itself to be labeled. Since the product has undergone genetic modification, they expect that it should be shown on the label. This runs counter to the policy of the Canadian and the United States regulatory approach to biotechnology-derived foods. The philosophy by the two governments has been that it is the product that should be assessed rather than the process, given the process of biotechnology is considered safe. If the GM product presented an increased health risk as compared to the equivalent non-GM product, then the GM product would have to be labeled in Canada and the United States. The requirement for labeling a process does have a precedent in irradiated foods. Food irradiation, a food technology process, is considered safe by regulators. Irradiated foods must be labeled according to Canadian and the United States regulatory systems as well as Codex (Einsiedel, 2000).

A number of organizations in Canada, including the Canadian Health Food Association, Greenpeace, the Council of Canadians and the Sierra Club, have argued that consumers should be able to make informed choices about the foods they want to purchase and consume. Consumers should be able to choose whether or not they want to buy GM products. Mr. David Byrne, European Commissioner for Health and Consumer Protection, agrees that the consumer has the right to choose. According to the provisions of the Amsterdam Treaty (signed by the European Community political leaders in 1997), consumers in the European Communities are entitled to basic information about GM food. He has stated that the European public is concerned about possible risks connected to genetically modified organisms (GMOs) (Bryne, 2001). In a survey of national labeling policies for GM foods, Phillips and McNeill (2000) found that 22 countries, plus the European Community, have adopted or announced plans to implement mandatory labeling systems.

In July 2001, the European Commission introduced legislation for the traceability and labeling of GMOs and products produced from GMOs. The legislation will require the traceability of GMOs from farm to table and provide consumers with information by labeling all food and feed consisting of, containing or produced from a GMO. The legislation recommends that if the food or feed has more than one per cent GM content, it will have to be labeled as containing GM material. It is expected that these new regulations will come into force in 2003.

The Codex Committee on Food Labeling, hosted and chaired by Canada, has worked for the past seven years on developing a standard for the labeling of biotechnology-derived
foods in an effort to develop guidelines for international harmonization. This Codex Committee examines international food-labeling issues; drafts labeling provisions that are applicable to all foods; and endorses labeling provisions prepared by Codex Committees tasked with drafting standards, codes of practice and guidelines. The Codex process for development of standards is based on reaching international consensus. The process for the past seven years on developing a standard for the labeling of biotechnology-derived foods has been laborious, controversial, and complex as there are differences among countries on how biotechnology is perceived and its acceptability within a particular country (MacKenzie, 2000).

Several Canadian studies have recently examined the issue of labeling. In November 2000, Health Canada commissioned the Royal Society of Canada to create an expert panel on the safety of new foods developed through biotechnology. The Royal Society of Canada Expert Panel on the Future of Food Biotechnology released its report in February 2001. It examined the issue of mandatory versus voluntary labeling. In its assessment on this issue, the Panel primarily focussed on the policy issue of a health and environmental risk that could be justified on the basis of a scientific assessment of these risks. It concluded that there was not sufficient scientific justification at the time of writing the report for mandatory labeling but strongly recommended a voluntary labeling system for GM foods.

Later, in August 2001, the Canadian Biotechnology Advisory Committee (CBAC) released its interim report “Improving the Regulation of Genetically Modified Foods and other Novel Foods in Canada”. Created in 1999 by the federal government, the CBAC includes 21 advisors from across Canada who are recognized as experts in their field. This Committee made a number of recommendations including that the federal government develop a set of clear labeling criteria for GM content in food; and, labeling standards should be initially implemented voluntarily in order to test its adequacy and effectiveness.

The Canadian General Standards Board and the Canadian Council of Grocery Distributors are also developing standards for voluntary labeling through consultations with the various sector groups, stakeholders and general interest groups. The Canadian General Standards Board, one of Canada's largest standards-development organizations and in operation since 1934, organized a committee to work on proposals for labeling and has proposed a threshold of five per cent GM content before GM labeling is required.

The issue is far from resolved as the two sides in the debate have taken different positions. Organizations such as the Food and Consumer Products Manufacturers of Canada, BIOTECanada (the national biotechnology association), and Ag-West Biotech have stated in various press releases that they support the work of the Royal Society of Canada, the Canadian Biotechnology Advisory Committee and the Canadian General Standards Board and their recommendations of voluntary labeling for GM food products. Other organizations such as the Canadian Health Food Association, Greenpeace, the Council of Canadians and the Sierra Club have taken the position that mandatory labeling should be required for foods containing genetically modified material.
Liberal MP Charles Caccia introduced a Private Member’s Bill C-287 in May 2001 to make GM labeling mandatory. Caccia wants GM labeling on food products or food ingredients that contain more than one per cent genetically modified material. Labeling would occur at all stages in the food system including processing, production and distribution. Members of Parliament defeated the Bill on October 17, 2001 by a vote of 126 to 91 during second reading. Even so, the Honourable Alan Rock, the Minister for Health Canada, has been quoted in several media stories that he favours mandatory labeling for GM products. He, and three of his Cabinet colleagues, have asked the House of Commons Health Committee to consult with the public on this issue. This Committee is expected to start hearings on labeling in February 2002. The issue for the Minister is not food safety but rather support for consumer choice (Western Producer, 2001). Not surprisingly, this raises an important point. Arguments about food safety and consumer choice have become intertwined in the debate on labeling GM foods. The primary question in this debate is: “do we want to label GM food because it is a food safety concern or is it all about consumer choice?”

Costs associated with food inspection and processing, HACCP programs, distribution and transportation are already incorporated into the price of the food product that the consumer purchases. With GM labeling, there may be further costs. For example, GM crops will have to be segregated from non-GM crops. This will have to be done on the farm, at the elevators, in rail transportation to the processor and at the processing and manufacturing plants. Laboratory testing may be required at some point during the food production process to ensure that the product is GM free. Additional costs will include regulatory enforcement to ensure compliance. Will these additional costs for GM labeling be borne by the farmer and consumer? Smyth and Philips (2001) have examined the costs of operating identity-preserving production and marketing (IPPM) systems in Canada. A number of agricultural products presently being produced and marketed use IPPM systems. GM products include canola, corn and soyabeans. Non-GM products include organic, modified oils and high protein wheat. The authors have estimated that the cost of operating an IPPM system is estimated to be 15 to 20 per cent above the cost of moving conventional products through supply chains. These costs do not include testing of the product and risks of failure. A KPMG (2000) survey estimated that 70 to 85 per cent of all processed foods in Canada would require labels for GM content. The costs associated with labeling are estimated to be 35 to 40 per cent of producer price or 9 to 10 per cent of retail price. It is estimated that it would cost consumers an additional $C 700 million to $C 950 million per year to have processed food labeled for GM content (Smyth and Philips, 2001). This will create implications for people who live below the poverty line and low income families. How will they afford increased food prices due to costs of labeling GM food?
Conclusion

The Canadian consumer has a fundamental right to safe food regardless of the price or quality of the product. Government is ultimately responsible for food safety but everyone involved in the production of food from farm to plate contributes. Consumer confidence in the food safety system is paramount and a good food safety system requires public accountability. If consumers do not trust the mechanisms in place that ensure the safety of our food, the marketplace will suffer as agriculture is extremely important to the Canadian economy. Governments must provide the mechanisms for being able to trace feed, animals, crops and food products through the food system and know where they originally came from. This is especially important when dealing with food safety risks such as veterinary drug and pesticide residues, food additives, diseases and toxins.

Information and education programs are key factors in reducing the occurrence of food-borne illnesses. As there is no such thing as zero risk in food safety, everyone involved in the production of food from farm to plate has to be informed of food safety risks and their responsibility and role in reducing these risks. An example of an effective consumer food safety program is Fight BAC! This program must be continually promoted and funded by governments and industry associations. Government must continue to provide funds for education on food safety.

We all have to be aware of the provincial, territorial and national food safety systems in place for the production, processing and retailing of food products – the production of food from farm to plate. This increased awareness and communication activity is the responsibility of all governments.

Science should be used to assure citizens that food is safe and in addressing any public concerns on food safety risks or incidents that have occurred. Regrettably, science is not always used in media stories and at times the individuals being interviewed in a particular news story do not base their hypothesis or issue on sound scientific facts. The other issue to consider is whether the consumer is interested in listening or reading the science based information when presented. As consumers, do we only care about food safety when a crisis occurs?

Farmers, food processors, retailers and government do take food safety seriously. Our regulations, inspections, enforcement, research and education programs all contribute to producing safe food for the Canadian consumer. Canadians should feel confident in knowing that the food they consume is safe. Our lives depend upon it.
References


