The Cold Chain, one link in Canada’s food safety initiatives

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Abstract

The Cold Chain has always played an important role in food safety within the global market. The Canadian government has recognized it has an important role in the food continuum. In partnership with industry, national voluntary enhanced food safety systems, based on Codex Alimentarius (HACCP) principles, are being developed within Canada. These efforts will contribute towards food safety and will build confidence in foodstuffs grown, prepared and sold at all levels of trade and abroad.

Keywords: HACCP; Canada; Cold Chain

1. Introduction

The Cold Chain is a vital part of modern global trade as it impacts on all food commodities. In today's modern society, refrigerated storage is one of the most widely practiced methods of preserving perishable foods. Improper use of this process increases the potential risk that microbial hazards will advance, thus leading to foodborne illness. Storage temperature control is paramount in maintaining the quality of foodstuffs while ensuring that the integrity of the food remains intact (Jol, Kassianenko, Wszol, & Oggel, 2006). Industry must adhere to good chill/storage procedures in order to have confidence that the products in question are safe to eat at any point within their durable life declaration. Uncompromised food safety and quality is a given within the present day market and is the driving force behind the successful sale of food products. Canada understands this very well in that she has become a world leader in ensuring that food safety and quality in agricultural food products is maintained throughout the food continuum (Agriculture & Agri-Food Canada, 2003). How does this then apply to the Cold Chain when handling food for immediate consumption or further processing? Each partner in the chain, be it producer, manufacturer, handler or vendor has an important role to play in ensuring that the product is of sound food integrity. Refrigerated and frozen foods are also subject to detailed regulatory controls. For example, in Canada, controls are in place at the national level, and fit hand-in-glove with the international community requirements where hazard analysis critical control point (HACCP)-based approaches to hygiene have been established. In that vein, industry has embraced national enhanced food safety voluntary standards in partnership with Agriculture and Agri-Food Canada (AAFC) and other government organizations.

2. Food safety management systems in Canada

2.1. Food safety enhancement program

The Food Safety Enhancement Program (FSEP), developed in 1991, is the pillar of safe food processing principles. FSEP is fully compatible with the international (HACCP) guidelines adopted by Codex Alimentarius and is recognized by trading partners to meet their requirements for food safety (Canadian Food Inspection Agency, 2000a). It was designed to encourage the establishment and
maintenance of HACCP systems in federally registered agri-food processing establishments. The generic models including dairy products, egg and processed eggs, meat and poultry meat, and the processed products were developed to cover as many processes and products as possible to facilitate the development of plant specific HACCP plans (CFIA, FSEP). HACCP is now mandatory in federally inspected meat and poultry processing plants. Prior to the development of HACCP plans under FSEP, establishments are required to have developed, documented and implemented programs (prerequisite programs) which control factors that may not be directly related to manufacturing controls but support the HACCP plans (Canadian Food Inspection Agency, 2000b; Gagnon et al., 1999).

The Canadian approach to food safety programs is comprised of sound prerequisite programs, and a HACCP plan which fully controls hazards (Biological, Chemical and Physical). Critical Control Points (CCP)'s are not required if the same level of control of the hazard can be achieved by a prerequisite program (Canadian Food Inspection Agency, 2000b). Sperber (2005) suggests "that at all supply chain steps we must pay attention and apply the appropriate prerequisite programs". Through partnering, the CFIA and the food sector has developed generic models for many commodities including one specific to the Cold Chain’s cold storage/freezer facilities (meat, non-meat, food, non-food) (Canadian Food Inspection Agency, 2001).

It is interesting to note that in addition to FSEP, the Canadian government supports the quality management program (QMP) unique to federally registered fish establishments. Its focus is not only prerequisite programs based on HACCP principles (FSEP) but incorporates provisions for monitoring and taking action on the quality of the food being produced. This program, recognized by CFIA, has been mandatory in the fish and seafood sector since 1992 (CFIA, Quality Management Program).

### 2.2. Canadian food safety adaptation program

The Canadian approach to food safety was implemented in 1999, by the Canadian Food Safety Adaptation Program (CFSAP) (CFIA, Report on plans and priorities, 2002–2003). Funding, to the tune of $11.4 million (CAD), was provided by the Canadian Adaptation and Rural Development (CARD) (Agriculture and Agri-Food Canada, 2001) fund under AAFC. It was a dynamic partnership between the federal government and stakeholders from Canada’s agricultural food sector. The office of CFSAP, operated by the CFIA, administered the CFSAP and provided scientific and technical support with respect to HACCP principles and food safety issues. This office offered an opportunity for national associations, who were directly or indirectly involved in the production, marketing, distribution and preparation of food, to develop voluntary risk management strategies, tools and systems to enhance food safety throughout the total food chain.

### 2.3. Canadian food safety and quality program

The CFSQP (Agriculture and Agri-Food Canada, 2003) is a Canada-wide partnership between the provinces, territories, the federation of agriculture, a multitude of national product organizations and the CFIA. Officials from Health Canada (HC), experts from universities and/or provincial governments and territories are providing advice and counsel to ensure that food safety, food quality and traceability principles are being fully addressed. Projects span various commodity sectors within the on-farm and off-farm communities. On-farm projects are administered by the Canadian federation of agriculture (CFA) enjoying strong linkages with the Canadian On-Farm Food Safety Recognition Program (COFFSRP) (CFIA, on-farm food safety recognition program) lead by the CFIA. As with the on-farm projects, off-farm initiatives continue to proceed uninterrupted through the four project phases from planning sessions through development and implementation under CFSQP. Organizations currently participating in this partnership include the Cold Chain, Canadian Horticultural Council (CHC), Canadian Produce Marketing Association (CPMA), Canadian Trucking Alliance (CTA), Canadian Association of Ice Industries (CAII) and the CFIG to name a few.

### 2.4. Canadian food inspection system

Food inspection in Canada involves departments at the federal, provincial/territorial, and in some cases the municipal levels of government. The Canadian Food Inspection System (CFIS) (Canadian Food Inspection System, 1997) is a collaborative initiative of all levels of government. Its aim: an integrated Canadian food inspection system which is responsive to both consumers and industry. The CFIS Implementation Group (CFISIG) (Canadian Food Inspection System, 1997) has, as one of its key responsibilities,
the creation of harmonized national standards. These standards are encompassed in documents outlining a common regulatory base, and sector specific interpretive guidelines. These standards include regulations and codes. The Canadian code of practice—General principles of food hygiene as example, provides a firm foundation for good manufacturing and hygienic practices to be applied by the food industry in Canada. The CFIA will utilize this code to assist in assessing compliance with requirements under the Food and Drugs Act and Regulations for establishments not specifically regulated under federal trade and commerce legislation, i.e., Meat Inspection Act, Fish Inspection Act, and Canada Agriculture Products Act (Canadian Food Inspection System Implementation Group, 2004). Other documents especially relevant to the Cold Chain include the Food Retail and Food Services Regulations and Code (FRFSRC), National Dairy Regulations and Code (NDRC), National Meat and Poultry Regulations and Code (NMPPC), and the Good Transportation Practices (GTP) Code (Canadian Food Inspection System, Model Regulations and Codes). Each fits nicely with the HACCP-based systems presently at various stages of development.

2.5. Provinces

In Canada, there are many smaller food plants, that fall under provincial jurisdictions, which also rely on the Cold Chain sector. Provinces are working with the federal government to develop Food Codes that will apply to these smaller companies that trade within a given province. Ontario and Alberta have now developed their own “HACCP advantage” programs. In the province of Nova Scotia, legislation covers food manufacturing, retail and food service operations (Sahasrabudhe, 2006).

3. Conclusion

Under these Canadian food safety initiatives, the Cold Chain members are responsible for the development, implementation and maintenance of HACCP food safety management systems to ensure compliance with health and safety regulations and trade agreements. It is easy to see that Cold Chain members are not alone in ensuring that food reaches the consumer in top quality with the best assurance of safety possible. They are one link in a long chain of willing and responsible food handlers beginning with the farmer and ultimately ending with the consumer.

References


