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Conceptual Links between Two Mad Cow Crises: The Absence of Paradigmatic Change and Policymaking Implications

JoAnne Labrecque [a] and Sylvain Charlebois [b①]

[a] *Associate Professor, Service de l'enseignement du marketing, HEC Montréal, 3000, Chemin de la Côte-Sainte-Catherine, Montréal, Québec,H3T 2A7,Canada.*
[b] *Assistant Professor, Faculty of Business Administration, University of Regina, 3737 Wascana Parkway, Regina, Saskatchewan, S4S 0A2 Canada.*

Abstract

On March 20, 1996, a day known as Black Wednesday to the British beef industry, the British Secretary of State of Health announced that a possible link existed between BSE and the Creutzfeldt-Jakob disease (vCJD), the human variant of mad cow. Seven years later, a somewhat comparable fate struck the Canadian beef industry. In May 2003, the discovery of the first native North American case of BSE in Canada deflated the prospects of the industry across the country, consequently creating environmental uncertainty. This paper conceptually analyses the events that occurred in Britain by considering the beef industry as a political economy. The authors find that socio-political structures, driven by power and dependency relations, socio-political processes, and driven by cooperation and conflicts within a marketing channel greatly influenced channel members' behaviors during this crisis. In addition, even though some changes were made, the authors believe that, based on the conceptual analysis of the first year following this critical event, Canadian beef industry leaders and government alike did not learn sufficiently from the unfortunate events that occurred in Britain in 1996, even if some stakeholders believed that they had.

Keywords: BSE, food safety policies, food marketing, food distribution, crisis management

①Corresponding author: Tel: + 306-337-2695
Email: sylvain.charlebois@uregina.ca
Other contact information: J. Labrecque: joanne.labrecque@hec.ca

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Introduction

On March 20, 1996, a day known as "Black Wednesday" to the British beef industry, the British Secretary of State of Health announced that a possible link existed between BSE and the Creutzfeldt-Jakob disease (vCJD), the human variant of mad cow, thus creating environmental uncertainty in the food chain. Retail sales of beef products in the two weeks after March 20, 1996, fell in excess of 33 per cent and continued to fall over the following month, thus demonstrating the preliminary impact of the scare on the purchasing behavior of British consumers. Massive media coverage about the uncertainty, the lack of information, and what the announcement really meant for food and public safety overtook the political agenda of the British beef industry. Other countries around the world, including Canada and members of the European Union, banned imports of British beef products. Major restaurant chains, including McDonald's and Burger King, saw their sales decline.

Seven years later, a somewhat comparable fate struck the Canadian beef industry. In May 2003, the discovery of the first native North American case of BSE in Canada deflated the prospects of the industry across the country, consequently creating unmanageable uncertainty. The Canadian Food Inspection Agency (CFIA) started a thorough investigation and ordered the slaughter of some 2,700 animals. However, international trading partners' confidence level in the quality of Canadian beef and in Canada's food safety policies had dropped. Thirty-five countries issued an embargo on Canadian beef, most notably the United States and Japan, the main trading partners for Canadian beef related products, and the commodity price of Canadian beef on international markets plummeted. Initially, some industry officials had quickly denied the seriousness of the situation and the long-term impact it would have on the future of the industry. Many channel members, most notably producers, adopted a regressive attitude, attempting to maintain the earlier status quo. Consumers on the domestic market, on the other hand, unexpectedly continued to purchase Canadian beef products, indicated by a slight increase in Canadian domestic demand (CANFAX 2005).

As evidenced by first the British and then the Canadian BSE crisis, the emergence of complex diseases in the food chain around the world has made food safety policy-making procedures even more multifarious. Trade policies have influenced public policies on food safety, and science has developed faster than food safety policies, or even the capacity of national regulators. It makes any BSE crisis a socio-technological disaster.

In the present paper, the events that occurred within both the British and Canadian beef industries are conceptually analyzed by considering the two as political economies (Stern and Reve 1980, Arndt 1983). By doing so, both beef industries are considered as behavioral systems inside socio-political structures (i.e.

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power/dependence relations) and processes (i.e. cooperative/conflictive relations). The first objective of this research is to understand how the BSE crisis in Britain, which created environmental uncertainty within a beef distribution channel, influenced and continues to influence policy-making processes and structures of related food safety agencies (Achrol, Reve and Stern 1983). In addition, by conceptually contrasting the two distinctive BSE events, the second objective will be to assess whether the British BSE event had any influence over Canadian public policies related to food safety prior to May 20, 2003, the day the announcement of the diagnosis of the first Canadian BSE case was made public by the CFIA.[1]

Crisis and Uncertainty

Premises of a Crisis

To fully appreciate whether or not we are in fact dealing with a crisis, we must consider the premises of a crisis. Although the study of crisis management was first introduced in the domain of political science, it involves multiple disciplines, including marketing, though crisis management is a relatively new concept in marketing. Growing numbers of scholars and managers alike recognize that a crisis, despite its negative characteristics, can be a powerful catalyst for change and learning (Pauchant and Mitroff 1992). Toward the end of the 1970s, academics in management began to demonstrate an interest in crisis management, producing relevant literature and recognizing its pertinence to everyday managerial responsibilities (Perrow 1984, Lagadec 1991).

Crisis management literature was invoked during marketing research and strategy (Clark 1988), product management (Siomkos and Kurzbard 1994), sales force management (Carter 1997), distribution (Czinkota and Kotabe 2000), market orientation (Grewal and Tansuhaj 2001), and in the service industries (Litvin and Alderson 2003). In relation to food safety issues, the concept of crisis management has already been applied by marketing academics (Finn and Louviere 1992). By necessity, the food and agriculture industries have had to radically increase their mass production methods and streamline their marketing procedures in order to supply the ever-increasing world population and open borders. Because of this, any

[1] At the time this article was written, the newness of the Canadian BSE crisis prevented us from conceptually dissecting the event and outcomes in a longitudinal manner. Therefore, the conceptual analysis is based on the events that occurred in Britain and Europe, and on the events of the first 12 months of the Canadian BSE crisis.

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system breakdown or abnormality in their industry will also be to the distinct detriment of large numbers of people (Mitroff 2002). By definition, a crisis can be either human-induced or created by natural disasters. Most academic research was focused on human-induced crises, including the Britain BSE crisis, which is considered to be a socio-technological disaster (Denis 1993, Pearson and Mitroff 1993). In a crisis, antagonism and rivalry are sometimes replaced by increased solidarity. A crisis reveals what was hitherto concealed and often impels changes that organizations should have made previously (Morin 1976). Modern technology causes managerial complexity to increase, which in turn increases the likelihood of a crisis in any given domain (Morin 1976, 1991, Weick 1993, Quarantelli 1996). Notwithstanding improved safety measures and greatly reduced risks of error when incidents do occur, the resulting crisis is usually colossal.

The British and Canadian BSE crises can also be considered as socio-political crises, with their foundation coming from an element outside of the industry (Mitroff and Shrivastava 1987). The premises of a crisis help identify the event as a crisis, which can be described as a crucial stage or turning point in a process or an unstable situation of extreme danger or difficulty, as exemplified by the following three criteria. First, the internal system of an organization or an industry has to be entirely affected by the event (Roux-Dufort, 2000). Second, the fundamental principles of implicated subjects are questioned, altered, or even protected by newly created tacit defence mechanisms (Pauchant and Mitroff 1995). Lastly, no active mechanisms within an organization can be employed to regain its former condition, processes, or structure. There are ruptures between traditional managerial practices and anchored paradigms (Lagadec 1991).

Definition of a Crisis

No universal definition of a crisis exists, and many have claimed that no such definition can exist. Nonetheless, some scholars have presented possible definitions. For example, Pauchant and Mitroff (1995) brought the concept of crisis to an individual level, defining a crisis as an unexpected event that pressures concerned individuals to manage a situation that threatens their personal objectives. However, for the purposes of this study, the following definition, presented by Lagadec (1991), is favored:

A crisis is equal to a lack of knowledge, the unknown and an invasion of unexpected uncertainty (31).

Lagadec combines environmental uncertainty and the occurrence of crisis, which appeals to the conceptualization of the comparative analysis. Food safety crises expose members to environmental uncertainty, questioning the viability of the marketing channel itself. Based on the case study of the 1996 British BSE crisis (see Table 3.1), it can be argued that food crises create environmental uncertainty.

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This uncertainty results from a lack of knowledge about the outcomes of each alternative, as the conditions that will exist are neither known nor are predictable (Knight 1933). Being unwilling or unable to estimate the probability that certain conditions do exist generates environmental uncertainty. The case study on the British BSE crisis also illustrates that uncertainty, or environmental uncertainty, has altered inter-organizational relationships within the marketing channel. Any external economic or political force that changes the environmental structure of a marketing channel is bound to affect the degree of environmental uncertainty experienced by its members (Achrol and Stern 1988).

Both the existence and the duration of a crisis can be defined by the incessant search for a solution to the crisis (Rosenthal and Kouzmin 1993). Every crisis has its distinctive points, where the evolution of incidences can dictate whether or not the crisis is over or not. The duration of a crisis can also be based on the uninterrupted level of environmental uncertainty.

Epistemology of a Crisis

A crisis is often accompanied by confusion and dysfunctional sense-making from the organization and people directly involved in the crisis, as a crisis usually enhances demands on sense-making (Weick 1990, 1993). In addition, no recognizable or standardized methods apply during a crisis (Roux-Dufort 2000), as most members tend to doubt organizational culture, values, and symbols, even at the channel level (Hurst 1995). Channel members would also look for apportion by seeking to deflect blame for the cause of the crisis to scapegoats (Elliott, Smith, and McGuinness 2000). As well, they may experience loss of identity and incoherent behavior (Pearson and Clair 1998), demand and technological uncertainty (Grewal and Tranship 2001), and a lack of long-term vision when making important strategic decisions (Roux-Dufort 2000). No channel members assume a systematic approach to problem solving or apply critical thinking (Mitroff and Shrivastava 1987).

During a crisis, blockages in learning and cognitive processes are always evident (Bateson 1972), and estimating the consequences of actions is often difficult (Weick 1993). Moreover, channel members also have difficulty in evaluating goals and deadlines. Inter-organizational relationships are marked by a denial of responsibility, and all parties involved generally maintain this state of denial. Most crises force conformity to regular procedures, as many channel members aim at retaining the status quo, the situation prior to the crisis (Perrow 1984). Channel members make an effort to gain time, and decision-making capacities on market orientation are non-existent (Grewal and Tansuhaj 2001).

The epistemology of a crisis recognizes that, in order to resolve the situation as quickly and thoroughly as possible, channel members solicit outside the channel, as they experience a sense of lost strategic resources (Roux-Dufort 2000). In doing so,

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many members will keep the levels of communication within dyads at a strict minimum, since they operate through obstructive controls similar to rules and standards. Channel members would spontaneously redefine the mission, values, and objectives of their own organization, since they sense a lack of reliable information (Weick 1993). Most importantly, a crisis shifts all internal structures, distorts relationships within the channel, and inherently alters the confidence of members (Shrivastava et al. 1988).

Bovine Spongiform Encephalopathy

BSE developed into an epidemic as a consequence of the intensive farming practice of recycling animal protein in ruminant feed. This practice, unchallenged over decades, proved to be a recipe for disaster. Two hundred years ago, Scottish shepherds observed that their sheep constantly rubbed themselves against fences, trees, and other objects. They named this phenomenon "Scrapie", otherwise referred to, in scientific circles, as Transmissible Spongiform Encephalopathy (TSE). This is a fatal degenerative disease affecting the central nervous system of sheep and goats. TSE, including the human variant Creutzfeldt-Jakob disease (vCJD), is a devastating disease. It turns the brain to "Swiss cheese" by creating holes in central nervous system (CNS) tissues. As the disease progresses, more and more brain and CNS tissue is affected, so death becomes inevitable. The most familiar TSE is Alzheimer's disease (Creutzfeld and Jakob worked at Dr. Alzheimer's institute for brain diseases). Some researchers believe that 5% to 10% of Alzheimer's disease cases may be in reality misdiagnosed vCJD cases (Johnson and Gibbs 1998).

For the past fifty years, herds displaying these unusual symptoms have been slaughtered. TSE is endemic to most sheep-farming countries, including Canada. Only island countries, such as New Zealand and Australia, have thus far remained immune. In 1986, a veterinarian in the UK reported a cow with symptoms that appeared to be a disorder of the CNS. It transpired that the animal was infected with a new strain of TSE, called Bovine Spongiform Encephalopathy (BSE). Studies concluded that meat-and-bone feed given to cattle was the root cause of BSE. The British beef industry and the British government veterinary authorities, however, countered any negative media coverage about BSE, rejecting the idea that BSE can affect human health (Palmer 1996). Similar to TSE in sheep, no scientific evidence existed that would suggest that BSE can harm consumers. Scientific knowledge was deficient concerning BSE and vCJD, and parties involved were making decisions without having all the evidence.

The British BSE Crisis

In July 1988, a ruminant-to-ruminant feed ban was imposed in the U.K. in order to decrease the number of BSE cases. This crucial step was instrumental in controlling BSE, but its result was not felt for five years, the mean incubation period of BSE

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(Berry 1999). These measures included a series of control bans of the inclusion of meat and bone meal (derived from ruminant), and the destruction of all BSE-suspected carcasses. More preventative measures were taken in November 1989, such as the removal and disposal of specified bovine offal (SBO) parts of the carcass that were most likely to contain infected tissues. These measures were to protect consumers and trading partners. During 1993, the incidence of BSE cases in Britain rose to 30,000 (Brown 1998). Because of loose parliamentary and industrial guidelines, the U.K. permitted the export of contaminated meat-and-bone feed around the world.

By 1995, 118 million cattle and calves were on British farms, with 56% derived from dairy herds. 436 abattoirs were involved in slaughtering cattle in Britain, killing 3 million cattle a year, countervailing efforts to maintain a strategy that was export oriented. The 10 biggest abattoirs were slaughtering 36% of all beef in Britain. The abattoir industry in Britain has had recurring profitability problems, and it is generally decentralized. It was known to be administratively disorganized. It was also believed to be over capacitated; over 50% percent of all beef was processed in multi-species plants (hogs and sheep) (Smith, Young, and Gibson 1999). Over 250 active animal auction markets supplied the abattoirs in a live animal supply system, which was also made up of many livestock transport companies. No control or traceability measures were employed (Mousdavi et al. 2002).

The retail sector in Britain, on the other hand, was, and still is, dominated by large supermarkets, which account for over 60% of all beef sales. Many independent butchers (11,500) located in small rural agglomerations account for 29% of sales, and the rest were made by freezer centers and other retail stores. As many as 510,000 people were employed by the British beef industry in 1995. In December 1995, however, the media uncovered gaps in the integrity of the control of the bans on specified bovine offal. Domestic consumer demand for beef products started to decline during the 1995 Christmas holidays. BSE cases started appearing in other countries in the European Union, starting with France and Ireland and progressing to almost every other country in Europe. The British industry showed optimism during the first months of 1996, as did many other nations throughout the industrialized world, blaming the sudden decline of beef consumption on marketing scarcity, as consumer's behaviour, lifestyle, and tastes changed, (Spriggs and al. 2001). Other meats, such as pork and chicken, perceived as somewhat leaner meats, gained market shares over bovine meat cuts. Consequently, the beef industry battled back by investing in product development (Cohen 1998).

By 1996, despite the steady decline in beef consumption, the British beef industry was worth about 4,000 million pounds a year, as 900,000 tons of beef was consumed in Britain alone. The British beef industry continued its unique and unprecedented growth. Exports also soared 45% from 1986 to 1996, most of the increase being related to an abrupt increase in exports to the European Union. By March 1996,

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333,500 farms had had at least one case of BSE detected, and 161,000 cases were confirmed. A collective unease was settling in the beef industry. The hardships of 1996 led to the extermination of vast herds of cattle, trade hostility in Europe, and the public expenditure of over $10 billion CAD. Governmental authorities denied any verifiable direct human deaths (Andrews et al. 2003). The rapid increase of the BSE fright in Britain did nothing to help create a common industry front. Even before the spectre of BSE, the industry was torn by problematic, sometimes incompatible, brand images and information sources concerning both intra-industry trade and consumer communications (Smith, Young and Gibson 1999).

On "Black Wednesday," the British Secretary of State of Health announced that a possible link existed between BSE and vCJD, thus creating uncertainty for consumers. Even though the British government believed that the risks posed by BSE to humans were remote and felt that they had not lied to the public, the public felt that they had been betrayed. Retail sales of beef products in the two weeks after March 20th 1996 fell in excess of 33%, and continued to fall over the following month. This illustrates the preliminary impact of the fright on purchasing behaviour of British consumers (Smith, Young, and Gibson 1999). Massive media coverage about the lack of information, and what the announcement really meant for food and public safety, overtook the political agenda of the British beef industry. Other countries around the world, including Canada and members of the EU, also banned imports of British beef products. Major restaurant chains like McDonald's and Burger King saw their sales decline (Brown 1998). By March 28, the beef industry banned all cattle over 30 months from entering the human food chain. They also banned the manufacture of animal feed with mammalian meat and bone meal.

Media hype grew around the world. Many newspapers speculated that the British beef industry was going through a complete meltdown, as the price of British cattle on world markets tumbled by over 25%. By the end of May 1996, 36,000 workers had reportedly lost their jobs (Nestle 2003). After 4 weeks, decline in consumer demand was felt throughout the EU: Italy reported a 50% drop, Germany 40%, and France 30%. Many cattle producers faced difficult financial situations. Thus, the industry started to plead for financial assistance from the British government, even though the beef industry was founded capitalistic aspirations. Direct aid by the British government was eventually rendered on the order of approximately 118 million pounds a year for three years (Smith, Young, and Gibson 1999). These funds were to compensate the industry for the elimination of 300,000 to 400,000 cattle slaughtered as a preventive measure (Ministry of Agriculture, Fisheries and Food and the Intervention board 1998).

Thirty million pounds was given in emergency aid to slaughterhouses, of which some would pay for more hygienic inspections and tighter specified bovine material (SMB) regulations. An extra 80 million pounds of funds was available for

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unalienable stocks. Many other members along the food chain lobbied the government for financial aid but without success (Golan 1999).

By June 1996, the new policy of banning cattle over 30 months was implemented but with numerous operational and strategic problems. The total cost for the removal of all cattle over the age of 30 months was 550 million pounds. By October 1996, as many as 700,000 cattle were slaughtered, and farmers were still complaining about the backlog of animals awaiting slaughter. Prices for cattle for farmers settled at 20% below pre-crisis prices in October 1996. Prices did not fall further because of government intervention by both the British Government and the European Union. On June 21, during a summit in Florence, the EU agreed to a framework that would gradually lift the export ban but without any timeframes. Under the proposed framework, the following preconditions would apply:

1. Implementation of a selective slaughter program for cattle most at risk from BSE.
2. Introduction of an animal identification program to track the spread of potentially infected cattle during future BSE crises.
3. Removal of remaining meat and bone feed for cattle.
4. Increase in the number of the 30-month slaughter scheme.
5. Increase in the number of control checkpoints.

Once the framework was adopted, Britain moved quickly to implement an identification program, with passports for animals born after July 1, 1996. Farmers in Britain resisted the desired changes even though the program contained a sufficient amount of financial compensation. In August 1996, the British government announced a mature beef assurance scheme for all farmers with BSE-free herds. This policy would allow them to sell cattle older than 30 months. At that point, most British officials involved with the crisis still believed that the situation was temporary (Lobstein 2001). In fact, Britain legally challenged the European Union on the embargo against British beef, but the case was dismissed.

In July 1996, scientific evidence showed that BSE could mutate from sheep to cattle and vice versa, thus creating a new whirlwind of destructive media coverage on the industry. Consumer demand remained quite sensitive to both negative and positive scientific opinions and findings regarding BSE and vCJD.

The BSE crisis in Britain resulted in many unwarranted changes to supply structure, involving reduction in the availability of beef cattle, although the market had an oversupply of beef. Imports declined, since prices relative to the domestic commodity prices increased. This had a direct effect on beef prices throughout the European Union. The challenge that the British beef industry faced in re-establishing consumer confidence was not met by enhancement of marketing strategies alone. It had to implement radical changes in its processes, food safety

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policies, and traceability programs.

In the last decade, BSE has become a global food safety issue. Although many scientists originally expected the number of detected cases of vCJD to be in the thousands, only about 150 cases of the disease have been positively diagnosed around the world, between October 1996 and December 2003. Table 1 presents a case study of the British BSE crisis, considering the socio-political structures and processes of the British beef industry and based on the concepts developed in crisis management and marketing channel literature (Ministry of Agriculture, Fisheries and Food and the Intervention board 2001).

Table 1: The British BSE Crisis Case Study and Detected Concepts

Conceptual Elements of a Crisis	Managerial Aspects	Case Study: British BSE Crisis	Detected Concepts from Case Study
		Environmental Uncertainty	
Environmental uncertainty (Lagadec 1991, Grewal and Tansuhaj 2001)	Demand and technological uncertainty	Unreliable control system and embargos issued by many countries	Uncertainty
Difficulty in estimating the consequences of actions (Weick 1993)	Difficulty in evaluating goals and deadlines	No clear timeframe established by British government and EU	Uncertainty
		Socio-Political Structure	
The internal system of an industry is entirely affected, thus creating internal uncertainty (Weick 1988, Roux-Dufort 2000)	Confusion and dysfunctional sense-making	Confusion in food safety measures and policies between Britain and EU	Power distribution, dependency, and conflict
Systemic apprehension by the industry (Hurst 1995)	Doubts on organization culture, values	Quality of British beef products in doubt	Dependency
Single-loop learning (Bateson 1972, Pauchant and Mitroff 1992)	Blockage in learning and cognitive process	Denial and resistance from beef industry	Power and conflict
Fundamental principles of implicated subjects	Redefining the mission and values	Exporting goals were revised, more focused on	Dependency

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are questioned, altered (O'Connor and Wolfe 1991, Pauchant and Mitroff 1995)		domestic demand	
Lack of awareness and systemic consciousness (Weick 1988)	Enhanced demands on sense-making	Lack of sensitivity towards consumer	Power and dependency
Linearity (Mitroff and Shrivastava 1987)	No systemic approach to problem-solving	Even a capitalistic industry, like the British beef industry, demanded money from the British government	Dependency
Inaccuracy in judgment (Roux-Dufort 2000)	Difficulty in estimating consequences of actions	Gaps in the integrity of implemented control measures	Power
Mutual accusation within an industry (Elliott, Smith and McGuiness 2000)	Seeking scapegoats for the cause of the crisis	Farmers blamed abattoirs, meat packers, and government for failed system	Dependency and conflict
	Socio-Political Process		
No active mechanisms within an industry can be employed to regain its former condition, processes or structure (Roux-Dufort 2000)	No recognized methods during a crisis	No immediate action was taken by the industry after March 20, 1996	Coordination and cooperation
Relational discontent (Pearson and Clair 1998)	Loss of identity and incoherent behavior	Quarrel within dyadic relationships, notably between farmers and abattoirs	Conflict
Rupture between traditional managerial practices and anchored paradigms (Lagadec 1991)	Short-term vision of decision makers	Industry focused on short-term objectives	Coordination and cooperation
Avoidance and denial (Weick 1993)	No acceptance of responsibility	Beef industry countered all media hype on BSE	Conflict

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Conformity to regular procedures and decisional inertia (Perrow 1984, Day 1994, Grewal and Tansuhaj 2001)	Decision-making capacity disrupted	Beef industry expressed decisional hesitance	Cooperation and coordination
Lack of communication and information (Weick 1993)	Little communication within dyads	No communication between farmers, packers, and distributors; lack of information on BSE and vCJD	Conflict and cooperation
Lack of trust (Shrivastava and al. 1988)	Altered confidence of members	No evidence of trust between channel members, government, and consumers	Conflict

The Canadian BSE Crisis

Genealogy of a Crisis

The end of the American civil war in 1865 brought food shortages to the aboriginal peoples of the North American plains. The bison herds upon which they had depended were being eradicated. To help meet the demand for meat, the United States contracted cattle producers to push large herds of Texas longhorn cattle north towards Western Canada. This marked the beginning of the Canadian cattle industry. The large regions of grazing land attracted foreign investment, and the western prairies were rapidly occupied. However, the prairies then opened up to homesteading. Most farmers owned only a few head of cattle and horses, kept primarily for work and basic needs. Energy and money went into the production of wheat rather than beef. By the end of the 1930s, tractor power began to replace animal power. In the years that followed, this resulted in the increased availability of feed grains, particularly barley. Beef cattle became an important part of mixed grain farms, and Canadian cattle numbers in the West increased from 3 million to 9 million between 1940 and 1975 (Agriculture and Agri-Food Canada 2002a).

During the 1950s, the use of corn silage enabled central and eastern Canadian producers to finish cattle more economically than their western counterparts, whose cattle were still being finished on range. Improved economic conditions and the ready supply of western calves for finishing enabled a large feedlot industry to develop in eastern Canada (Agriculture and Agri-Food Canada 2002b).

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Climate, availability of coarse feed grains, and improved marketing and transportation alternatives led to the prominent feedlot industry in the early 1970s. Today, the Canadian beef industry is an integral part of the Canadian economic mosaic (Cattleman Association of Canada 2003). In terms of food-safety policy measures, the same ruminant-to-ruminant feed ban implemented in Britain in 1988 was imposed in Canada in 1997. This was later upgraded to a mammalian-ruminant feed ban. Up until 2003, the only BSE case found in North America was in 1993 in a cow from the UK. To our knowledge, no other public policy linked to food safety for cattle was adopted prior to 2003.

Canada is known to be a country of agricultural production surpluses. The Canadian beef industry, which generated $7 billion CAD in revenues in 2002, has always been perceived as producing a high quality commodity on global markets. In 2002, beef and cattle imports in Canada were valued at $1 billion CAD, whereas exports of beef and beef related products to all countries were estimated at $4 billion CAD (Agriculture and Agri-food Canada, 2002c), almost 85% of which were exported to the United States. This makes the industry predominantly dependent on its international trading partners, particularly the United States and Japan.

The Clinching Event and Analysis

On January 30, 2003, a six-year-old Angus cow in the Canadian province of Alberta, sent for slaughter at a provincially-licensed meat packer (provincially-licensed packers cannot export their products), was initially diagnosed as having pneumonia and was put down before entering the food chain. Unfortunately, it was not until May 16, 2003 that the sample was tested and found positive for BSE. The diagnosis was confirmed again by the CFIA and at the U.K. Weybridge veterinary laboratory (Duschesne 2003). On May 20, 2003, the CFIA had to announce its first-ever native BSE case to the world, thus igniting an industry-wide crisis. Exports of Canadian beef and cattle were immediately affected. Non-tariff trade barriers were enacted across the world (Canadian Press 2003a). Most importantly, the United States shut down its borders to Canadian beef. Within hours, many other countries, including Japan, Mexico, and Thailand followed suit. The CFIA immediately started its investigation. It destroyed and tested 2,700 cattle in Western Canada (Canadian Press 2003b). Although no other cases of BSE were found, the Canadian beef industry had lost access to its major markets.

May 20, 2003, is considered to be the clinching event of the Canadian mad cow crisis, equivalent to the "Black Wednesday" of the British crisis noted earlier (Roux-Dufort 2000). Some scholars would consider it the founding act (Pauchant and Mitroff 1995). The founding act triggers the crisis, and it is actually an artefact of a total breakdown in the collective sense-making of the marketing channel (Pearson and Clair 1998).

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In reality, the first Canadian domestic case of BSE was detected in a British-born cow in 1993, three years before the 1996 British report that linked BSE to vCJD, consequently drawing very little public attention. Since then, food safety concerns have influenced economic and political policies employed by regulative institutions around the world. Additionally, most countries have opened up their markets to increase trade with their international partners. Political and economic alliances between countries in Europe, North and South America, and Asia and the creation of the World Trade Organization have remodeled the premises of international commercialization (Buzby 2003).

In Canada, after the first native case of BSE was diagnosed, the sentiment of helplessness and distress led the way to increased trading disturbance, uncertainty, and power disequilibria inside the beef-marketing channel (El-Ansery and Stern 1972). Several beef producers have blamed food manufacturers and distributors for not stimulating beef demand by decreasing retail prices of beef products offered to consumers on the domestic market. In addition, many observers have argued that financial compensations from public funds given to beef producers have been disproportionate. Unquestionably, many political clashes and setbacks between partners within the marketing channel have transpired since the crisis started in May 2003.

This industry-wide crisis was initiated by the embargo issued against Canadian beef related products by many of Canada's foremost international trading partners. Their decisions transformed inter-organizational relationships within the Canadian beef-marketing channel. As such, these circumstances created uncertainty that flawed the decision-making capacity of channel members within the Canadian beef industry. Observable variables from the Canadian BSE crisis led us to believe that economic and socio-political forces are capable of redefining power and dependence-relation conditions within food marketing channels. Recent international trading agreements and global food safety concerns have proliferated external political forces. The influx of agreements and trading regulatory agencies has utterly changed the geo-political symmetry between nations. Before the Canadian BSE crisis, food insufficiency weakened the power of countries that were not able to produce an abundance of food supplies. Nowadays, international trading agreements have enhanced interdependency among nations and have made supplying countries, like Canada, rather dependent on foreign markets to absorb excess commodity surpluses and food products. When embargos were issued against Canadian beef across the world, its selling price dwindled dramatically, and disturbed the Canadian beef industry's inner socio-political structure, creating enhanced uncertainty for channel members.

During the Canadian BSE crisis, channel members were desperate to resolve the issue as quickly and thoroughly as possible. The patterns of behavior of several key agencies related to the Canadian beef industry were predictable. Channel members

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settled for the use of ineffective defense mechanisms. Blocking the learning process, managers often appeared unable to deal with the emotional, informational, and cognitive aspects of the threat of the crisis events (Lagadec 2001). By refusing to consider their own vulnerability, uncertainty was increased throughout the marketing channel, eliminating all odds of establishing any long-term structural and mechanical changes to the industry. As a result, the Canadian beef industry has been the focus of intense scrutiny and action by both public and private institutions in order to reassure consumers and restore lost markets. Knowing that events similar to the BSE crisis may perhaps happen again, many institutions in the industry wonder how an industry-wide crisis can be appropriately managed in the future.

At first, many channel members, including regulatory institutions, stated that the BSE-infected cow was an isolated incident, and that the media had inflated the entire affair (Canadian Press 2003d, Canadian Press 2003e). Meanwhile, producers asked several levels of government for financial compensation, politicians blamed other agencies and jurisdictions, and many other actions were taken by channel members to immediately improve their strategic situations without considering long-term implications (Canadian Press 2003f, Canadian Press 2003g).

The core purpose of the factual approach, as suggested by Roux-Dufort (2000), is to return to the status quo as soon as possible (Morin 1976). The uncertainty created by the crisis will automatically activate defense mechanisms that prevent channel members from investing energy into learning (Pauchant and Mitroff 1992). The sole BSE diagnosis on May 20 that triggered the crisis is actually an artifact of a total breakdown in collective sense-making of the marketing channel (Pearson and Clair 1998). With the process approach presented by Roux-Dufort (2000), crises are part of a normal progression of managing the environmental reality of a marketing channel. This progression will ultimately lead to learning and ultimately to the better management of future crises. The failure of the Canadian beef-marketing channel to understand and mend the crisis by adapting its processes can be translated into an inability of the marketing channel to suitably learn. Even though a crisis often has many unpredictable elements, the process approach, in all probability, will enable a marketing channel to prevent upcoming crises. The reality of today's increasingly complex markets is that crises are inherent to marketing channels, being rare but inevitable occurrences. Perrow (1984), as mentioned earlier, supports the customary facet of a crisis. The enhanced complexity of systems and the coupling of activities generate interactive complexity. The Canadian beef industry has built itself a worthy reputation for producing world-class products. In order to do so, channel members had to increase productivity, profitability, and exports, thus crafting a complex system to respond to environmental constraints. To evolve in a crisis framework, a marketing channel needs to consider the interests of its environment (Pearson and Mitroff 1993). The coupling of activities with the American beef-marketing channel made the situation

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even more complex. Increasingly, many marketing channels are becoming interdependent upon one another, thus boosting crisis occurrence probabilities. This crisis affects more that just a single channel member. Some channel members were positively affected and others negatively affected.

The Canadian BSE crisis is quite complex, given that it requires the mobilization of many channel members to restore this abrupt managerial setback. However, unmanaged or inappropriately managed channel member interdependence can and will obstruct crisis management efforts, akin to what many observers believe to have seen during the BSE crisis in Canada (Pearson and Clair 1998). It needs a change in systemic paradigms, the fourth and highest level of learning, to properly evaluate risk perception of trading partners. This is a very difficult chore for an entire channel to promptly grasp, and thus blocks learning (Pauchant and Mitroff 1995, Simon and Pauchant 2000, Elliott, Smith and McGuiness 2000). The cognitive frames of reference involve change if the channel members want to apply their market orientation strategy (Roux-Dufort 2000). The processual approach to crisis management supported by many scholars and experts can overcome many managerial limitations throughout a crisis, but it did not occur in the first year of the Canadian BSE crisis.

In the months following the start of the crisis, the Canadian federal government and many provincial jurisdictions announced programs that would financially compensate farmers and manufacturers for their losses in profits. Funding demands by cattle producers went on for months, as financial compensation programs exceeded a combined amount of over $3 billion USD within the first year of the crisis.

Paradigmatic Learning

Britain and Canada

Britain and Canada have legislative systems that orbit around an elected parliament. Therefore, a comparative analysis between these countries is not trivial. The legislative processes and structures of both countries are quite similar. By looking at the case study of the British BSE crisis, one might conclude that, seven years later, history has repeated itself in Canada. However, before comparing similarities, there is one focal distinction between the two events. The British crisis was sparked by public health concerns. “Black Wednesday,” the founding act of the crisis, created uncertainty with the specter of having a worldwide BSE quandary and vCJD pandemic. The BSE problem was most likely more widespread in Britain than in Canada. Hence, public trust towards the beef industry and its offerings was severely affected by the British crisis. Conversely, the Canadian BSE crisis was driven by international trade quarrels when Canadian trading partners issued embargoes on Canadian beef, based on food safety concerns. Unlike in Britain and

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other countries around the world, Canada's domestic demand did not decrease due the BSE scare (Pennings, Wansink, and Meulenberg 2002). There were no indications, at least during the first few months of the crisis, that the public trust in Canadian beef oscillated significantly.

Many questions were, however, left unanswered during the crisis. The media coverage and its influence were forceful, as marketing members used the information broadcast during the crisis to sway public opinion. Mainly driven by how the media covered the ordeal, collective grief gave way to fatalism. Nonetheless, the media is hardly to be blamed for this, as most modern prospective strategists have to regard media as a major stakeholder for any industry, particularly for agribusiness. The crisis attracted the attention of many public and private institutions, adding to the prominence of the investigations by the CFIA, by different provincial jurisdictions, and by public policy makers. Many BSE-free countries that are net exporters of beef commodities have gained from Canada's misfortune, notably Australia, New Zealand, and Brazil (CANFAX 2004).

A crisis will commonly create victims, and undoubtedly farmers and all organizations that revolve around farming have lost a great deal. Some channel members were in fact angered that the United States and other countries had kept their respective borders closed to Canadian beef products. Most felt this way since none of the 2,700 tested cattle that were examined tested positive for BSE, meaning that the one single case should have been considered as an isolated event with no scientific grounds for keeping the borders closed (Canadian Press 2003c, Richer 2003, Weber 2003). They also experienced a sudden critical financial situation, leaving many channel members compelled to ask for financial compensation from all levels of government (Monchuk 2003). Thus, in 2003, the Canadian beef industry was faced with uncertainty and felt vulnerable. With this crisis, the Canadian beef channel members realized, to their dismay, that its management practices were too confined, favoring mass production and exports (Pauchant and Mitroff 2002). It was a collective and implicit choice by the industry that by design brought imperceptible dependency and vulnerability. Before the crisis, profitability had always been its main concern. Observers also suggest that the crisis that hit the Canadian cattle industry could have been prevented, since the cause of BSE itself was human-induced. The industry could have learned from the British BSE crisis and implemented fundamental changes. Some would argue that some changes were implemented, but they were far from paradigmatic.

No Change

The first and only significant change in Canada, before 2003, was the ban of the practice of rendering ruminants for cattle feed in Canada in 1997. However, ruminant feed is still readily available on the market, and violations of the ban were reported. The enforcement of the feed ban has consequently been challenging

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for regulators. The post-May 20, 2003 era brought other slight changes. For one, Agribusiness Canada and Health Canada prohibited the sale or import for sale of food products containing specified risk material (SRM) under the Food and Drug Regulations from countries that are not BSE-free on July 24, 2003. SRM are defined as the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord, and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older.

BSE testing also became a concern in the post-May 20, 2003 era. The CFIA significantly increased its sampling for testing for BSE. In 2005, the set target for BSE testing is 30,000, which is still considered by many observers to be very low, considering that Canada slaughters well over 3 million head every year. By testing less than 1% of all slaughtered beef in Canada, a few positive cases are bound to fall through the cracks and can create yet another excuse for any country to issue a new embargo on Canadian products.

Throughout the Canadian BSE crisis, the CFIA tended to make unfounded assumptions regarding the disease itself. Some of the agency's leading veterinarians mentioned time and time again that animals could not develop the disease under the age of 30 months. In Japan, which has discovered over 20 cases of BSE since 2001 and where BSE testing is compulsory, two of the country's mad cow cases were in 21-month-old and 23-month-old animals, which breaks a very significant paradigmatic standard for food safety policies. Evidently, the scientific knowledge that is used as a foundation for current public policies on food safety is weak.

It is clear that, based on a conceptual analysis of the situation, there are many reasons to believe that the Canadian beef industry and government did not learn from the unfortunate events that occurred in Britain in 1996, even if some stakeholders believed that it had. What has been gained, though, is that the Canadian government has learned how to cope with political uncertainty and drive the political agenda with scientific-based facts. In the early months of the crisis, both the CFIA and the Canadian federal government were politically obsessed with transparency and the will to return to the status quo as quickly as possible. In the process, they tried to manage uncontrollable variables, since the embargo was issued by political jurisdictions that Canadian authorities had no power over. While most stakeholders of the beef industry were focused on short-term repercussions of the crisis, the structure in which the industry operates remained unchanged. In Britain, the BSE crisis eventually led to the creation of the Food Standard Agency (FSA) in 2000. The Food Standards Agency is an independent food safety watchdog set up by an Act of the British Parliament to protect the public's health and consumer interests in relation to food. The CFIA's mandate somewhat differs from the one followed by the FSA. The FSA is led by a board that has been appointed to explicitly act in the public interest and not to represent particular sectors, unlike the CFIA.

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Although the CFIA historically has focused its expertise on public health related issues, it also has the mandate to protect the industry's interests to a degree. During the BSE crisis, CFIA's representatives with staff from Agribusiness Canada lobbied to convince the American government to reopen borders to Canadian cattle and beef. The CFIA has proven through the BSE ordeal that it does not have the legitimacy and power to deal with international trade issues. When Britain was hit by its BSE crisis, it had to comply with strict European Union rules on food safety and was asked to provide more accurate and reliable information to allow better trade flow between European nations. An integrated approach was required to enhance exports with trading partners mostly located within Europe. Canada, and the United States for that matter, have never been exposed to such market dynamics pertaining food safety, and the necessity to divorce public and industry concerns on food safety policies was inexistent until now. As a result, an equivalent to the FSA in Canada or the United States does not exist. The Canadian architecture for food safety policy-making is legislatively inept. Even though the BSE crisis in Britain brought visceral changes to government, including the creation of new agencies and the shift of new responsibilities before 2000, Canada never made the necessary changes prior to 2003. This, however, can apply to any given nation that trades agricultural commodities internationally. Partners need to present a certain level of willingness to comply with continental food safety standards, even though legislative structures between nation-partners are fundamentally different (i.e. Canada with a parliamentary system that centralizes institutional power, contrary to the presidential system in the United States).

Public Policy Implications

Food Safety and Trades

BSE, foot and mouth and other occurrences have shown that much food safety related policy-making, whether of it is explicit or implicit, seems to lack a cohesive direction. The emergence of complex diseases in the food chain around the world has made food-safety policy-making procedures multifarious. Certainly, trade policies have influenced public policies on food safety, but science has developed faster than such policies or the managerial capacity of national regulators to overlook food safety measures, which makes any BSE crisis a socio-technological disaster (Denis 1993). Most countries would base their food safety decisions on a risk analysis approach, but this approach can vary. This may explain the reasoning behind the embargos issued by many countries on Canadian beef despite the amount of scientific evidence showing that the product is safe to eat (Phillips 2001).

Food policy-making is essentially a socio-political process, and not just a political one. Most industries are in a productionist paradigm, focusing mainly on output and trades, and fail to synchronize production and consumption (Lang and

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Heasman 2004). Many agricultural public policies around the world currently concur with this paradigm. Most of all, food safety policies and regulatory systems heavily depend on the food system and the private sector for information, advancements in technology, and sharing and processing of data. The private sector has shown some degree of initiative by adopting programs such as the Hazardous Analysis of Crisis and Critical Point (HACCP). Most nations now rely on other nations for food variety and food supply (FSA 2002). The dynamics of the industry as a whole have utterly changed, resulting in the possibility that more crises may possibly occur in the future.

On the international scene, there are significant differences between nations and governmental authorities when it comes to food safety policies, particularly when it involves cases such as trading of livestock between Canada, the United States, and Japan. In many countries, the politically charged food safety arena is now masterfully controlled by jurists and lobby groups, and there are historical reasons for this. In the 1980s and 1990s, governments around the world were significantly less interventionist with respect to public policies on food supplies, letting the market determine the direction of change and distribution. This ideology quickly shifted when food safety concerns began rising around the world. The governmental structures of many countries were not prepared for this new direction. Regulators are often in conflicts of interest or are perceived to have dual roles. For instance, in the United States, the federal Department of Agriculture's unwillingness to change food safety policies derives from conflicting mandates: on the one hand, they are tasked to provide safe and quality foods to the American consumer and on the other hand, their job is to promote consumption and marketing of American-made commodities. Canada has a similar predicament. Habitually, the department related to agriculture has had that responsibility, even when such a responsibility would arguably better fit the overall assignment of a health department. Expanded information, shared accountability, and cost involvement are issues that have triggered many debates within food safety and supply chains. For these and other reasons, food safety issues have become a premise for conflicts between governmental departments and supply chain members within and between countries. Around the world, food safety is a multifaceted and political issue, and many countries are adopting protectionist measures in order to cope with market uncertainty. Science and risk management practices are less important than policymakers.

Politics is, and always has been, an integral part of food safety policy, and the methods used by both governmental authorities and industry to cope with the BSE crisis is a sign that an adjustment of strategic paradigms was called for. Beneath the politics and conflict of international food safety, there is, in theory, one simple solution amongst others to safeguard our food chain and minimizing risks for our foreign customers: a transversal food traceability system that will track the meat we eat from the producer to the consumer, from its origin to our plate (Spriggs et al.

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2003). Unfortunately, the practical application of this solution has some significant problems. In government or in the industry, such a policy has often been conceived in a sectoral manner and what is required now is the integration of sectoral interests in our policy framework for an efficient food traceability system. The costs are difficult to evaluate, and, for agri-food businesses, the lack of longitudinal vision has caused certain ambiguities. Consequently, agri-food businesses facing this collective project have concluded that they do not have sufficient financial resources to support such an endeavor. Most agri-businesses agree that the government should assume all financial and social burdens arising from such a project. However, regardless of who pays for it, the implementation of a rigorous traceability system has become a fundamental need, and the capacity of the beef industry to adjust to these new realities is an incontrovertible requirement in the adoption of new technologies.

Government and industrial authorities must find ways to modify the very structure of the beef industry in order to facilitate the implementation of an efficient food safety framework and food traceability system. Without such a system, the Canadian beef industry remains vulnerable to the politics and lobbying of the international food safety arena, as it would for other countries experiencing similar situations. To establish this system within the Canadian beef industry, certain paradigms must change. In spite of laudable efforts, the beef industry needs to adjust to new global realities and modern consumers' needs and perspectives. This new approach should lead to the emergence of national branding strategies, thus focusing on food quality and country of origin labeling. The tactical efforts that have been witnessed over the last 10 years in this regard will have to take on a universal, strategic and inclusive agenda that combines all futurist paradigms of the industry into one. The productionist paradigm that currently overrules all other approaches will eventually become obsolete.

For any given nation, regarding future food safety procedures, food strategists will have to accept that domestic and foreign food safety policies are slowly becoming one. This does not necessarily mean that all standards between nations will become one and the same. It is very unlikely that the world will ever apply homogenous food safety standards, as food safety policymaking is, in essence, a politically charged process. Food marketing strategists would have to consider the most rigorous of standards amid aimed markets as being the model under which they should operate. Food traceability systems and standards will have to comply with this new global reality, and it is up to food strategist and policy-makers alike to drive this agenda.

As well, the North American legislative dynamics in which Canada has to operate is somewhat different than the one observed in Europe. Only three countries are part of the North American political landscape, one of which is considered by many nations as the world's only superpower. Because of trade ambiguity and distortion,

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standardization and normalization of food safety policies between countries are often governed by the most powerful political entity. Observations made during the Canadian BSE crisis suggest that United States drives the food safety policy schema for the North American continent. Europe encompasses many countries that have acquired economic power over the years. France, Germany and the United Kingdom are forced to compromise due to economical countervailing.

Risk Communication

On the communications front, the CFIA astutely rationalized the debate by reassuring the public that the likelihood of multiple cases in the same birth cohort is rare in Canada, and consumers are exposed to very little risk when it comes to contracting the Creutzfeldt-Jakob disease, the human variant of Mad Cow. Unlike in Britain, where government officials tried to control consumer apprehensions in the mid-1990's during its mad cow episode, the CFIA tackled its mad cow scare by managing inherent real risks of the disease and by means of a science-based dialogue with the public. Judicious, maybe, but its communication strategy became a double-edged sword.

The critical task of communicating intrinsic risks to consumers is not only to share scientific facts, but also to manage systemic uncertainty that comes with the territory. During the BSE crisis, the CFIA has shown its intolerance to ambiguous situations. It seemed to have perceived ambiguous situations as sources of threat as it bombarded consumers with methodologically amassed information on the status of our food supply. In essence, the CFIA is stretched between two diametrical mandates: protecting the trust of the Canadian public. As public trust is kept at a sound level, information keeps a lid on ambiguity. Still, in an uncertain environment, trust is not a trivial issue. When risk threatens the health of consumers, they demand two basic things from regulatory officials in order to merit trust: protection and the truth. So far, most observers agree that governmental officials have not misled the public since the start of the BSE ordeal, even if uncontrollable variables have hindered their capacity to predict the outcome of certain strategies. Nevertheless, the Canadian beef industry must look at how consumers are actually protected from real risks of contracting Creutzfeldt-Jakob disease.

All of this means that the CFIA is walking a very fine line between educating the public and avoiding unnecessarily alarming the public, with the public's trust in the balance. In order to appropriately protect consumers, more research on BSE is certainly called for, and a provisional policy to make BSE testing mandatory in Canada is indispensable to protecting the very brittle trust the industry has built over the years with both the Canadian public and its trading partners. Of course, to test all carcasses for BSE in Canada is easier said than done, but it is essential, and the CFIA's communications strategy depends on it.

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Conclusion

The objective of this paper was to conceptually analyze the events that occurred within both the British and Canadian beef industries by considering them as political economies. Socio-political structures, driven by power and dependency relations, and socio-political processes, driven by cooperation and conflicts within a marketing channel, greatly influenced channel members' behaviors during both the British and Canadian BSE crises. Even though some changes were made, it is clear that, based on the conceptual analysis of the first year following the crisis event, the Canadian beef industry and government did not learn sufficiently from the unfortunate events that occurred in Britain in 1996, even if some Canadian governmental authorities believed it had. Many observers feel that the Canadian BSE crisis could have been prevented. The BSE crisis did incite some methodological amendments, but more fundamental changes are still required.

Based on many surveys over the years, the vast majority of Canadian consumers believe that the Canadian agricultural supply system is not endangering human health, and consumers unconditionally trust the safety of our food chain. It is doubtful that the level of trust will be altered after more discoveries. This trust, however, is subtle and can be obliterated in an instant. In neglecting to nurture consumer confidence with reference to food safety, many industrialized nations, including Japan and Britain, have had to pay a hefty price in regaining the public trust their industries desperately needed to re-establish profitability.

During the BSE episode, cautious optimism prevented Canadian officials from gaining new markets and encouraged them to take on scrupulous strategies that will foster the trust of domestic and international consumers of Canadian beef. There were no rational calculations on cost of regaining trust, which is often much greater than that of implementing pre-emptive measures that would care for both beef consumers and the beef industry itself. Food policy-making is essentially a socio-political process, and the industry will have to make some adjustments when dealing with food safety issues.

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