

Risk, Innovation and BSE: Cattle Farmer Perspectives on an Agricultural and Health Emergency

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Abstract

This ethnographic research examines how farmers survive agricultural crises by exploring reactions of Saskatchewan beef and dairy farmers to the Canadian BSE crisis. As this study unfolded it became clear that the BSE crisis is only one of many recent crises that have been changing the face of Saskatchewan rural communities and family farms. Producers see a crisis in their inability to achieve their own measures of success in both the life and business of farming. This includes a greater need for off-farm work, a decline in rural community life and values, and a shift away from farming as a desirable livelihood.

The BSE crisis has highlighted the risky nature of the contemporary agriculture industry, both for farmers' livelihoods and for food safety. Farmers' initial strategies to address the BSE crisis were precautionary and conservative in nature: minimal enterprise adaptation while waiting out markets. As the crisis continued, producers worked to bring their experience and understanding to bear on changing the structure of the agricultural system. Attempts at change were not often successful. This was attributed to a lack of initiative by government and powerful players, such as the multi-national packing industry that profited from the crisis situation and used the crisis to consolidate power within the value chain. Producers felt that they were paying too much for risks that were beyond their control. The government support they needed was not in line with their structural concerns; risky pre-BSE structures have not been appreciably changed. Uncertainty and risk remain high for the average farmer.

There appears to be a growing distrust in powerful institutions that farmers depend on, and a consequent disengagement from government surveillance and regulatory policies. This foreshadows possible serious repercussions in food security and food safety, issues that are still unsettled regarding BSE in Canada. This research indicates a need for greater transparency and public knowledge pathways to reduce uncertainty and allow individuals to better understand and manage emerging risk complexes. Increased democratic space within food and agricultural systems for participation by producer and rural publics would help to balance out government rationalities that may not fully account for culturally mediated understandings of risk and action at the farm level.

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List of Abbreviations

APAS	Agricultural Producers Association of Saskatchewan
BSE	Bovine Spongiform Encephalopathy
CCA	Canadian Cattlemen's Association
CFIA	Canadian Food Inspection Agency
CUSTA	Canada-U.S. Free Trade Agreement
FAO	Food and Agriculture Organization of the United Nations
MP	Member of Parliament
MLA	Member of the Legislative Assembly
NAFTA	North American Free Trade Agreement
OIE	World Organisation for Animal Health
R-CALF	Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America
RFID	Radio-Frequency Identification
RM	Rural Municipality
SARM	Saskatchewan Association of Rural Municipalities
SSGA	Saskatchewan Stock Growers Association
TSE	Transmissible Spongiform Encephalopathy
NFU	National Farmers Union
vCJD	variant Creutzfeldt-Jakob Disease
WTO	World Trade Organization

Chapter 1: Introduction

1.1 Introduction

Modern agri-food systems are often identified as the most effective and efficient approaches to reduce hunger and increase human and animal well-being; a necessary means to feed the world. Although farms often produce greater volumes of particular crops and livestock, the advantages and disadvantages of utilizing modern methods are not always predictable. Contemporary agricultural systems are historically contingent and complex ways of producing, distributing and consuming food, with uneven and contradictory outcomes (Byres 2002; MacRae 1998). Advances are not universally beneficial. Increasing worldwide agricultural production often comes at some economic, social, environmental and cultural cost to people in local regions. Although increasingly efficient at producing commodities, modern agriculture has also poorly addressed, exacerbated, and created numerous human, animal, and environmental health concerns (Bell 2004; Magdoff *et al.* 2000). While some prosper, local food security problems persist, and new crises emerge, with negative consequences for the well-being of many individuals, communities, nations and the environment (FAO 2000; Stiglitz 2003; Skogstad 2006). The increasing risks and uncertainty for people in local regions operating as part of modern systems may be linked to global monological advances in agricultural management practices, technological abilities, scientific progress, and agricultural policy frameworks. To begin to address this situation, it is important to seek a deeper understanding of the decision logic and performance of complex modern agricultural systems.

In recent years, modern agricultural systems are increasingly blamed for high profile global health and environmental risks. Diseases such as Bovine Spongiform Encephalopathy (BSE), Avian flu, and Severe Acute Respiratory Syndrome (SARS) are prominent in media and public discourse, and have become part of a common public consciousness. Such global, high-profile and serious risks are changing public perceptions of the benefits of corporatised, concentrated

food and agriculture systems. Changing ideas are challenging national agricultural management schemes that use scientific approaches to efficiently produce commodities for rather volatile global markets. Behind government shortcomings and market upheavals are the daily struggles of those who may be the most vulnerable in the agricultural sector, the small-scale family farmers, who face a complex of risks specific to their economic security and lifestyle. These risks are in addition to the individually-hazardous health and environment risks the public is apparently¹ focused on. Family farmers face the business and social risks that arise from being a relatively powerless part of a shifting global industry which seems to be increasingly unstable and surveilled². The BSE crisis that unfolded in Canada in the early 2000s provides a useful entry point for an exploration into the way local family farm practices are affected by global agricultural systems—part of what Beck (1992) might attribute to a New Risk Society. In Canada, BSE has become a prolonged crises, apparently exacerbated by global economic circumstances, scientific uncertainty, and political posturing. The BSE crisis has affected a broad range of rural and urban publics that have varied interests and understandings, challenging perceptions and practices of farmers as well as politicians, academics, and other groups and communities.

This project explores these matters by investigating the way that Saskatchewan farmers³ have responded to the BSE crisis, the interests and capacities of producers, and the avenues available to act and react within the social and institutional structures that make up modern agricultural systems. Focusing on farmers allows this project to investigate relatively broad issues of modernity, globalisation, and agriculture within particular lived realities. As well, producers' perspectives have the potential to bring important local understandings into what may be a falsely universalized discourse on BSE, risk, and the agrarian crisis (as evidenced in Beck 1999, and Tweeten 1994, for example.).

1 Beck (1992) focuses on personal and individual risk perception in the New Risk Society.

2 With many powerful multinational companies involved in expensive proprietary technologies, there has been a loss of social cohesion that stems from increased surveillance of farms by those with a stake in the technology—such as governments and multinationals who invest in the technology, organic and conventional farmers who may fear or utilize the technology, and publics concerned with safe and cheap food (Mehta, 2002). At the same time, private corporations remain opaque, rather than transparent, in their business dealings.

3 Farmers can act individually and as a collective through public interest groups or farm organizations, for example.

Much of the knowledge about risk and agricultural crises in developed countries is produced through studying particulars of economic risk for industry or business purposes. This project is an attempt at a more grounded, culturally sensitive approach that begins from the bottom; an ethnography to bring forward the relatively understudied perspectives of family farmers. It seems logical that farmers who have lived through major crises and continue to farm would be especially well positioned to share understandings about farm-level risks and agricultural change. Resilient farmers have watched their communities change, they have watched many of their neighbours leave and some stay. They have a practical, experiential understanding of changes in their particular localities, and have developed strategies for dealing with them. Because of the direct effect that industry developments are having on their lives, they are likely to be keeping a careful eye on the complex dynamic of the changing social, political and natural environment. Listening to farmers' understandings and examining their practices can help us better understand the social forces at work, which will allow us to more fully examine the intended and unintended consequences of structures, ideologies and actions within modern agricultural systems.

The BSE emergency provides a unique research opportunity to explore how agricultural crises and high-risk agricultural emergencies are apprehended by farmers and rural communities. Although the reactions of Saskatchewan farmers to the BSE crisis is the main object of study, I take as a starting point the idea that the strategies that family farmers use to persist are based on a contested combination of local experiences and historical understandings, as well as institutionalised knowledge, all of which needs some unpacking and verification. The effects of farmers' interests, understandings, and practices on the rural landscape is a central focus of this attempt to unravel the complex implications of growing tensions between the expectations and realities of farming life and business. At its most grounded level, this is a study of what farmers think and do. At its most abstract level, this study is an attempt at unravelling the paradoxical successes and failures of modern, scientifically-based but nevertheless economically-driven, agricultural systems.

1.2 Research Question

The BSE crisis in the early 2000s has provided a unique opportunity to observe and analyse how farmers interact with the social structures that are part of modern agricultural systems. Structures and individual understandings intermingle to direct possible actions and innovations, and, as Calhoun (2004) notes, may limit us to a specific type of resolution to an event or emergency. Although Canadian cattle farming is only one particular aspect of the rich tapestry of world-wide agricultural practices, understanding how cattle farmers manage in situations of crisis may shed light on prominent directions of agriculture and the agri-food industry more generally.

The central guiding question addressed by this research is: How has the BSE crisis been understood and managed by beef and dairy farmers in Saskatchewan? This research has two additional foci that complement the previously stated research question:

- To better understand what constrains and enables farming strategies in situations of globally emergent risk and locally experienced crises.
- To better understand the “paradoxical nature” of worldwide agricultural crises, including issues of risk, knowledge and governance.

Exploring how dominant institutional ideologies and practices interact with local knowledges and cultures of farming, this study links the paradoxical successes and failures of modern scientifically-based, economically-driven agricultural systems with the resilience of contemporary farming systems in a particular place. Such issues are crucial to understanding the links between local livelihoods and worldwide food security. These questions are explored through interviewing Saskatchewan farmers about their farming history as well as their understandings of, and responses to, the BSE crisis. An essential element of critical social research is also to uncover prescriptive understandings: “What can we do to better the situation?” Through exploring successful strategies, contested ideologies and practices, the cultures of farm work, and the networks that link farmers with the rest of the world,⁴ this approach builds understanding about potential long-term shifts in contemporary farming systems.

4 These three broad areas of exploration are based on McLaughlin's (2000, 54), methodology. He used institutional ethnography for three procedures “1) an examination of institutional ideology, 2) an explication of the work people do, and 3) the exploration of social relations.”

1.3 Interests and Implications

I am interested in the dynamics of agricultural systems worldwide, especially how they shape local practices, and have pursued this interest throughout my studies, exploring social change through: rural and urban differences, traditional versus modern knowledge and rationales behind actions. The choices we make and the reasons behind these changes are extremely interesting to me. Moreover, I think the way agriculture changes is a particularly important subject for study—an essential base from which our civilizations continue to grow. The present abundance of food in developed countries, and the ease with which we can purchase and consume it, hides the precarious nature of our relationship with the stuff of life, and the work that goes into creating it. It may not be the most popular topic for sociological study, but the process and products of agriculture affect every one of us on a daily basis.

My past sociological inquiries have largely been historical literature and census-based explorations and analyses. This Master's project has been a chance to broaden my research skills and become more proficient with qualitative fieldwork and analysis. To explore family farmer responses to the BSE crisis, I decided on in-depth interviews within an exploratory, institutional ethnographic framework. This technique allows an understanding of depth and breadth to be uncovered in a relatively flexible manner. This study has the potential to bring a “grass roots” perspective into current academic understandings of the way that farmers engage Saskatchewan's diverse agricultural systems. Through exploring the adaptations of farmers and farm households to crises and risks in an increasingly globalised agricultural system, this study links complex global and local issues at the level of farming practice—the human-environment interface. Studying the rationalities and practices of the Saskatchewan livestock farmer in Canada's current BSE crisis implicitly addresses the sustainability and resilience of individual farms and communities, as well as explicitly addressing farmer agency within modern agricultural systems at individual, community, and national levels.

As stated at the outset, investigating these relatively broad research issues grounded in a particular set of case studies has the potential to bring cultural nuance into what may be a falsely

universalised discourse on BSE, risk, and the agrarian crisis. Uncovering the complexities of these matters is central for those interested in understanding (knowledge and power within) modern farming systems. These understandings may further enable people and organizations interested in bringing evidence to bear on practices and actions, be they producers, policy-makers, consumers or activists.

In his review of late 20th century agrarian political economy, Buttel (2001) lays out the strengths and weaknesses of contemporary agrarian studies. Strengths are seen in the greater vision of recent studies, which take into account more varied units of analysis, increased nuanced causal logics, and go beyond the conventional agrarian question⁵. Shortcomings include the under-theorised, casual use of globalisation (often treated as a simple exogenous force); fewer theoretical advances than methodological (although actor-network theory, commodity chain studies and case studies are seen as advances); and a prevalence of analytical work on agrarian structures that tends to emphasise the local on an *ad hoc* basis when analysing agricultural commodity systems. Buttel also calls for studies to take into account national agricultural policies as a whole, rather than just those affected by global commodity system dynamics. Producers and workers in basic staple production sectors need more attention; and finally there is room for more thoughtful convergence of the sociology of development and the sociology of agriculture in studies done in Western countries.

This research project builds on the strengths of past research and addresses some of the weaknesses Buttel has identified. The main agricultural commodity under study, beef cattle, has been one of the staple industries in Canada since before confederation. Globalisation is brought into this study by the international nature of the cattle trade (by the movement, and attempts to stop movement, of BSE) and in the agency of farmers within national and international networks. National and international actors, and the policies and trading contexts that they are part of, will be explored. Finally, a bottom-up approach (focusing on local knowledge, perception, risk,

5 The Agrarian Question refers to a debate about the dynamics of capitalist agriculture and what political positions should be taken with regard to farmers. “As first posed by Karl Kautsky in 1899, the Agrarian Question is actually two related questions, the first theoretical and the second political: (1) what are the dynamics of capitalist agriculture and (2) given those dynamics, what stance should the German Social Democratic Party (SPD) take towards the peasantry?” (McLaughlin 1998).

innovation, disease and the farm crisis) brings aspects of the sociology of development into my framework. Positioning this research in this way increases the chance that it can provide insights into how farmers have survived (and failed) during the BSE crises, and what shape these industries might take if we continue our present course. This research should also be able to provide enough insight to explore possible avenues for change.

1.4 Organization of the Thesis

Following this introduction is an examination of relevant literature (Chapter 2), and a methods section (Chapter 3). Findings are brought forward in chapters four and five, which report, explain and engage farmers' discussions on BSE. Chapter 4 explores how farmers see themselves and their position, examining success and resilience within the context and culture of farming as they know it. Chapter 5 more directly focuses on farmers' understandings of and reactions to the BSE crisis. Finally, in the Discussion and Conclusion (Chapter 6) I further discuss and analyse what farmers have reported and what this implies with respect to farmer approaches to risk and innovation in modern agriculture.

Chapter 2: Literature Review

2.1 Introduction

Though not often classified as a 'method' by ethnographers, the literature review is an integral part of addressing an issue academically as well as a source of information (Cambell and Gregor 2004). It places the research project in relation to other academic works, illuminates a field from different academic perspectives, outlines which issues have been addressed and which left out. It also assesses the legitimacy of various perspectives and methods, and highlights which interpretations are dominant and which subordinate or tangential. In this way, the literature review is much more than just a review of what has been addressed by scholars working in the field: it revisits how the issues have been addressed, and serves—like census data, media watching, and interviews—as an important source of data for analysis.

While exploring the works relevant to this paper, it became evident that several threads and sub-themes require some additional explanation. This study focuses on the reactions to BSE by Canadian beef and dairy farmers. It considers how this disease has been understood and managed by livestock farmers in Saskatchewan, and how this understanding shapes, and is shaped by, current ideologies and global networks. This includes the way that mainstream public and institutional perceptions of risks affect the resilience of local producers as family farmers manage through difficult times.

The state of agricultural affairs at the time BSE became a problem had deep historical roots that shaped the consciousness and affected the actions of sector participants. Through commonly constructed histories, memories or non-memories, we may be only partially aware of past events, the sources of our understandings and the logic of our actions (Sayer 1992). In order to contextualise this research topic more clearly, first I explore the roots and present manifestations

of the contemporary farm crisis. I briefly revisit agriculture's general and specific historical context, contrasting traditional, modern, and contemporary farming systems. I then provide a critical overview of recent farm issues in North America and in Saskatchewan particularly. Next I take a historical look into the struggles of the Canadian cattle industry before and after Confederation—a time when industry's export orientation and disease risks dramatically affected the beef sector. I examine the sociology of crisis, resilience and risk to explore the conceptualisation of risk in current mainstream agricultural discourse.

Finally I examine the movement of—and reactions to—BSE. This section outlines events since BSE irrupted in the UK and Europe, following the course of the disease through the world and particularly into Canada, while simultaneously—for the purposes of background and comparison—considering the epidemiology of BSE and reactions to disease outbreaks historically. Current knowledge of BSE and epidemiology is an important (but not a central) focus of this research project. Therefore, this section is designed to add background to contextualise the global environment of disease within which the BSE crisis unfolded. BSE has been a hotly debated topic in Europe, leading many researchers to deal with shifting practices in UK agriculture, which are thought to have led to BSE, and the failed agricultural and political responses to the disease which permitted BSE to attain its present global threat proportions. This leads directly into particular understandings of BSE, Variant Creutzfeldt-Jakob disease (vCJD) and how they are being addressed.

The review of these three themes—the contemporary farm crisis, the movement of and reactions to BSE, and the culture and ideologies of risk in agriculture—provides background to better illuminate the focus of this thesis: an ethnographic investigation of how beef and dairy producers in Saskatchewan have attempted to weather the BSE emergency.

2.2 Traditional, Modern and Contemporary Agriculture Systems

Modern farms are far from monolithic, homogeneous entities. They are built, maintained and operated by individuals, families, and organizations, and so reflect the particular interests, capacities (including resources), and knowledge of the people who set up and manage them.

Their structures also reflect the needs and limitations of larger environmental, economic, and social systems that are integral to the functioning of contemporary societies. Although individually relatively small, farms form the essential base of global agricultural systems, embedded within both local and international institutions. In this section, I briefly contrast farm types in two different time periods for the purpose of creating a somewhat deeper understanding of the history of agriculture and modernity, and laying a foundation for assessing the advantages and disadvantages of differing agricultural systems.

In the previous chapter the term “modern” refers to contemporary ways of doing things but it can also have a more specific definition associated with a belief in rationality and the triumph of truth, science and progress over more traditional, pre-enlightenment ways of doing things. Sociologists are engaged in a debate over the character of modern societies, whether they continues to be—or ever were—modern. Some have posited that we are now in a post-modern era, a world of 'flux, flow, and fragmentation' where empiricist representations, truth, scientific rationality, and unitary theories of progress no longer have dominance or even meaning, and reflexivity results in a “liquid modernity” (Bauman 2000). Others theorize that we think and act with late-modern (Giddens 1991) or high-modern (Scott 1998) rationalities and aspirations. In Chapter One, I problematised modern (meaning contemporary) farming systems, arguing that they have many benefits, but also corresponding costs and unintended consequences. In order to clarify how farms operate, I begin this section with a look at agricultural practices and systems congruent with contemporary sociological thought on historical breaks: pre-modern, modern (including late-modern and high-modern), and post-modern.

To contrast pre-modern and modern ideals with Canadian traditional and contemporary farms leads into a closer look at our farming crisis, which may be more indicative of late-modern, high-modern, or post-modern societies. Dominant farming systems within a society can be conceptualized as ideal types reflecting the society's position within the “Western” project of development/modernization. However, individual farms that appear to correspond to all “systems” can be found in most countries. There are many different pathways of development, and particular societies will display particular organizing principles, depending on levels of

technological advancement, infrastructure, and various other factors. Using this type of categorization it would appear that practically since Canada's inception one finds mainly the latter types—first modern, and now arguably late-modern, high-modern, or even post-modern farms.

The following sections build a basic description of the general practices of traditional systems for the purpose of contrasting historical systems to contemporary agriculture production in the world today. Such “ideal types” provide a base from which to critically examine the ideas behind “traditional”, “modern”, and “contemporary” farms and agricultural systems when exploring practices and conceptually addressing risk perceptions.

2.2.1 Traditional Subsistence Agriculture

Traditional subsistence farming is often the way we speak (and think) about cultivation before capitalization, and modernization of societies. In some technologically undeveloped and apparently very poor countries, agriculture is still carried out in this way, but in most cases traditional subsistence agriculture has been modified or replaced by more technology-based, capital-intensive “modern” approaches. Agriculture in traditional peasant systems that might be found in the early 21st century are relatively homogeneous (within cultures) low-tech, small farms which produce for the needs of the family and for local trade (Blatz 1992). Livestock are utilized for meat and other subsistence needs, such as animal power, milk, and hides. Crops are seasonal, and mainly for local food production, although surpluses can be ‘trucked and bartered’ (Wood 2000). Unlike conventional globally integrated systems, only a small percentage of the harvest would be grown specifically for long-distance sale or trade. For social or material reproduction, the peasant is dependent upon local factors rather than “the invisible hand” of relatively distant and effusive markets that Canadian farmers deal with.

Peasant social interactions are often complex, local and customary because they are not mediated through the medium of money to the extent that conventional food and farming systems are. The lesser importance of money as a generalized medium of exchange, the local and immediate nature of production, and the low-tech, human-centred practices results in most people being relatively self-sufficient in household food production. The division of labour (including inter-dependencies

and specializations) has not occurred to the degree that it has in modern or contemporary systems.

By conventional standards, traditional continuous-cropping farms and gardens may appear to be intricate, complex, and chaotic. However they are low-labour, low-input systems that are generally resilient, continually productive at a subsistence level, and can often produce more food per unit of land than larger “modern” serial-monoculture farms (Dyer 1997). Fertilization is accomplished mainly in the burning off of natural vegetation while clearing the land, and depending on the system (continuous or non-continuous), maintained by interplanting various cultivars (nitrogen fixing) and allowing livestock to clean gardens once the harvest is finished. In non-continuous systems, cultivation and irrigation is minimal because the land is to be exploited for only a few years. Once soil fertility declines from cropping, the land is usually left for a long fallow period where it will regenerate naturally.

According to Scott (1998), in peasant systems cropping choices are based on an intimate knowledge of the interactions between the soil and multiple crops and cultivars, not dictated by the consumer or market (273-7). However, in every system agricultural products are produced for some type of consumption. In pre-modern systems the choice of crop may be steeped in culture and tradition; rather than distant markets, choices will be based on local religious and spiritual needs, medicinal needs, taste preferences for food (such as different types of rice, corn or peppers), as well as agronomic traits. Cropping practices are not dictated by trends in commodity prices and global demand, nor by “scientific” knowledge of soil properties or varieties' ability to be harvested by machine and shipped thousands of miles, but by historical and religious events, phases of the moon, local wisdom or even local gossip. Farming well in these systems requires much tacit and explicit cultural and agronomic knowledge. The successful practitioner knows how to farm from a lifetime of sharing stories, instructive mythologies and anecdotes, as well as applying lessons from careful observations and practical experience.

2.2.2 Contemporary farmers: Scientific, Rational and Progressive?

In contrast to traditional peasant farms, contemporary farms produce commodities for sale and profit. There are strong divisions of cropping practices among (and within) geographical regions, as well as multiple divisions of labour within and between production and processing. Such divisions are partially enabled by a relatively reliable transportation infrastructure, nationally and worldwide. Ironically this results in farms which are unable to directly supply the surrounding communities with a wide array of desired and necessary foods. Farms produce raw commodities which need to be sent to (often distant) processors, perhaps to return in a more processed form. Regions produce particular commodities in excess in order to supply distant markets, and add to the imagined⁶ global food supply.

Conventional farms exist within a corporatised, profit-driven, technologically advanced political economy. Farms are often intensive, specialized, and highly mechanized. Cropping systems are often variations on serial monoculture in order to utilize technologies for mass production and harvesting (relying on one or two particular crops in a yearly rotation and/or one particular type of animal that has been bred for producing large quantities of milk, meat, or eggs). Scientific knowledge and technological advancements have removed many of the more obvious physical constraints of the environment, allowing a single farmer to manage and monitor much larger tracts of land and numbers of animals than previously imaginable.

Compared to the traditional subsistence agriculture, farming in Canada does not rely as heavily on an individual's particular experiential and practical knowledge of limitations and properties of a local physical environment. Instead, conventional farming systems are highly regulated and 'rationalized' to particular end goals (product volume, particular trait, efficiency, profit) rather than the sustaining the environment or local social systems. Farmers rely on generalized scientific, expert knowledge coupled with a massive agribusiness infrastructure that can provide the technology and information so that they can create a favourable planting matrix for a

6 It is imagined in a similar way to Anderson's (2006) imagined communities: it is a supply of food that those in agriculture talk about and work towards, but also one that reaches a global people that we can never see and is quite controlled by individuals, organizations and governments as food moves between and within national boundaries.

particular crop or a cheap and nutritious feed for a particular type of animal. The right nutrient mix can then be packaged and sold to farmers to optimise growth of a particular plant cultivar or animal breed. This simplified scientific rationality allows a view that nutrients from any source (animal, vegetable, or synthetic) are merely nutrients. Such simplified understandings make it rational to feed cheap “recycled” cattle meat protein back to cattle to maintain optimal nutrient levels for efficient weight gain, part of the cause of the emergence of BSE (as will be explained later in section 2.8, starting on page 30).

As well as relying on commercial agribusiness for inputs, conventional farmers also rely on them for the creation of (and access to) specific markets. Crops are grown based on the requirements of global markets, using technologies to manage the physical limitations of soil or other environmental conditions. This industrialization of agriculture depends on hired labour as well as increased and sophisticated mechanization. Farmers often attribute their compliant role in this increasing rationalisation of farm life to a financial crunch and ‘technological treadmill’⁷ (Sampson 1982).

Unlike the farmer in traditional systems that can eat their own crops directly, farmers in conventional systems are dependent on income from markets. Particularly in recent times, farms have high start-up costs, high capital requirements, and high fixed costs. Accordingly, they are often mortgaged heavily and under pressures of debt. The usual solution has been to increase scale, intensify, and switch to technology that can allow one person to produce more. This usually results in diminishing production per unit of land and resources used, increased degrees of risk, and, of course, a continuation of the boom and bust cycles in farming.

The ethic of the farmer within this system appears to have shifted from a local, small scale, cultural and historically embedded system to one in which globally connected business eclipses a

7 “Cochrane’s (1958; 197[4]) “technology treadmill” model addresses the adoption and diffusion of technology. In this framework, successful technological innovations reduce production costs, thereby creating incentives for [other] operators to adopt the new innovation. [Primary innovators carry some risk, as not all innovations are successful.] Early adopters benefit more from a new technology. However, as an innovation diffuses among producers, industry output increases and commodity prices fall. Lower prices force out less efficient producers. According to Cochrane, larger farms are better suited to innovate and adopt new technologies, and the nature of many new technologies requires a minimum farm size to be profitably adopted” (Key and Roberts 2007).

more local “culturally based” lifestyle, with short-term profit-taking, reductionist views on nature, and an institutionally-based scientific and economic approach to the business of farming. Conventional agriculture appears modern in the sense that it is based on sophisticated technology and scientific understandings. However, the deeper rationalities concerning application of technologies and direction of progress can be questioned by those who take a wider view of the sustainability of our current systems and the goals of agriculture and food production.

2.3 Conventional Agriculture and the Farm Crisis

In North America and elsewhere, the farm crisis, or agricultural crisis, is complex and multi-faceted. There are many views as to the extent, nature, and even the fundamental existence of the “farm crisis.”

Canadian farmers are working land harder and producing more, but receiving less profit for their crops and livestock (NFU 2003). Farmers face the pressures of unresponsive global markets. Classical economic theories of supply and demand no longer hold much promise for stabilizing local economies. With the acceptance of the North American Free Trade Agreement (NAFTA) and Canada's entry into the World Trade Organisation (WTO), governance roles have changed from typical strategies favouring import substitution and protection of local systems, to export-oriented production systems. These export systems often favour large transnational corporations in production and distribution with little state or community protection allowed (Skogstad 2006).

The general public is increasingly distanced (both socially and geographically) from farms and the realities of food production. The largely urban public remains directly involved only in their response to marketing; production is directed by the aggregate consumption patterns of highly manipulated consumer choices. The effects of this type of system are manifold. Increasing farm production requires a growing reliance on renewable and non-renewable resources such as water, fossil fuels, commercial fertilisers, and veterinary pharmaceuticals—all under conditions of decreasing profit margins for farmers, see Figure 2.0 below (see also NFU 2003).

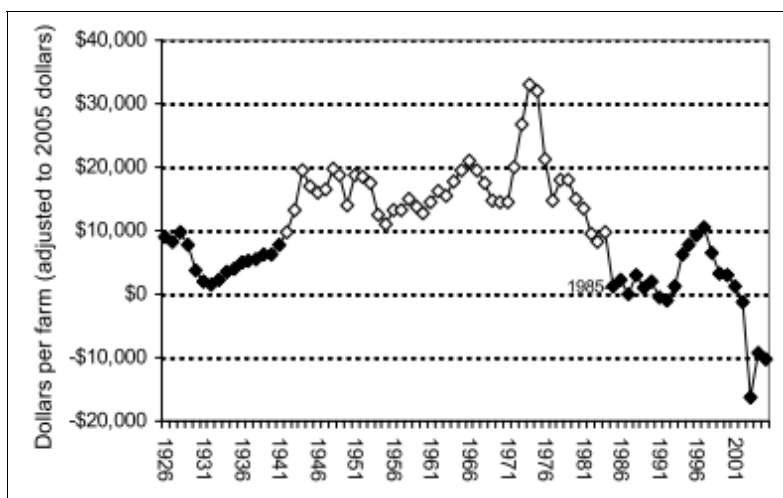


Figure 2.0: Realised net farm income from the markets from 1926 to 2005. Government payments are removed from this chart, and income is adjusted for inflation (2005 dollars). Source: *The Farm Crisis and Corporate Profits*, a report by Canada's National Farmers Union (2005).

Within the present economic and social environment, farms (and agribusiness firms that supply and are supplied by them), are becoming more concentrated as mid-sized farms and smaller agribusiness firms either consolidate or exit the system. With a decreasing rural population, as well as shifting demographics on farms, smaller communities and their supporting infrastructures also suffer (Buckland 2004). Those remaining as well as new⁸ farmers, must work within the concentrated, integrated⁹ systems that have been created. Concentration tends to result in oligopolies and oligopsonies, which reduces choice for markets and inputs, and can shrink production unit profit margins while dramatically increasing break-even production levels. Shrinking profit margins frequently lead to an increasing reliance on yield-oriented technologies.

8 I make the distinction between new and continuing farmers, because Jackson-Smith notes that the often-assumed one-way flow out of farming areas to cities is a simplistic myth. The microdynamics of structural change in farming can be better explained by large gross flows into and out of agriculture. Results “suggest that continuing farmers often adapt in ways that are very different from aggregate trends” (Jackson-Smith 1999).

9 Concentration and integration are terms referring to mergers within industries that result in fewer, bigger firms, which control several stages/facets of production. For example, the poultry industry in Canada is extremely concentrated—only three major firms own almost all of the processing facilities. These facilities are also vertically integrated, (either directly via ownership or via contracts) meaning that the integrating firm controls all stages of production, from breeding and genetics to hatcheries, to processing, sales and marketing and transportation. The farmer accepts contracts to grow birds for a specific number of days, and under specific environmental regulations.

At the same time, farmers take on the risks inherent in utilising these expensive technologies in a situation where market prices for their products are volatile and typically low.

The modern agricultural system and the communities it supports are in jeopardy, if not the global food system itself. Areas of immediate risk include farm solvency, environmental and animal health, and human working and living conditions (Gertler 2002). The agricultural crisis, and modern systems generally are not without winners. There is a large increase in the production and shipment of food for distant markets. Larger companies and corporate farms may benefit from concentration and integration because of reduced competition and reduced labour requirements which may increase medium-term profits. According to *The Farm Crisis and Corporate Profits*, a report by Canada's National Farmers Union (2005), while farmers were experiencing (on average) negative incomes, the majority of agribusiness corporations dominant in Canada were recording record profits.

A larger purse means a better ability to test out increasingly expensive (and risky) ways to reduce costs and increase production. Controlling the implementation of innovations may be easier, and there may be closer ties with research institutions and governments. But what type of innovations are sought? What types of risks are perceived and targeted? What are the goals of the actors within this system? Examining the ideologies, cultures, and the balance of power among those involved can help to answer such questions.

2.4 Saskatchewan Agriculture in Crisis

Saskatchewan agriculture exhibits all of the crisis symptoms mentioned above. Despite large increases in per-farm production since the 1970s, net farm incomes have decreased, and become increasingly unstable. For example, in 1998 average net farm incomes were below that of the Great Depression (NFU 2005). Agribusiness has become a dominant part of farming, and “value-added” consumer goods have become increasingly prevalent. This is reflected in the farmers’ shrinking share of a food dollar as described in the same report by the NFU (2005):

A customer puts \$1.35 on a grocery store counter for a loaf of bread. Powerful food retailers, processors, and grain companies take \$1.30, leaving the farmer just a nickel. Powerful energy, fertilizer, chemical, and machinery companies take 6 cents out of the farmer's pocket. Taxpayers make up the penny.

The general effects of government policies, technological changes, and a changing economy can be seen in the dramatic demographic shifts in Saskatchewan farms over the last 70 years. Since the historical peak of 143,000 farms in 1935 there has been a steady decline in the number of farm units, dropping a staggering 65 percent to only 50,000 farms in 2001. Because the total amount of land farmed has not decreased since the 1940s, an increasing farm size is the only explanation. On average, per-farm area has increased three-fold. However, averages hide what is happening to individuals. When looking more closely it becomes apparent that many small farms have remained small, and that medium and large sized farms have consolidated into even larger farms. Early farms had a relatively stable average size of around 350 acres until the late 1930s when the trend shifted to a steady increase that reached a mean of 1300 acres by 2001 (DeLury 2004). Moreover, this average disguises the fact that at the time of writing, there are many farm operations with more than 5000 acres and not a few with more than 10,000 owned and rented acres. It seems the changing risks involved in farming are seriously altering the rural landscape.

2.5 History of Cattle Production in Canada

During the early times of colonisation and empire building, much depended on a very hazardous agricultural context. It is a myth that British North American farmers were economically self-sufficient. Self-sufficient agricultural economies would not require governmental assistance. According to Fowke (1946; 3), agriculture was “fostered, moulded, and supported” by public monies in order to contribute to the chief colonial activities (not because it was). In Fowke's account, Canadian agriculture has consistently been a base for political (and at times ecclesiastical) empire. Agriculture aided commercial and political power in three different ways: settlement was a means to defend territory and trade routes (military conflict was inseparable from economic conflict); agriculture was a source of provisions for the great staple trade¹⁰ and; agriculture was a provider of investment opportunities on the agricultural frontier. Between 1850

¹⁰ The great staple trade included fierce competitive trade in codfish, furs, sugar, slaves, provisions, and shipping by both the English and the French (Fowke 1946:4).

and 1930 the commercial, financial and industrial sectors gained prosperity through continued expansion of the staple trade. During this time agriculture supported commerce, and became more directly commercial. In this view of agriculture's historical position, it was first a tool to reduce risk in other ventures, specifically the commercial, political, and industrial requirements of empire building. It later became an industry in itself. Therefore political power of the Canadian farmer (necessary to garner assistance and support in the risk-prone lifework of farming), “...varied in proportion to the contribution which agriculture could make, at any given time, to the cause of commerce, finance and industry, rather than in proportion to farmers' numbers or their state of organisation” (Fowke 1946: 9). This account makes it clear that on the whole, Western Canadian agriculture, although not always directly commercial, has always been “modern”, and never merely “traditional” in the sociological, pre-modern sense such as the systems of subsistence farms still found in other countries.

2.5.1 Pre-Confederation Cattle Industry

According to Fowke's (1946) account of pre-confederation times, the colonial governments did not consistently assist animal husbandry. Stock and agronomic knowledge and techniques needed to be imported and adapted to local environments, but animals were considered more risky to develop than crops, requiring at least a breeding pair to survive the long transatlantic transit. The cost of this risk was shared in early years by the French government, which, from 1713 to 1783, imported animals and people trained in husbandry techniques with public monies. The Governments of Upper and Lower Canada (and later the Province of Canada), however, did little beyond hosting exhibitions with prizes to encourage improvement. Only by 1825 did British immigrants bring Ayrshire cattle and farmers with knowledge and skills of animal husbandry. Twenty-five years later new American railways allowed livestock and livestock products from Canadian colonies to gain access into expanding American markets. Because grain farming was becoming increasingly unprofitable due to flooded grain markets, increasingly prevalent disease and pest problems, as well as depletion of soils, governments encouraged diversification into livestock ventures—which were now perceived to be less risky. They also continued nominal support of agricultural progress through fairs and exhibitions. Livestock farmers prospered. This success encouraged the importation of new breeding stock, and by the time of Canadian

confederation (1867), exports of Canadian beef cattle had reached “striking proportions” (Fowke 1946).

2.5.2 Post-Confederation Cattle Industry

As I write this, beef farmers in Canada are dealing with border closures, quarantines, and international trade disputes involving disease and live cattle crossing national borders. Over 150 years ago the newly formed nation of Canada was, in its first federal agricultural activities, also dealing with cattle quarantine and the complexities and contradictions of the live cattle trade with Britain. As they were in early initiatives for agricultural progress, commercial purposes and interests continue to be prominent in directing contemporary agricultural systems. Folke distinguished between federal and provincial interests. Provincial governments were interested in keeping people on the land and worked strenuously towards improvement of livestock, with self-sufficiency as an important goal. However Federal governments were interested in building national wealth, and so pushed endeavours towards greater commercial interests, requiring early farmers to produce not only for themselves, but for commercial markets also. Federal governments worked to enable this production through constitutional control of trade and commerce. The Dominion Department of Agriculture was primarily interested in the commercial aspects of farming for producing goods and increasing immigration.

The expansion of the cattle trade with Britain also spurred the development of the range cattle industry in the Alberta foothills and adjacent plains. Governments decreased hazards and increased benefits through various means: reducing the threat of cattle rustlers through the creation of Indian reservations and a policing body (the Royal North West Mounted Police), creation of grazing leases to ensure governmental control, maintenance of border and quarantine control, and government importation and sale of breeding stock in order to protect and promote markets and industry for the benefit of commerce, trade and nation-building. Livestock was especially useful for encouraging immigration of 'desirable' classes of British tenant farmers and farm labourers.

In the 1870s Canada was starting to expand into British markets. The Canadian beef farmers could produce beef for export into Britain at competitive prices (25 percent cheaper than UK beef), while still making a good profit. This expansion increased the pressure on British agriculturalists, as their markets were not protected. In the 1850s the government of Britain had shifted to a “horn instead of corn” based agricultural system. The repeal of the protectionist corn laws had made grain production unprofitable because markets were flooded with cheaper grains imported from industrialising colonies in the United States, Australia, New Zealand and Canada. The shift into cattle was not a permanent fix, however. Twenty years later the British livestock industry became vulnerable to cheap imported cattle. In response the Richmond Bill was enacted in order to protect the beef market. Although the Canadian government apparently saw it as a legitimate quarantine measure, its purpose was to protect British markets by excluding foreign trade. Canada contested being included in the bill's initial schedule, and was eventually removed. “It was clearly the commercial interest which was at stake and for which effective protests were made” (Fowke 1946: 196). The existence of the bill did make Canadian beef subject to complete embargo if any named disease was found. This shifted the risk equation from the risk of the disease itself to the risk of finding disease, putting the Canadian livestock industry and the farmers involved in it on more uncertain ground. Federal quarantine and quarantine authorities had the critical job of preventing disease and now preventing even the suspicion of disease in the Canadian livestock industry. The US was added to the UK quarantine schedule almost immediately but Canada escaped the list until 1892, when repeated charges by British agriculturalists were finally substantiated. Canada would remain on the schedule for thirty years (Fowke 1946).

Jumping forward 150 years, the removal of the Crow Rate¹¹ in 1996 suggests that the basic direction of government policies may not have changed very much. When the World Trade Organisation (WTO) was threatening the Canadian government with charges of non-compliance, the government chose to drop the Crow Rate with short notice (Hobbs and Kerr 1998). In a

11 The “Crow Rate” refers to the 1897 Crows Nest Pass Act. The CPR received a subsidy to build a railway through Crows Nest Pass in return for cheaper transportation rates for prairie grains. This later became the WGTA (Western Grain Transportation Act). See Appendix B for some important dates related to the introduction and removal of the Crow Rate as it contributed to the seriousness of the BSE crisis.

similar fashion to the British government 150 years prior, the Saskatchewan government had also promoted “horn instead of corn” as a coping mechanism, encouraging prairie farmers to “ship grain through cattle.” In 2003, a few years after governments had successfully shifted many prairie farmers into increasing cattle production and exports, the Canadian cattle industry was also threatened, not by encroaching colonial industries as had been the case in Britain but because of the discovery of a single non-imported case of Bovine Spongiform Encephalopathy (BSE), and the resulting precautionary/protectionist measures enacted by top importers of Canadian cattle and beef: the United States, Mexico, and Japan. Initial closures were reasonable and expected but, even after extensive testing, borders remained closed to live cattle two years later¹². Rather than multilateral agreements (border controls) working primarily to reduce public health risks and industry economic risks associated with imported diseases, national protectionist politics were again playing out as they were in the 1800s—once again quarantines were being used as non-tariff trade barriers. Although there are interesting and arguably important similarities between government decisions in early and later periods of Canadian agriculture, there are also important differences in hazards and risks. These differences may assist in clarifying the farm crisis experienced by smallholder commodity producers worldwide. This crisis becomes a reality in the risks that farmers experience and perceive, and the resulting choices they make in their everyday life. Sociological conceptualization of crisis and risk will be considered next, after which contemporary agricultural discourses and the BSE crisis will be revisited.

2.6 Sociologies of Crisis, Resilience and Change

Crisis can be thought of as the state where existence becomes uncertain. Something must be decided, and in the end, it will either continue on, or cease to exist—but never remain the same. Crisis can be the precursor to dramatic, paradigm-shifting changes. As a concept it can be applied to subjects, a life, systems or spheres of action. A crisis does have objective causes, but must also be experienced as a crisis by the subjects or social entities involved. A crisis typically affects the self-understanding or self-definition of actors, individually or within larger groups or

¹² The border closure was not just to live cattle, but all movement of beef. After approximately four months, packing plants could sell certain cuts of boneless beef from cattle under 30 months of age across the border, and later the border opened to boxed beef with SRM removal. See Appendix B for a more detailed account of the BSE timeline.

systems because it undercuts identity or life-situations “as a whole.” It has been a central concept in studies of modernity and the enlightenment; it is a concept with a long history in philosophy and the social sciences, spanning understandings from Aristotle to Marx, Kant, Kuhn and Habermas (Brunkhorst 2006).

Hegel saw a connection between law and crisis, in the theory of tragedy—the blind fate of the pre-legal epic justice, and the “new, tragic urbane justice of modern times” (Brunkhorst 2006) . Marx perceived the enlightenment and modernity as a kind of crisis and predicted that the most developed capitalist economies would themselves experience cycles of crisis and revolution as a dialectical change that was natural for progress. Through dialectical change progress will occur—moved along by revolutionary criticism. A crisis, and resolution would be brought about by a deeper awareness, enabling society to evolve. Others have taken more pragmatic views on the depth of knowledge that crises bring forward, such as Milton Friedman in his comment that "Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around" (Klein 2007). His approach has some similarity to that of Marx in the fact that ideas must be present before the crisis to shape the outcome, it differs in that for Friedman the future is more open—no pre-set progression of changes is postulated.

Judgement and diagnosis aspects of the crisis concept have been separated in more modern medical theory, but are still combined in political practice: there can be no crisis without a diagnosis of crisis. A crisis diagnosis makes an explanatory claim, constructing a history which could operate as a justification for political action. The reverse also holds true—without a crisis diagnosis, there may be no justification for political action.

Arguably the most explicitly developed contemporary sociological work on political crisis is by Habermas (1976) in his theory of legitimation crisis. This theory explains how a powerful institution or government that is no longer able to evoke sufficient commitment or sense of authority, will no longer be viewed as legitimate. It will therefore have transformed itself into an ineffective institution.

2.7 Sociologies of Risk

The phenomenon of risk is an established concept within contemporary social science and has shaped the debates on the cultural character of modernity. However, the idea of risk is permeated with normative assumptions which make it an elusive concept with varying interpretations and definitions. Risk began as—and is often thought of as—a concept of probabilities. It was first developed as a science to understand gambling with cards and then later was institutionalised by insurance companies that dealt with uncertainties in the early shipping industries (Douglas 1992: 22). In this sense, risk is the probability of the occurrence of an unintended (and usually undesirable) consequence of a course of action. Policy research often utilises this conceptualisation to provide mechanisms to reduce and allocate risk. It also allows agencies to regulate the behaviour of actors by creating mechanisms to track the allocation of blame, monitor roles, and assign responsibilities.

Risk perceptions and risk analyses provide a sociological window into how modern society has formed and performs, from the conceptions of self interacting with the environment, to the way national power relations are handled and actions unfold on a global scale. Various conceptualisations of risk have been used in contemporary sociology, including those forwarded by Giddens, Douglas, and Foucault, but Beck is likely the best-known exponent. This review of risk and the livestock industry lays the historical and contextual groundwork for an in-depth analysis of Canadian farmers and farming. Later in this chapter I focus on risks and avoidance of risky practices by actors concerned with agriculture and the cattle industry. In this review I use sociological lenses to assess the applicability of risk theories to disease in the Canadian cattle industry.

2.7.1 Conceptualizing Risk

Mary Douglas (1992) pioneered modern cultural theory on a macro level, using risk as a powerful concept for the analysis of culture. Risk is a concept displaying scientific validity and precision on one hand, yet it is amorphous and easily appropriated by interested parties on the other. The conception of risk can be used politically for the construction of social priorities. In

this sense risk becomes a political tool to justify a course of action, as well as to assign blame and responsibility. This is similar to Foucault's ideas of risk as a 'moral technology' that can be used to dominate time and discipline the future. He puts the citizen at the centre of a net of expert knowledge systems that aim to control the population through calculation and prediction of what is necessary for risk-free behaviour and well-being (Navarra 2005). Giddens (1991) and Beck (1999) have further developed risk controversies as new phenomena that are an essential feature of modern societies. To Giddens and Beck the risks that are present and how we deal with them reflect profound transformations in social, political, and cultural life.

Beck's conception of a 'risk society' is one in which people within the society realise that the nature of risk is global. Risk is not a physical reality, but perceived, socially constructed and understood and so will lead to the emergence of new social realities. Beck defines risk as “a systematic way of dealing with hazards and insecurities induced and introduced by modernity itself” (Beck 1999). He points out that industrial society is a transition from a human condition where seemingly naturally occurring hazards (disease, flood, famine, and the like) along with explicitly socially determined hazards (invasions and conquests, regressive forms of thought and culture, and rigid class structures), moulded the fate of individuals and groups to a point where increasingly our fate has come to be bound up with risks that are deliberately undertaken by means of our technical mastery over nature for the sake of benefits conceived in advance (Leiss 2000). This is evident in changes in forms of hazards, changes in forms of politics, and a new reflexive modernity. Late modern hazards are seen as more extreme, human generated, and uncontrollable. A politics of wealth, where politics is based on class and centred on competing for wealth and social goods is being replaced by late modern politics, which is about avoiding hazards. According to Beck, risks play an equalising effect because their scope and specificity often cuts across economic class boundaries. In this sense “risk societies are not class societies; their risk positions cannot be understood as class positions, or their conflicts as class conflicts” (Beck 1999). In reflexive modernisation, there is a movement away from expanding resource bases to reforming what we have. Examples now used in politics include the “precautionary principle” and “sustainability.” This will entail a transformation of economic life and a

displacement of traditional roles and identities by new forms of individualism and associated personal risks.

Giddens conceptualises “an environment of risk and chance” (Giddens 1991:109), where we live with dangers that are removed from control of both individuals and larger organisations like the state. The risks Giddens is talking about are low probability, high consequence risks caused by unintended consequences of globalisation and technological innovations. There is an apparent increasing unknowability of today’s emergent risks, where disagreements between experts in science and medicine seem more important than their common ground. The global economic crisis that is currently occurring (2009), is a good example of this.

Risk and uncertainty are intertwined and connected, and are often conflated. In one conception of risk, complete uncertainty, and complete certainty cannot be part of the actuarial, probabilistic conception of risk. In the case of complete certainty there is no risk, there is only certainty of outcome, be it desirable or undesirable. The case of complete uncertainty does not involve probability either, because there is no knowledge to base a risk analysis on. It is in this case that one must base decisions for actions on something other than knowledge and probability. Understanding how decisions are made in the absence of probability analysis is telling of a societies ethic. Where the state of knowledge is between the extreme poles of complete uncertainty (no knowledge about a situation) and certainty (complete knowledge about a situation), risk analysis (and scientific knowledge informing it) will be increasingly applicable. However the underlying issues that can become muddled by probabilistic risk analyses must not be forgotten—what is our ultimate normative criteria for setting goals in the first place; what basis do we have for making our decisions?

Risk and uncertainty are both implicitly and explicitly bound up with crisis, resilience and innovation. Resilience is simply being able to survive the crisis and continue. Innovation often comes out of an interest to control uncertainties and to decrease risks. However, the consequences of applying new methods of thinking and doing are not predictable, thus generating new, uncertain risks and unknown side effects. Furthermore, the way in which the innovation will

spread, diffuse, and be used is not controllable even when risk management techniques are used (Navarra 2005). In market-based farming systems there is also risk associated with being passive and not innovating; there is a constant necessity to change and innovate to remain viable relative to ones neighbours (the technology treadmill).

For both Giddens and Beck, expert knowledge systems are major sources of information and behaviour designed to reduce or minimise risk. However, with a high level of uncertainty inherent in many contemporary “post-normal” technologies, and in this case, diseases (which may be intrinsically post-normal), neither experts nor individuals know the risks involved, making informed decisions almost impossible. Because the risks are incalculable, risks are often assumed to be high (at least initially); extremely precautionary risk avoidance measures become the initial tactic of choice. As Loppacher and Kerr (2004) point out, in the international political arena, these choices may be misappropriated for personal or nationalistic ends rather than sincerely initiated as precautionary practices. The way food that is produced, stored, and distributed can definitely create far-reaching and complex risks.

2.7.2 Profits and Risks in Mainstream Agriculture Discourse

Agriculture produces food which has been characterized as “the intimate commodity” because we ingest it and it passes through us and becomes our bodies. At the same time, modern agriculture operates in a business world, where profits rather than products are the bottom line (Winson 1993). The objective of agricultural enterprises in modern capital-oriented societies is largely focused on the competitive accumulation of capital to ensure financial stability and viability, often eclipsing other ends. Much scientific innovation in agriculture is based on a for-profit problem-solving rationale, (including marketability and patentability). This may result in practices that address individual and common issues and interests in a relatively reductionist and monological fashion (Magdoff et al. 2000). If the purpose of modern agricultural systems is to “feed the world”, it is implied that innovations will create health-giving food and sustainable farming methods that will benefit all. It is a short-sighted logic that provides a hungry world with food that is likely to make people sick, or to use methods that cannot be reflexively adapted for long-term environmental, social, and economic sustainability. Many individuals and enterprises

involved in agriculture today, from farmers to transnational feed and chemical companies, appear to be supporting a system that has indeed adopted a short-term financial view that misses the fundamental elements of successful agriculture: safe and secure food as well as healthy societies.

Two authoritative texts, *Coping with Risk in Agriculture* (Hardaker *et al.*, 2004), and *Beef Management* (Taylor, 1994) are indicative of risk conceptualisation in mainstream agricultural discourses in that both are functionally oriented and based on a profit imperative. *Coping with Risk in Agriculture* is a micro analysis which categorises and elaborates agricultural risks. Business risks and financial risks, as conceptualized by Hardaker *et al.* can be analysed by rational-choice-based theories that assume a rational, profit motivation for farms or firms. Business risks include the risks and uncertainties that a farm or firm faces independently of financing; in other words the aggregate effect of all the uncertainty influencing profitability on the farm or firm. By contrast financial risks result from the method of financing the farm or firm. Financial risks increase as the farm is increasingly “owned” by money lenders. As well, there are financial risks associated with any use of credit, such as changing interest rates, unexpected calling-in of a loan, and the unavailability of increased financing.

In his beef management text, Taylor (1994) employs a rather conventional (and perhaps tautological) definition of “risk management”. He defines this as “managing risks in ways that allow a desired outcome to be achieved”(596). This deceptively simple definition involves two interwoven concepts that rely on norms and assumptions to be understood in any practical application. How the “desired outcome” directs the identification of hazards and assessment of “risks” is key. Framing can limit the ability of farms to identify and manage risks as well as directing change. Taylor is explicitly focusing on desired outcomes that are based on production volume, and profit-based goals and risks such as those outlined by Hardaker *et al.* (2004). However, modern “family farms” are still more than just business enterprises, they are also household/family projects, meaning that it would make sense for family farms to deal with risks and uncertainties differently than systems where household and business enterprise are distinct¹³

13 Weber (1930), among others, also discussed the separation of family and business as a requirement for the spread of capitalism in *The Protestant Ethic and The Rise of Capitalism*.

(Lobao and Meyer 2001). Modern farms are also part of larger communities, intimately tied within the complex network of the modern risk landscape. The way that farms change is linked to larger societal changes, even though farmers will perceive shifts differently because of differences in level of integration, pace of life, sensitivity to risks, as well as potential to benefit from actions and situations (Jaffe and Gertler 2008).

Hardakar's (2004) analysis seems objective and comprehensive. However, by conceptualizing farming as merely a business venture, risks are quantified largely in monetary terms, enabling the farm enterprise to remain solvent or to optimise its risk taking strategies so as not to be too averse to, or accepting of, risk to profit. Taylor's (1994) management text relies singularly on profit, basing good management on increasing production and efficiency in order to increase profit. Risk analysis and management based solely on actuarial, micro-level indicators for personal profit have complex implications, such as the reduction of tangible advantages and disadvantages to commodifiable costs and benefits (in effect, the creation of “externalities”). This narrow analytical frame ignores many risks that directly affect the quality of life and continued existence of rural communities and family farms. Risks that compromise the long-term production of healthy food are also *backgrounded*, including environmental risks such as soil degradation, water pollution, antibiotic-resistant bacteria, loss of natural and location-specific plant and animal species, as well as social risks such as those affecting the cohesiveness and maintenance of communities and families. To address farms as only a business is important from a national policy perspective aimed at increasing the GDP but it becomes increasingly less reasonable as you move to smaller scale, from a provincial, to a community, to an individual farmer's point of view. Basing profit mainly on production volume (as Taylor does), is reasonable from a macro level perspective within the context of capitalist agriculture, but overlooks the individual farmer's short- and long-term welfare, not to mention societal goals. A text that deals with management practices of beef farms in a search for competitive market efficiencies and profits comes out of a particular short-term economic understanding that, while purporting to be ultimately focused on feeding the world, misses many of the common personal and social benefits that stem from agriculture.

The approaches to risk analysis promoted by Hardaker and Taylor are typical of dominant discourses that prescribe particular managerial approaches to contemporary agricultural commodity production. The conventional business ideology of our age appears to be perpetuation of the prevailing economic system by managing farms within narrowly conceived (measurable) business and economic parameters. This approach is aimed at maintaining the *status quo* for those who stand to benefit from a particular path of “progress.” This type of production logic is abstract and disembodied from many practical concerns. The failure of studies based on these types of analyses to explain or predict farmer behaviour, or to allow for creative innovation, suggests a fundamental flaw. Such analyses, descriptions and prescriptions are based more on the abstract conceptions of current hegemonic ideologies than on actual human intentions and activities which are grounded and embedded in specific geographical and historical contexts. There is more at work—and at stake—than simple models take into account.

Conceptualizations of risk fundamentally shape the way modern farmers make decisions in their operations, shape the structures of our food and farming systems, and inform perceptions of crises and reactions to them. Practices informed by risk and resilience are important indicators of the underlying causes of Canada's BSE crisis, and the way farmers adapt and engage the crisis. Although particular crises are unique, and will highlight certain contradictory aspects of the agriculture system, they also share common elements. Examining how resilient farms work within larger structures and systems, adapting themselves and engaging policies within this new global risk environment ought to provide valuable information for understanding, preparing for and dealing with future crises.

2.8 BSE, TSEs and vCJD

Bovine Spongiform Encephalopathy (BSE), as the name suggests, is a disease affecting ruminant mammals of the genus *Bos*, such as oxen, cow, or buffalo. It is not limited to the bovine family (*bovidae*), it also naturally infects *Felidae*, including the domestic cat, cheetah, puma, ocelot, and tiger. Under controlled laboratory experiments, it has been possible to transmit BSE to cattle, pigs, sheep, goats, mice, mink, marmosets, and macaque monkeys (OIE 2007).

An outstanding feature of BSE, and an integral part of the resulting crisis, has been the mystery surrounding the biological mechanisms involved with transmission and infection. Scientific inquiries have not yet provided a clear understanding of how this disease functions. The incomplete knowledge base, however, is no excuse for inaction; there is much epidemiological evidence that continues to be collected and applied in controlling the disease.

BSE is part of a larger family of diseases, Transmissible Spongiform Encephalopathies (TSEs) that are not currently understood well, but are known to infect a wide variety of animals, including humans. One of the most well-known TSEs is scrapie in sheep, which has been present in Europe at least since the 18th century. There are many theories about how TSEs operate, but the most widely accepted at this time is that a “prion” is to blame. Prions are small, naked protein chains, much smaller and simpler than a virus. They are similar to normal proteins in the brain, but their tertiary structure is different. It is theorised that the altered structure somehow creates malformed cells when prions are present in the brain, perhaps through a type of catalytic chain reaction, or through incorporation into the tissue itself.

It is accepted that BSE causes a progressive degeneration of an infected animal's nervous system. Before death, the main clinical signs are neurological. Animals experience aggression, abnormal posture, and in severely degenerate cases, difficulty standing or walking. As is the case in many diseases, there is also a loss of body weight and condition. Animals are not known to recover, all eventually die.

When BSE was first discovered the method of transmission was unknown. It is now clear that BSE can be transmitted through dietary exposure to feedstuffs contaminated by meat and bone meal (MBM) made from BSE-infected animals (usually in commercially prepared feeds and feed supplements). The infective agent of BSE appears to reside in tissues of the central nervous system (including the eye) of naturally occurring clinically affected cases. BSE is not considered contagious. Although there is no evidence of horizontal transmission of BSE between cattle, there is some evidence that BSE can be transmitted to calves born of cows that have the disease.

The incubation period is thought to be between two to eight years. This is one of the rationales behind only testing animals over two years of age, and allowing cross-border trade in animals under 24 months. However, this number appears to be tentative—Japan has found BSE in cattle as young as 18 months and other sources have quoted the timing of the ban on infected feed as the reason for the two-year rationale.

2.9 The Rise of BSE

BSE was first recognized in Great Britain cattle in November, 1986. By 1989 Britain banned human consumption of cattle offal because of growing concerns that vCJD comes from infected beef. In 1996 the speculative link between BSE and vCJD was confirmed, creating a scandal which has scarred the institutional legitimacy of most scientists and politicians in Great Britain. As of 2006, there were over 188,962 confirmed cases of BSE in over 23 countries, and stricter testing has recently uncovered even more cases (OIE 2007).

In 1986 BSE 'invaded' Britain; in 1989 it was found in Ireland; two years later, in 1990, it was found in Portugal and Switzerland. It was discovered in France in 1991, and Denmark and Germany in 1992. BSE was imported to Canada from Britain in 1993. It continued to move in Europe; in 1994 it was in Italy, 1997 in Belgium, Luxembourg and the Netherlands, 1998 in Lichtenstein, and 2000 in Spain. Austria, Finland, Slovenia, Slovakia, the Czech Republic, Japan and Greece reported the disease in 2001, Israel and Poland in 2002 (OIE 2005). Movement off continent was relatively limited; it was carried to Canada in 1993, Japan in 2001, and Israel in 2002. BSE has moved across Europe and to (at least) these three locations around the world in just under 20 years to date. Recently, numbers of reported incidents are tapering off in most countries, though in Canada and the US, the numbers appear to be increasing (although it is unclear whether this is due to increased testing or an increase in the actual number of positive cases).

Although the time span is more compressed than historical livestock diseases (such as the 65 years of pleuropneumonia discussed in section 2.5.2), the extent of infections outside of the UK is of a much lesser magnitude than inside; the incidence diagnosed inside the UK is over 184,000,

compared to just over 5000 in all other countries combined (OIE 2007). However, risk management techniques involved the slaughtering of over “1.7 million cows, heifers, steers, and bulls over the age of thirty months” (Boyens 1999). Although BSE is ultimately fatal, it does not cause great mortality or morbidity in young cattle stocks, and presently¹⁴ cannot be diagnosed without a post-mortem, making it more difficult to generate precise numbers.

The spread of BSE also cripples cattle industries, not because of the extent of infection and resulting mortality, but because of public perceptions, industry structures, quarantine and other regulatory measures imposed by domestic governments, and trade barriers imposed by international trading partners. The greatest risk is the discovery of the disease in a previously BSE-free country, affecting access to export markets as well as local consumption. The way we perceive the uncertainty and risk associated with the disease, and the way governments manage the disease may reflect what Giddens and Beck try to elucidate in speaking of 'an environment of risk and chance' and 'risk society' specifically. Generally, if BSE is found in a nation's herds, exports of live cattle will be frozen and local consumption will drop. Is this different from the 1870s? After the Richmond Bill, Britain put live cattle embargoes on countries that had specific diseases. Canada's live cattle exports to Britain were halted for 30 years, during which time we built up trade with the US, which shared a chronic pleuropneumonia. It seems the bilateral agreements were more forgiving than the multilateral agreements of today. Perhaps the scale of modern farms, the degree of specialisation, and the amount of debt, makes them more at risk in the event of a disease outbreak, and policies reflect these risks. Government control of cattle movement might, however, make them riskier ventures for farmers. Perhaps public apprehensions are affecting policy makers. Perhaps we are no further ahead today than we were in 1870, where governments protected their industries under the guise of food safety. One of the structural reasons that the 1870s trade quarantine affected Canada so greatly was because we have not developed our industry fully. We were shipping live cattle, which was obviously risky, when Americans were trying to remain in the British market by reducing their exposure to quarantine trade barriers by shipping refrigerated meat. We now ship live cattle to the US (just as we did in

¹⁴ At the time of writing this was the case. There are many ongoing attempts by pharmaceutical companies to develop live animal tests as well as vaccines.

the 1800s when refrigeration technology was in its infancy), relying on US processing/packing plants to butcher our animals. From a risk analysis point of view, we are courting disaster. It makes little sense for Canada's industry to rely heavily upon another country for vital links in our supply chain, but this is exactly what we have continued to do.

2.10 BSE, vCJD and The Risk Society

BSE is not a 'hot' disease like anthrax that kills with certainty within a few hours or days. BSE affects animals in a slow and uncertain way. BSE has been linked to vCJD (variant Creutzfeldt Jacobs Disease), which can cripple our minds, killing us within one to ten years of infection. As of December 1, 2003, a total of 153 cases of vCJD had been reported in the world: 143 from the United Kingdom, six from France, and one each from Canada, Ireland, Italy, and the United States (note: the Canadian, Irish, and U.S. cases were reported in persons who resided in the United Kingdom during a key exposure period of the U.K. population to the BSE agent) (CDC 2005).

At the time of writing, there was no way for the disease to be diagnosed before death, and no cure. This adds a level of uncertainty and risk to people consuming beef, past and present. It moves public health and consumers into centre stage in risk management procedures. As well, it implicates modern farming techniques, which utilise pooled bovine protein in bovine diets, so sick animals are able to spread disease throughout an industry through feed systems. Farmers raising their cattle in the most modern and accepted methods possible will have no way to avoid these risks. Apparently, BSE has been a watershed event for European public risk perception regarding the ability of government-led science to manage the far-reaching food system: Canada's Michele Brill-Edwards argues that the mad cow-CJD disaster was an inevitable result of the deregulation of the feed system that had taken place in the 1970s under Margaret Thatcher's government. British consumers unfortunately learned the hard way that they could not trust the assurances of their regulators and their politicians, because as Beck holds, they are part of a global “experiment”, the result of which remains unknown.

In the process of confronting their fundamental fears, British consumers began to assume greater

responsibility for the safety of their food. The mad cow scare had taught them that the principle of buyer beware applied even to food (Boyens 1999: 231). Emergent risks are part of a growing awareness of the serious food safety and public health issues that can come with new technologies. Hazards include microbial, chemical, and physical contamination of products, which cannot be identified visually, and cannot be 'made safe' through cooking. There is no way to know the level of food-borne health risks (Hardaker *et al.* 2004, Redman 2007). There is also a growing unease about food safety in response to a heightened awareness of terrorism (Rascoe and Bledsoe 2005). Experts often reassure that food has never been as safe as it is now, but this may ring hollow to many consumers. Food may be safer, but risks of widespread problems have increased. Mad cow disease had impacts on risk perception around the world. Growing awareness of global food issues such as reports of young people developing fatal vCJD, and the deaths of farmers in Asia because of Asian flu strains, (which are now a problem in Canada), have created a critical public, although not in quite the same way as in Britain and Europe. The handling of BSE in Britain, cited as a 'textbook example' of Beck's risk theory (Oosterveer 2002), may have destroyed public perception of the industry in Britain but it seems to have had a different effect in Canada. Although new pathogens, unknown changes in foods and food systems, as well as increased trade in food products creates a risk perception that is global in scope, perhaps risks are also dependent on local understandings and contexts for regulation and scientific testing.

Canadian consumer behaviour has been somewhat contradictory to that of Europe's more 'sceptical consumer'. In almost all countries except Canada, domestic consumption of beef dropped drastically following the discovery of cattle infected with BSE. Following the identification of two cows with BSE in 2003, and subsequent border disputes, Canadian beef consumption actually increased. Similar increases have been seen in the United States, after a first initial drop in consumption, although no cases of BSE from non-imported cattle had been identified at that time. Is it that Canadian consumers are willing to share the farmers' burden of market loss by risking long-term health by eating beef? Or perhaps Canadian consumers are more sceptical of the degree to which one or two cases of BSE pose a significant health risk. It may also be a function of political and industry lobbying combined with media readiness to downplay the risks of one or two cases.

Miller (1999) takes a critical view of the theories of Giddens and Beck, pointing out that social production of risk has been and continues to be through definitional and material advancements in the context of already existing conditions. In other words, what has become important in perceiving risk is the way risks are framed and defined by media and government in communications, as policy issues, and how they are dealt with. Ruth and Eubanks (2004) found that unlike US media which utilised a single author and focused on health issues surrounding BSE, Canadian media utilised many authors who focused mainly on the industry crisis and ensuing economic crisis in a call to support industry. When health problems were brought up, they were done so in a reassuring, balanced manner. Canada's media appears to be focused on social and economic interconnectedness rather than playing on uncertainty and personal health risks. This neither supports nor detracts from the risk society theories, but moves its focus from the response of the public to the manipulation of the public by the media, and the media by industry.

Although our consumers are eating more domestic beef, and we have contested the import bans on Canadian beef, our national policy is to put an immediate freeze on live cattle imports on any country that has a known incidence of BSE (Loppacher and Kerr 2004). It might look as if Canadian governmental policy is less pragmatic than Canadian consumers are. How can we expect others to employ contextualised, reflexive handling of risk and uncertainty when Canadian international policy is framed around rigid, reciprocal barriers? It seems nations are not really ready to share risk through co-operative and multi-lateral international institutions as Beck theorised their function. What we have witnessed seems to run in a similar vein to historic bilateral lines of thinking, where nations asserted their border powers in order to protect local industry and maintain commercial and trade interests. However, in multilateral institutions, commercial and trade interests may be better preserved by exercising more contextual conceptualizations of risks.

Chapter 3: Research Design and Methodology

3.1 Introduction

Although frequently presented as separate, theory, methodology, and methods are tightly interwoven in the minds of researchers as well as in scientific communities, directing possible investigations and results (Sayer 1992). Because different methodologies address different aspects of a phenomenon, the questions answered, and therefore the results, are also different (Jacobs and Dopkeen 1990). Like the proverbial blind men describing an elephant with each man examining a different part, people using different theoretical approaches (and having different political understandings) represent modern agriculture in different ways, from the saviour of humanity to the destroyer of the planet. But who asks the elephant about what it has to say about the whole affair? Relatively few scientific excursions directly engage the knowledge and opinions of farmers. Research agendas, epistemologies, and methods have varied ethical, political and scientific bases and consequences (Smith 1991, McLaughlin 2000), and therefore need some critical examination in their own right. In this section I discuss my choice of methodology, the details of my method and fieldwork, and introduce the catalyst questions used in the interviews.

3.2 Choice of Methodology

The central practical and theoretical matters addressed by this research are how farmers' can and do respond to the BSE crisis, the reasons why, and how these intentions and actions can help to explain some central paradoxes of modern agriculture. These broad investigations are pursued through interviews with Saskatchewan farmers about their understandings of, and responses to, the BSE crisis. My choice of a qualitative ethnographic interview approach is based on practical and theoretical reasoning with particular philosophical underpinnings. Practically, this research project has been an opportunity for me to focus and deepen my understanding of the ways people and institutions interact. It also has been a chance to develop sociological research skills and

experience how exploratory qualitative methodologies can add depth and nuance to knowledge gained through more conventional quantitative approaches. Qualitative ethnographic interviews are a key tool to facilitate in-depth explorations of what farmers themselves think and say about current agricultural situations. This offers the possibility of in-depth understandings of the problems faced by farmers, the way that, through various means, producers attempt to manage them. Specifically, the ways farmers have worked to alleviate negative effects, and to encourage positive effects of the BSE crisis through attempting to adapt farming practices and problematic structures of agricultural systems. Producers do this with one eye on addressing present concerns and another on warding off future crises. This approach has the possibility of refining current agricultural risk understandings that are based on research techniques which avoid directly examining farmer decision-making. Finally, exploring knowledge and understanding of the BSE crisis “from below,” challenges me to develop my own inter-subjective research skills while “testing out” qualitative fieldwork and analysis techniques.

3.3 Primary, Qualitative Data Analysis

Even though farmers' perspectives on the handling of the BSE crisis could be studied through secondary data analysis, including academic literature, historical census data, previously collected survey data, as well as government and media reports, the data is limited and requires many assumptions in order to be utilized as evidence. For this relatively unexplored topic, I prefer the directness of primary research. Utilising secondary data for an analysis of crisis and emergency may be temporally insensitive, and suffer from an overemphasis on theory that could be subject to biases inherent in the original research agenda and data sets, such as those created by “ordering-framework” or “hypothesis/explanation” theoretical frameworks¹⁵ (Sayer 1992). As well, I am attempting to reduce theory-driven biases such as those inherent in actuarial and econometric approaches to risk research, namely that researchers have constrained their perceptive abilities, having already purposefully created research frameworks, identified variables and phrased research and survey questions based on prior normative theory, specific

¹⁵ Sayer (1992:50) offers three broad categories of theory: theory as an ordering-framework (allowing observational events to be used for predicting and explaining events), theory as conceptualization (to prescribe a particular way of presenting something), and theory as a 'hypothesis' or 'explanation'. This research builds on all three types. It is concerned with observations and understandings to explain a phenomenon, and how our conceptualizations affect it.

interests, popular positions in literature, as well as ease of statistical analyses. In the development of my understanding, I too rely on these methods, but, as exploratory methods (such as used in grounded theory), I have chosen methods consistent with a more fully inductive approach. A focus on the perspectives of farmers supports a “theory as conceptualization” (Sayer 1992) approach, including multi-faceted conceptions of truth, as mentioned above.

Quantitative research is useful for theory testing and developing new theories based around secondary data and/or known indicators, which describe and model observable phenomenon, but cannot easily address subjectivity and meaning as created and interpreted by the people being studied. As well, more rigid top-down deductive reasoning styles cannot easily shift course to address relevant questions and issues that arise from respondents during the course of data collection (Jacobs and Dopkeen 1990). Exploratory research requires dynamic, adaptive frameworks and is thus better addressed by qualitative methods. The ambivalent results of quantitative risk analyses for actuarial and econometric purposes that I mentioned previously, as well as a lack of qualitative risk studies (Jacobs and Dopkeen 1990), suggest that exploration is warranted. It is my hope that the qualitative methodologies utilized in this study can offer insights and understandings of agricultural paradoxes by bringing forward understudied phenomenon, such as the culture of farming, perceptions of risk, and meaning given to events as interpreted by participants themselves.

3.4 The Ethnographic Method

Due to time constraints and other practical limitations, I have chosen ethnography through interviewing, as it can be done more expediently than traditional ethnographies, and the stories of multiple recipients rather than one or two case studies can easily lead into further refining questions and hypothesis checking in more deductive studies. I have based my interviews on Seidman’s (1997) interviewing method, which is considered both valid and reliable when systematically used to explore perceptions, meanings, and understandings. Seidman's approach is essentially a series of interviews focusing first on life-history, ideals and realities; next on the description of present experiences, and coping mechanisms; and, finally, reflecting on meaning. Analytically, I plan to approach data using a critical ethnographic approach, with a modified

institutional ethnographic form, as pioneered by Dorothy Smith (1987). This allows farmers to be heard in the BSE issue, expressing their perspectives based on their position in the industry and experiences living and working through the current BSE crisis.

Although I have outlined a proposed method for investigating what is happening on farms, and have analysed theories that are applicable to my interest in risk, crisis, and resilience in the literature review, my questions on these topics are tentative only, as I would like to keep the core of my research method as inductive as possible. As mentioned earlier, I am attempting to avoid reproducing research which has particular prescriptions and is limited by deductive approaches which can easily lead to conclusions that are invalid if research is in a new area. Naturally, I would like to produce knowledge that is informative and useful. An interesting research question facilitates this production. Theory helps to guide the choice of information that I will bring into the discussions, but, in this inductive project, the strong qualitative methodology and ethnographic methods are potentially powerful tools for unearthing lesser known local knowledge that may help to re-examine agricultural discourse from producers' perspectives.

3.5 Verification/Validity and Reliability

Validity and reliability are key components of scientific knowledge production. According to Sayer (1992:Chapter 7), it is difficult to have clear, decisive tests in social sciences. Orthodox views on verification and falsification are misconceived and particularly inappropriate for qualitative social science. Because of different conceptions of truth, differences between real, material objects, ideas and practice, as well as the inability to experiment, it becomes unreasonable to expect verifications and falsifications to be absolutely certain and conclusive. Before addressing verification, validity and reliability, it is important to remember the purpose of the research. Is it concerned with: Prediction? Practice? Causal explanation? Interpretive understanding? Social self-knowledge? Emancipation?

3.5.1 Reliability

Issues of reliability and validity, hallmarks of the scientific method, can be engaged by qualitative studies, although some post-modernists may see them as irrelevant in our world of subjectivities, where true representation is impossible. Others point to the assumptions of a world that is constantly in flux; that there is no social stability that can be measured reliably. However, as humans we seem to make sense of our changing world quite reasonably in day to day activities, so it would seem that these theoretical extremes are somewhat lacking in applicability for the social realm. The impossibility of representation and the instability of the social aside, many researchers do wish to be scientifically credible, producing something more than a narrative; they want to produce relatively reliable, valid data that represents some social phenomena from a more subjective standpoint.

Reliability of a method, according to Silverman (2006) “refers to the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions.” This requires systematizing the practices of the researcher: “For reliability to be calculated, it is incumbent for the scientific investigator to document his or her procedure.” For data collection, the method Silverman uses centres around “low-inference descriptors”—basically trying to be as true to the subject as possible when recording observations in order to reduce interpretive bias in data collection. This makes textual data more reliable than unrecorded observations. After acquiring textual data, one needs to have reliable categories—“categories that can be used in a standardized way, so that any researcher would categorize in the same way.” In studies involving narratives, open interviews, oral histories, and ethnographies, it seems appropriate to be sure to collect data as accurately as possible. However, as always, the idea of where a researcher focuses is an important issue that is not addressed here.

3.5.2 Validity

There is a broader question on how valid interview data is—the core of the subjectivity/objectivity debate. Do interview answers really represent a subject’s actual practice, how much does interviewee-interviewer interaction affect responses, and is information gathered

generalisable to greater social realities? Silverman uses “truth: the extent to which an account accurately represents the social phenomenon to which it refers” as his definition of validity. This version of truth is a correspondence theory of truth, where truth is supposed to be representing some reality. Postmodernists would reject this conception categorically. All representations are false, so there can be no objective truth in false representations. However, Silverman tackles the problem, trying to open up the black box of the researcher's selective interpretations. “Whether the data is quantitative or qualitative, the issue of warrant for their inferences must be confronted” (2006). Silverman addresses two main forms of validation which he dismisses: triangulation and respondent validation. Both of these are used by many subjective research programs. I believe these two forms of validation need not be dismissed outright, but may be appropriate for specific research contexts. I use respondent validation in this research, rephrasing and checking to see if I have understood an interviewee's meaning. I also subscribe to his original point, that falsifiability is an important aspect of validity of any research, and that it is especially important in subjective research methods, to be sure that we are not just reproducing what we believe, and that other possibilities have been explored. Researchers should constantly be on the alert for data that contradicts our assumptions on how a particular situation unfolds in order to critically engage with personally and socially constructed ideologies.

Ethnographers, who focus on representing the realities of the subjects themselves in comparison with his or her own, give us an interesting idea of reality and validity. Truth in this sense is similar to Habermas' pragmatic truth that hinges on mutual understanding. Useful notes are made by Thomas in 'Doing Critical Ethnography' (1993). Thomas outlines a few traps and gives some hints for the qualitative researcher, which are potentially useful for keeping ourselves reflexive and unbiased in gathering facts rather than just reproducing our own opinions. We should not see only what serves our purpose—which would make research data biased and invalid. We must avoid imposing our own meaning on data, making it more our story than the story of those people we are addressing. He emphasises that we should avoid conceptual clichés, that can limit our ability to see alternative realities. We should try not to place passion before science—our overall aims may be political, such as in feminist, food sovereignty or social justice research, but data collected to back that up should not be biased by our own mindsets. We need to be open to new

phenomenon. We should be conservative, not making claims beyond demonstrable evidence, keeping our work rational, and avoiding overgeneralising. We should remember to appreciate difference and diversity, and never forget that as researchers we have a standpoint, and need to continually discover reflexively what that standpoint is as we come to a greater understanding of the world.

It is in this spirit of knowing and ways of knowing that I see the importance of different ways of coming to understanding, such as through qualitative and quantitative methodologies, using the strengths of each where possible. When dealing with qualitative and quantitative, subjective and objective methods reflexively, I ask “what type of knowledge will be gained from this method?” or “how does this method help me and others to understand the world?” “Will knowledge gained take into account specific other ways of knowing and contestable information, or will it create knowledge that is systematically distorted, favouring one position over another?” And then I must wonder about political aspects of certain methodologies: “what are the positions that can be represented, and why are people or groups representing them?” Not all knowledges can be brought forward with every research trial or method. However, it would be important for the researcher to understand generally contested knowledges in areas of study.

In my view, progressive science is engaged in study that does not systematically discount other ways of knowing with reductionist polemics, but builds on core shared beliefs to come to progressively nuanced ways of knowing and a more comprehensive, diverse knowledge. In this sense validity and reliability are not just aspects of specific research papers, but are part of an overall research program, building a diverse corpus of knowledge. Therefore, like text, specific experiments and studies can not 'stand alone' expressing the information of the data, but are contextually embedded efforts, where a researchers ideas and interests intermingle with those of the reader in different times and places and ways of knowing, causing unforeseeable intertextual relations and knowledge creation. It my hope that the work that has gone into this research will add to this knowledge and our understandings of the farming world.

3.6 Developing an Interview Instrument

The semi-structured interviews used are based on catalyst questions developed by the International Resilience Project (IRP). I first encountered the questions in Michael Unger’s presentation at the University of Saskatchewan: Research, Resilience, and Building Capacity: Pathways to Resilience among At-Risk Children Globally. In order to appreciate and contextualize quantitative measures, the IRP developed a core set of “catalyst” questions to be used cross-culturally (Ungar 2005). I find the questions readily adaptable to this project (and arguably other studies involving resilience), perhaps because they were developed iteratively by researchers located across 14 different cultures and contexts. The IRP questions address knowledge and local practices for success, what it is to be resilient in crisis situations, the meaning of crisis, local challenges, meanings of success, and practices for success. Finally, they elicit narrative accounts of resilient community members and personal resilience.

The IRP instrument, along with the two related instruments used in this study are displayed in Table 3.0 below. Using such an instrument may seem questionable to rigorous institutional ethnographers who might spend more time “in the field” with their research subjects, and would not necessarily be conducting interviews. However, I believe the “catalyst” nature of the questions is congruent with the goals of institutional ethnography; it positions the farmers as the subject, and allows their understandings and knowledge to come forward.

Table 3.0 Comparison of the original IRP catalyst questions for youth, adapted resilience catalyst questions for farmers, and catalyst questions focusing on BSE, knowledge, and risk.

IRP Catalyst Questions	Adapted Resilience Catalyst Questions	Catalyst Questions Focusing on BSE, Knowledge, and Risk
What would I need to know to grow up well here?	What would I need to know to live and farm well here?	What are the main challenges that you, your family, and your community have faced during the BSE crisis?
How do you describe people who grew up well here despite the many problems that they face?	How do you describe people who live and farm well here despite the many problems they face?	How have you dealt with these challenges as an individual, a family, and as a community?

What does it mean to you, to your family, and to your community when bad things happen?	What does it mean to you, to your family, and to your community, when crisis occur?	Where do you get your information regarding BSE and how to deal the BSE threat?"
What kinds of thing are most challenging for you growing up here?	What kinds of things are most challenging for you living and farming here?	What role do you think government should have in worldwide agricultural crises such as the BSE crisis?"
What do you do when you face difficulties in your life?	What do you do when you face difficulties in your life and business of farming?	Do you feel governments are doing enough for farmers?
What does being healthy mean to you and others in your family and community?	What does being successful mean to you and others in your family and community?	As a Saskatchewan farmer, what is your perspective on policy implementation involving the BSE crisis?"
What do you do, and others you know do, to keep healthy – mentally, physically, emotionally, and spiritually?	What do you do, and others you know do, to be successful at life and farming, materially, as well as mentally, physically, emotionally, and spiritually?	Does the 'farmers' perspective' see things that do not seem to be considered by policy-makers?
Can you share with me a story about another child who grew up well in this community despite facing many challenges?	Can you tell me a story about another farmer or farm family that live and farm well in this community despite facing many challenges?	If you could add input or give advice towards creating policy that might better address your situation, or your community's situation, what would it be?
Can you share a story about how you have managed to overcome challenges you face personally, in your family, or outside your home in your community?	Can you share a story about how you have overcome challenges you face personally, in your family, or outside your home in your community?	With your experience and knowledge from surviving the BSE crisis, if you could give advice to a farmer from another country which was just entering a similar BSE crisis, what would it be?

3.7 Information Collection in the Field

The proposed research design received ethics approval from the University of Saskatchewan Ethics Board in early 2006, and interviews with Saskatchewan beef and dairy farmers began in October 2006 and continued on until 2008 (see Appendix A for a list of interview participants). Most participants were met on one occasion for two semi-structured interviews that lasted from an hour to four hours each. Interviews were separated into two parts, based on understandings of

the phenomenologically-based three-interview method outlined by Seidman (1991). Originally it was believed that two separate sessions, weeks or months apart, would allow a rapport to be created, and time for reflection by both interviewer and interviewees, but respondent time constraints and preferences resulted in most of the interviews being carried out in one meeting.

Because the interviews were based on questions of resiliency within an exploratory institutional ethnographic framework, emphasis was placed on farmers' understandings within institutional and social contexts. Questions were open-ended and participants could respond as they wished. The participants' farming history, particularly in the areas of resiliency, risk-sharing, and knowledge flows were documented. The focus was on understandings of the everyday challenges farmers face as well as challenges unique to the BSE crises. The first section of the interview addressed questions of history, farm crisis, and resiliency, locating farmers as resilient members of rural communities undergoing rural change. The second section of the interview focused more specifically on the BSE crisis, addressing areas of risk-sharing and knowledge acquisition, interpretation, and exchange surrounding the crisis. It investigated the ways that the BSE crisis has affected beef and dairy farmers, and the ways that farmers have worked to alleviate negative effects (and encourage positive effects), both in adapting their individual farming practices and adapting the structures of agricultural systems to address present matters and ward off future crises.

Some questions were initially included to gather data on general household demographics and farm characteristics, using questions similar to the Canadian Census of Agriculture and the PECOS (1988) survey. The intended purpose was to allow the possibility of comparison, and to provide an avenue for locating participants within a larger population. After using this procedure to collect data in initial interviews, I found that the content and the reductionist nature of questions after a long, very descriptive interview, felt rather intrusive, subordinating the farmer's complex understandings and knowledge (that were just discussed) within simplified institutional categories. As a result, survey questions were used with more discretion or direction on the part of the interviewer and were no longer applicable as a survey for the intended direct comparison purposes.

3.8 Participants

Participants were recruited through a directed sampling of 15 cow/calf farmers, mixed farmers, and dairy farmers located in five roughly defined geographic regions of the province; the northwest, southwest, northeast, southeast, and central areas. To get names of producers from each region and to gain access to farms, I explained the project and asked for producer names and contact information from organizations and people that I knew worked with beef and dairy farmers across the province, specifically the NFU and experienced Animal Science professors at the U of S (both in Dairy and Beef). When interviewing in an area, I also asked the individuals I interviewed if there were other producers in the area that had different types of farms or who could give me a different perspective on the events that they had brought up. This combination of sampling methods proved to be fairly good at capturing a diverse group of producers, but if I were to do it again, I would be explicit about stratifying the sample based on producer organizations, which appear to correlate with the splits in ideologies presented in the findings below. Sampling in different geographical regions was an attempt to protect the research from unintentionally representing a regional subculture, market niche, or environmental zone, and has the advantage of being more open to capturing diverse Saskatchewan management styles and farming cultures. Including cow-calf farms and dairy farms explicitly compares farmers operating within supply-managed and open-market systems. These industries rely on the sale of beef animals to a different degree, but because markets are a central aspect of farm economic risk and perhaps farming culture, comparing these two groups has the potential to capture the effects of different marketing systems on farmer understandings and risk perceptions.

As with any limited endeavour, there are trade-offs between ideal and practical levels of depth and breadth. In order to keep the project manageable without compromising the main goal of exploring beef farmer beliefs and actions, on-farm visits were initially planned for between 5 and 20 cases. Interviews were conducted with 15 farmers (see Appendix A for a brief description of the regions and farms visited). Although the main data gathering method used in this study was interviews with farmers, there were also supporting interviews and visits with representatives from industry, academia and government. These supplemental subjects were contacted in various

ways from snowball sampling methods to government phone lists. Supporting interviews were not used directly in this analysis, but they did enable me to better understand the complex context of the BSE crisis.

Chapter 4: Crisis and Resilience on Saskatchewan Farms

4.1 Introduction

Before beginning an exploration into how BSE has been addressed by family farmers, this preliminary research describes the farming context—what it is like to live and work on farms today. Through first exploring this historical context the farmer reactions to BSE will be easier to understand in the next chapters. This section lays out an inductive exploration of farmer understandings and rationalities. I summarize the first part of on-farm interviews that were carried out from 2006-2008 with 15 farm households. The broad, open-ended questions which focus on farmer interests, success, as well as the business and life of contemporary farming unveil a rich mosaic of life based on producer experiences, adding qualitative depth and breadth to current sociological understandings of farmers and farms in Saskatchewan.

There can be no doubt that the events of recent days have left all but a few with a crisis mentality. All but one¹⁶ of those interviewed believed that Saskatchewan farmers were operating in a crisis situation for some time. A typical description of the farm crisis is offered by a beef farmer:

Most definitely there is a farming crisis. People are leaving. There are three empty houses within three miles. Three in the last two years, farming is no longer viable. Am I going to have anything left to retire with? People have started to react by asking themselves, “Why bother?” During the farming crises, the infrastructure of our communities has fallen apart. There are few people. The church isn't even alive any more. There is really not a lot of support. You are on your own. Only thing we have support for is the federal programs for retraining. (Producer 1¹⁷)

16 The producer who did not think we were in a generalized farm crisis right now, felt it would come in the future because of fewer youths farming—then there would be a very serious agriculture and food crisis.

17 Please see Appendix A for a list of producers who were interviewed.

From accounts such as this, it is clear that farmers' communities and their livelihoods have been changing dramatically, leaving their life work and future uncertain. There is also a general sense of government indifference towards their predicament. This section probes the meaning of success in order to unpack this general understanding of crisis into particular problems and challenges farmers have had in reaching life and business goals. Based on farmers' stories and responses to catalyst questions, patterns and themes emerged. These provided context for better understanding farming and farmers, as well as their reactions and actions during the BSE crisis, which are further explored in the following chapters.

4.2 Farmer Interests: Meaning of Success and Reality.

During the interviews it quite quickly became apparent that in a broad sense, livestock farmers see themselves as commodity producers, and entrepreneurs, in competition for resources and markets vertically and horizontally. As is normal for entrepreneurs, farming is definitely viewed as a business, albeit one that is embedded in the vagaries of the Saskatchewan, Canadian, and global agricultural political-economy. However, the structure of the family farm and rural communities adds particular social dimensions to the meaning of success on the family farm. This makes family farmers rather unique as entrepreneurs. Most farmers' ideas of success tended to explicitly combine contradictory realities at individual, family, community, business, and industry levels. It may be that family farms are unique historically rooted social affairs, part of the rural social fabric that gives particular meaning to family and community relations and ideals.

Farmers' responses reveal particular interests, values, and ethics in their particular context. Producers are individuals located within families and communities. Their particular interests, goals and ideas about success reflect personal, familial, and community elements as well as the broad steering forces in society which pattern individual practices, focus vision and shape possibilities. These more complex rationalities are brought forward in the following descriptions and analysis. Such nuance may uncover reasons why in past studies, rationalities based on economic simplifications have not worked well to predict farmer behaviour.

In order to understand the successes of farms, I have categorized farmers' responses concerning farming success into two overarching themes—success in business and success in rural life. Subthemes within business success include Economic Viability and Autonomy. Within rural life, the subthemes are Family and Community. These are all part of the changing lifestyles of the family farm household.

4.3 The Farm as a Business: Success in Terms of Economic Viability and Autonomy

4.3.1 Economically Viable

Generally respondents expected farming to sustain their economic well-being now and in future. Monetarily, producers wanted to be able to pay off their debts and to improve on their farms for themselves, and their children (assuming the children would want it).

All the producers I spoke with viewed a successful farm as one that can support the needs of a viable business and a family working it without requiring off-farm work. Producers point out that farming ought to be a respectable, viable occupation in its own right. As one beef farmer stated:

Well as far as I'm concerned a farm should have to support itself, you shouldn't have to have any off-farm income. My wife has worked off-farm. I worked off-farm for the first 5 years we were farming, and she's worked off farming ever since. We shouldn't have to do that. We should be able to create enough wealth that we can feed ourselves and if we could, there would be more young people staying on the farm. And the way it is right now, it is just terrible what is happening.” (Producer 3)

This farmer is describing his basic criteria for farm success, as well as difficulties in achieving these measures of success in the current agricultural system. Similar versions of this story were repeatedly brought up in interviews; people want a self-sustaining farm that can support a family. As in the above situation, this basic ideal was impossible in most of the cow-calf operations that I visited. Many farmers are not able to sustain their business comfortably, let alone improve their operations. They feel they have been living from year to year, unable to get ahead:

What is most challenging? Just trying to pay the bills. This is a big change from the past. We used to have a lot more time to think about things, to try to find out

how to make things better. Now it is based on the bottom line. I am farming from year to year to year. I'd be finished if it didn't rain one year. People in their late 70s and early 80s can't quit because they can't find somebody to buy their land. That isn't right. This past year [2006] there is more land than ever left open. (Beef Farmer 1)

Farmers attribute part of this difficulty in getting ahead to being caught in a cost-price squeeze, in a multinational-corporation-controlled international agriculture market where they buy inputs from multinationals and compete with farmers from other countries for the chance to sell their product to other multinationals. They are left with thin margins. But it is more than that, farmers also repeatedly pointed to greater shifts in society where food is worth less, and other “necessities” of modern life are more expensive:

It is more than just crop prices, machinery and input costs. The truck I use now, I bought back in 1973 for \$3500. Then I could walk up and buy it with cash. Now a comparable truck is \$50,000. I need to work a year to buy this truck. Fuel is another huge issue. I used to spend \$5000 a year. Now, it is \$1000 per day when I am in full harvesting. Well, maybe it would be better to look at per acre costs. I use about \$12 per acre now on fuel. And back then, maybe \$2.50 to \$3 per acre. (Producer 1)

Dairy appears to be a somewhat different story—most could manage to support a family without outside income. A mixed dairy and beef producer, when discussing success while operating under the stability of a supply-managed market notes:

If I didn't have dairy I wouldn't be here... big equipment, and the cost of fertilizer is going up, and... The first tractor I got I paid 10,000 dollars and I was getting four bucks for wheat. Now that tractor is 100,000 dollars and I am getting half that. Fertilizer went from almost nothing to 400 dollars per tonne. So the input costs for spray and whatnot just kept rising until there is no money left. Break-even is what we have been trying to do, and it is difficult.

Interviewer: And you have needed the dairy to keep everything going?

Exactly. Using the dairy income to take up the slack, which is crazy. My son's wife is a chartered accountant and she keeps saying "What are you guys doing?" And we don't know! (Producer 5)

Within the context of the farm crisis at the time of this research project, most dairy farmers reported that dairy has generally allowed them to successfully manage the risks in other commodities.

Another prominent theme concerning long-term viability of the family farm is youth. A generation of youths are no longer staying on the farm to work, they are moving to cities or working in the booming oil economy. The current producers are getting older and and wanting to retire or pass on their farms, but there are few youths who would want to take over their family's farm let alone start into farming. As in the first quote of this chapter, many producers see this as an indicator of a non-viable industry, and the precursor to a much more severe agriculture crisis. If farming were a viable business, youth would want to stay or start up new enterprises in agriculture. Implications of this trend are discussed further later in this section.

The ideal of a self-supporting, self-sustaining farm that will continue for generations has reverberations beyond simple economic viability. All producers want to be able to operate viably, but part of the success of a farm is the vision of a type of freedom or independence in operations.

4.3.2 Autonomy—Freedom and Stability

Related to “economic viability” is another aspect of the business of farming that producers see as an important part of success. This aspect is more difficult to describe in one word—participants speak of wanting independence, freedom, stability, and control. However, contemporary farms are interdependent institutions, and the idea of independence may be a myth, as a purebred cattle producer explains:

This business of being an independent farmer and your own man, I'm sorry we are not as independent as we'd like to be because there are all these other factors that are out there that ... we can't control what we get for our produce and what we pay for our inputs...if you want to carry on and keep doing what you are doing you want to try to somehow deal with this. (Producer 4)

Some producers spoke of the futility of seeking independence within a vocation as economically interdependent as that of a commodity producer. Individually, their farms are a tiny part of a

larger agrifood industry that make up one of the most complex and manipulated trade economies in the world. These economies are constantly shifting, and the resulting external social, political, and economic factors make it difficult to farm without constantly changing. Here a beef farmer describes this interdependence as partnerships, that may leave something to be desired:

We are all in some sort of partnership with the people involved in agriculture. The people that make tractors, fertilizer, fuel, etc. For a partnership everybody needs to get their fair share. Not those who have the power taking more, and leaving nothing for the rest, leaving them falling to extinction... (Producer 6)

To some extent farmers can choose what they do on their farms, to adjust practices as they try to manage through difficulties or take advantage of current market conditions. However, outside factors, interdependencies and partnerships directly affect their business at community, provincial, national, and international levels. It is here that individual farmers appear to have much less influence (and agency)—though they do seek a level of independence and control over their situation that extends beyond their farm gate. The one purebred beef producer interviewed makes a concise point in this regard:

I would just like to grow good crops, raise the best cattle I can, work hard, and make a living. But there are so many factors now that aren't letting me do this any more. (Producer 4)

Another cow-calf and grain producer elaborates on causes of the situation, characterized by growing concentration and amalgamation upstream and downstream from the farm:

But I believe the cause of the problem is that the people that serve us as farmers, whether it is the oil companies, whether it is the machine companies, whether it is the fertilizer companies, whether it is the rail roads that we depend on to haul our grain to markets, they have consolidated, they have amalgamated, they have bought each other out to the point where in each sector of the service required, ...there are only about three or four left providing the service, and most of them are operating as one. They have terrible control over us. They basically can control the prices as you can see here. And that is the reason for the terrible decline of the Prairies and the rural areas. And now, of course, the present government we have in Ottawa, they are blaming the Wheat Board. They think they are going to change the Wheat Board and solve the problem; they won't solve nothing. They won't solve the problem until they find a solution to this here. (Producer 6)

It is not economic uncoupling from industry (or government) that most modern producers want. Most are not subsistence farmers but commodity producers, enmeshed in a web of agribusiness networks. It may be closer to the truth that farmers want to be in their own managers/bosses, and they want to be able to shift the terms of trade to their benefit. “Autonomy” may be the best word to describe this mixture of independence and control they wish to have. This idea is in line with talk of the inherent problems with dependence on government disaster relief during crises. Many would prefer the system be structured in such a way that they would have enough income to manage these risks by themselves (although some expressed contradictory views on this point).

Across the interviews, all the producers were concerned that agriculture is weakly represented in public opinion and government. A common opinion expressed is that “There is no authoritative member of government that will stand behind it. Your opposition does when they are opposition, but they are obligated to” (Producer 10). This is seen as a shift in demographics from rural to urban, and the subsequent politician and voting public's understandings of rural life and agriculture—the public issues have changed (but then so has agriculture):

Maybe I am coming from a different [or] wrong angle, and it is showing my bias. I know that the policy-makers and the politicians are taking a bunch of advice from, and I can't think of the guy's name right now... ..he maintains that we don't need Canadian farmers, if we can import all of the food we want at a lot lower price from developing countries. And they listen to that guy. I mean all you've got to do is drive into Glaslyn Saskatchewan when they are putting fertilizer in the ground, and see 10 or 15 trucks lined up at the fertilizer dealers, [if you see the farmers] putting fertilizer in his truck when he is going out to seed, or putting fuel in his truck, you understand how many billions of dollars go in the ground before anything is even growing. But the policy people are taking advice from the so-called experts and consultants and not listening to grass-roots people.

I mean they didn't listen to us during the Crow debate¹⁸, and farmers told them exactly what was going to happen. And they had it in their mind that they were getting rid of the Crow, and that is all there was to it. We were going to build pig barns. Well, we did build some pig barns, but we are still in the doldrums. I think we are further behind than what we were before.

18 The Crow debate was a debate between the government, railway companies and farmers about the details, and finally the existence of the Crow's Nest freight rate subsidy for prairie grain farmers. See Appendix B for relevant dates on the Crow debate.

[There are] too few of us. They don't need us for the vote. They don't need us to get into power. When they need you they are right on your doorstep.

...It doesn't matter if it is an MP or an MLA, if there is a city in your constituency, it is the city that gets you into power, it isn't the few farmers between here and Meadow lake that get a guy in. If he wins by 4000 votes, a farmer didn't make the difference. And I really don't know what the answer is to wake the bureaucrats up, I don't know. It is mind-boggling. (Producer 3)

According to some producers, their own independence can also cause their problems with being controlled by powerful corporations. They could work together, but according to many:

...We are a stubborn and independent lot. ...we can't work together better... I know years ago, I don't think you see it so much now, but 20 or 30 years ago there were these guys that were sitting around waiting for their neighbours to go broke so they can go jump on his bones. I guess some people are like that, rather than go and help your neighbour and try to give him a hand so that he can get going straight again. I think it is less now. In my community, here, there would be a whole bunch of land for sale if somebody would buy it. A whole bunch. (Producer 4)

4.4 The Farm as a Way of Life: Success in Family and Community, Social Continuity, Rural Values and Historical Ties.

The family farm is a family business but it is also a way of life (I hesitate to call it a “lifestyle”, which seems to emphasize a simple choice involving status position within economic strata, but many of those who I interviewed did use this term). As mentioned above, producers are not only working for themselves, they are typically also building a legacy for their children, and often continuing the work of their ancestors. Farmers are embedded in a web of culturally significant social relations; they explicitly combine the household, farm and community in their understanding of success. More often than not, these cultural relations (rather than profit-based rationalities) are the primary motivations to continue farming in increasingly risky times.

Being part of community in a rural place is often more necessity than choice, though producers generally value their strong social ties. One farmer explained the value of his community. He has been on the farm his whole life, it was his parents who had homesteaded there. With the stresses

of poor markets during the farming crisis, his family had fallen apart and he had reached the point that he had decided on suicide before being found and talked out of it by a neighbour. For this man, it was the neighbours who were the real community.

In the cultural aspect of rural and farming life, successes are about upholding good values and relations as well as financial stability. Many producers I talked to made a point of telling me that they were not primarily concerned with achieving status through material wealth, as the following exemplifies:

Somebody explained to me once, what status is. Some people have this status thing going on, you know? He said that it is about somebody buying something they don't need with money they don't have to impress somebody they don't like. And that pretty near covers it. I am not there. (Producer 4)

They needed a stable economic plan that worked for their family over the long term, to minimize and mitigate the risk of crises, as one dairy farmer points out:

Successful to us isn't having a big fancy house or a big fancy barn. I guess successful to us is making sure you have enough money away so that you can live comfortably as you can. We don't tie success to how much, the bigger the house and machinery. All of our machinery we buy used if we can; good used. So I guess successful to us means as long as the banker isn't knocking down the wall. You know, we don't trouble anybody, just pay our bills and keep on going so we can have a nest-egg to retire. (Producer 9)

They were concerned with stability and continuity; making a living doing something they felt was worthwhile, in a place where their family could grow and prosper. Another dairy farmer makes this common point:

And we were talking about just raising a family and if nothing else, ...a farm, particularly a livestock farm, ...where there is work to do the year round, there is no better place to raise a bunch of kids. You know, they all have their chores, they all have their responsibilities, they learn even the balance of work and play. (Producer 2)

Some producers may not place much emphasis on the age, size or type of equipment that they use, but they often put pressure on themselves to do well by their family and neighbours. This

means they must improve their land and farm enterprises for themselves and for future generations. Two holistic beef farmers expressed this most clearly:

The one thing about success in our place, our children are all grown up now, but when they come home... when I was a grain farmer, the kids were all young then and the kids used to spend hours out on the tractor with me, but they slept most of the time. We never really worked together very much. Now when he comes home and we have to do something with cows we do whatever it is we have to do and we say, well this is pretty successful we didn't have a wreck. You take 200 cows and you've got to move them down the road and you've got a[n] oil trucks and all that going by. But we're getting to know what we are doing with cattle, now. Well to a guy out in the city - thinking "you aren't too smart, you stupid old cowboy." But when I see the kids, our children don't mind helping when they are around. That is successful to me, because the whole crew gets together and goes and do this little job. That is success to me..... (Producer 8)

I'll show you my success. There is our farm, in about '68. This is the corral system there is a barn there and another barn here.. so that is the farm basically that I bought. I bought it in '66. I replaced all the buildings on it and so on and so forth. I have a picture upstairs. I'm proud of building the buildings and this and that. I'm much more proud of the fact now that my farm is much more sustainable now than it was in either of these two pictures. You know, this is a slightly different angle and you can ... see it cut off the slough here. The only cultivator that we use is a little 14 foot cultivator with a harrow behind it for spreading straw ... I do that with a little 65 horsepower tractor instead of a 150 horsepower tractor we used to have. (Producer 7)

Furthermore, family relations appear to be a kind of touchstone of getting it right. The cohesiveness of a family and involvement in the community is held up as sign of moral goodness, and implicitly, success. Alternatively, those that were held up as morally questionable usually practised recklessly predatory strategies to the point that they were criticised by their own family. A rural, farming lifestyle is seen to create good values and family continuity, and in turn it will create good people.

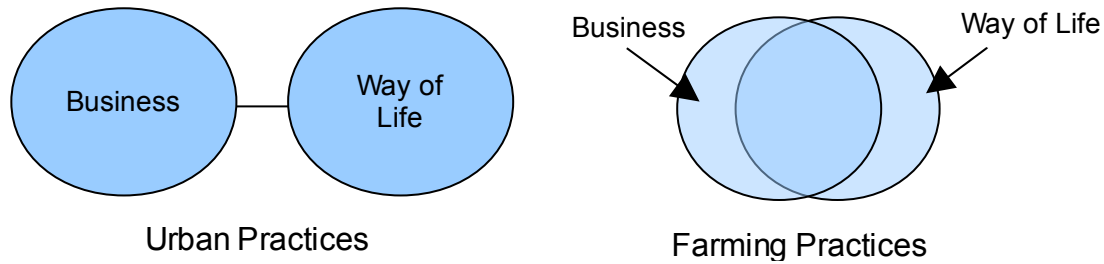


Fig 4.0 Farmers' perception of business and life in rural and urban places.

Ideally everyone is involved in making the farming endeavour work. Losing the farm would be seen as against one's family, perhaps against the past struggles of ones ancestors, and of course, something to be lamented. However, in these interviews, few farmers blamed individuals for their downfall, rather, farming as an enterprise was perceived to be too risky. In most cases the uncertain nature of farming and the global marketplace were held up as responsible agents. The family, individual, and local community are *supposed to* operate in a somewhat cohesive relationship, and farmers ought to work together to better their lot in life—they do blame themselves for allowing this loss of cohesiveness. Unlike many businesses or jobs in urban areas that apparently separate family, business and community more clearly¹⁹; the farms and local communities are farm families' legacies—decision logics are always bound up with much more than simple, individual economic rationality.

Things are changing. This understanding of this ideal way of life may be giving way to a more profit-centred, corporate and urban ideology, as well as to other lifestyle changes as rural people also want what is more available to urban people:

Our folks came out here in 1906 to build a better life. We've lost that. We have so much pressure on us we've taken the culture out of agriculture. We've let it deteriorate just to a money-making process. We've been quite adept at converting raw material into cash. And for many people it is their complete criteria; it is not my complete criteria; you've got to have the human side there. We had a much better community in this town here when farmers were half the size they are now. We had double the farmers... we had a community then..."
(Holistic Beef Farmer 7)

¹⁹ In urban areas, it appears quite acceptable for business success to be separate from (and even at the expense of) family. This separation does not fit the rural ideal, and may result in strong tensions within farm families that are required to act with more “urban” logics.

There are also issues with changing public awareness and concerns that affect more mundane issues of rural life, such as the higher cost of land as expanding cities encroach on farmland. This is more an issue for dairy farms that tend to be clustered around such centres. With different ideas on what is acceptable environmentally from both a health and an aesthetic perspective, producers living near cities need to buy up land to keep a buffer zone around their farms (one producer discussed the problems of having a junk yard starting up nearby). To maintain these types of aesthetics, farmers nearer to cities may even buy land which is not economically viable as farm land. Although expanding cities make it expensive to buy nearby land, the land also becomes a retirement plan, making it easier to sell and get out later in the game and retire. Environmental concerns usually focused on manure management issues, especially when cities and towns start to encroach on nearby farming areas. Some concerns have a health basis, some is merely aesthetic; farming can affect water quality and it smells at times. This is part of different urban/rural interests. As cities move closer, farmers explain that surveillance becomes a bigger issue as regulations are more stringent. A few farmers brought up media stories that had split communities and made it difficult for farmers to live in the area. In this case media is seen as out for itself, “always looking for a good exposition story.” There is safety in having a community of like-minded individuals around you, to be with others in the same industry.

Another prominent issue in the blurring of rural and urban lifestyles is the position of the “next generation” of farmers. The uncertainty of youth taking up farming indicates a clear connection between the pressures of changing mainstream lifestyles, immediate market forces and their effects on the direction of a generational, life sustaining system. One beef and grain farmer whose sons do not want to farm explains:

[There are] very few young guys farming, so what happens when the 55 year old guy becomes 65 and he decides that he isn't going to farm, and his sons have all left the farm? We've just about lost a generation of farmers. And that is the sad part. It is going to be harder, because there are more and more really high-paying jobs like in the oil patch. We are only 20 miles away from the oil patch and I mean if a guy can go out and drive a water truck for 28 bucks an hour, is he going to put that 28 bucks back into the farm? He is going to say, no-thank-you dad. (Producer 3)

If a generation leaves farming, few people will be left who really know how to farm. If, some years down the road, market forces bring people back to the farm, who will retain the farming ethic and the tacit, experiential, local knowledge base built up over generations? Most producers felt that if you take a generation out of farming, it will result in a lot more than an employee shortage, we will lose what is now embedded in an elder generation and retained locally on farms. Two producers comment:

...if you take a generation out, even one, they have no concept of how to farm any more. People like recreation time, I like to do what I want when I want to.
(Producer 1)

A big part of [our concern] is the youth because a lot of people don't know what is going to happen when this generation of farmers leaves. We are kind of in a future crisis. (Producer 11)

When dealing with local, generational knowledge, and learned work ethics, present short-term economic crises may steer the direction of a whole industry in a manner that produces profound and perhaps catastrophic change. In this case local experiential knowledge and ways of life and work that are necessary for continuing local farming practises will be lost. The loss of long-term time, effort, thought, and ethics that have been built up in local communities since the beginning of prairie agriculture (and arguably before) is something that farmers take seriously.

4.5 Risk and Resiliency: Attitude, Strategies and Practices

As reported in the above section which focuses on conceptions of success, it is clear that the majority of farmers I interviewed do not feel they are achieving success in their farms. Furthermore, they feel that, in many ways, what they envision as a successful rural enterprise is moving farther and farther beyond their grasp. Many of those interviewed no longer feel farming is a viable or even desirable enterprise, as a mixed dairy and beef producer explained:

Well, if you were a person coming into my area now, and stopped in to talk to me, what I would say is, ummm...right at the present time our area is under great stress. 39 quarters were not farmed in our RM. A tremendous amount of land is either for sale or being offered for sale in the coming year. So we are undergoing a tremendous, I'm going to call upheaval, but it is not quite the word I want; a change, not only in ownership, but in attitude of farmers [in our area]...I'll explain what I mean there, in the past a lot of land has been farmed

by young fellows, or farmers renting a lot of land, farming tremendous tracts of land, and they have just walked away from that. So a lot of this land that is vacant now is retired farmers who have rented the land out to be farmed and now they can't farm, or find anybody to farm it, so there is a tremendous change there, and it is all driven by economics. The people that are renting the land were paying 30 bucks an acre... ..just couldn't make it pay. See those rental rates have come down, and we were renting a section, we ended up paying 15 dollars, and then finally we said look, we simply can't do this, and the net result was we were offered two sections to farm and we just paid the taxes. And I'm talking the same RM now. And so if you were a young guy coming and saying “I want to start farming”, I would be very, what would I say now, I would be very hesitant to recommend a person to start grain farming right at this moment, at this point. You understand what I am saying. Because of all of the things that I have just gone through with you, I could not truthfully say that I would encourage you to farm. I simply wouldn't. (Producer 5)

Every year, producers risk financial ruin, the loss of their livelihoods, lifestyle, home, and the cohesion of their family as they struggle to operate in Canada's uncertain climate (both natural and political). However, even though they operate under conditions of high risk and uncertainty, they persevere if possible—perhaps they feel they have no choice.

4.6 Behind Rationalities: Understanding, Knowledge, Hope, Commitment.

Across all the interviews, producers identified the greatest uncertainties that affected production as weather and government policy—and if policies were good, farmers believed they could probably manage the weather risks. Many producers expressed the opinion that, in terms of strict financial rationality, they should not be farming. As described above, they persist for the family farm, the rural life, and to do what they know. As resilient people, producers identified factors that kept them going in the face of serious crisis. The most prevalent point was that resilient producers needed to be optimistic, as the purebred cattle farmer pointed out:

I try to balance the things the best I can. We are extremely frugal, not extravagant. I guess we [producers] are eternal optimists. We hope that down the road things are going to straighten out. (Producer 4)

As well as knowing the geography, politics, social networks and agronomic characteristics of the area, they needed to know themselves. They needed to honestly know their strengths and their

limitations, and how to find resources to manage changing circumstances. A purebred dairy farmer explains a point that was made by many of those in bigger operations:

I think networking is very important, research, consulting, university, vets, you know whatever the case. ...there are so many different factors that put into farming that there is no way that any farmer can know them all. So I think from what I see what makes a successful farmer is one who always reaches outside of himself, you know what I mean... ...When you have a problem, in whatever area you are in, there is someone who can help. And the people who seem to have the most difficulty, in my mind, are the ones that don't recognize that. There is people everywhere who can make a difference, hey. (Producer 2)

All producers thought that farming is something that requires a lot of experience and specialized knowledge. A few respondents identified a particular approach, a tacit knowledge or 'instinct' that is needed to be a successful farmer. A first generation farmer that had been farming beef and grain for over 25 years explained:

...there is a kind of ambition, motivation, and a kind of instinct. If a farmer can't wake up and see what needs to be done today, and do it, you won't be successful. You have to be an instinctual person, as well as take the opportunity to do what needs to be done. (Producer 3)

A general experience that many farmers spoke of was a need for change. Farmers needed to be aware of changing times and public opinions: to change with the times, and take care of the community. Sensitivity to shifting trends on aesthetics and environment was also important, especially for dairy farmers who are closer to population centres. One dairy farmer explains:

Well, we are third generation farmers. We are fortunate, we didn't have to go buy the quota. We expanded, we had to buy some quota, but we've been so lucky because this has been passed on. One thing it means is that there aren't a lot of people around. We've got right in an industrial area where there is nobody putting up houses, so we can farm without a lot of problems. Our neighbours, well they do pick up the smell, we know them quite well. This year when we put the manure on the land it didn't even smell. It was so cold. So we kind of stick to ourselves, we do our business...we do custom baling in the neighbourhood so we haven't got any problems with neighbours coming to us and saying, you know you're bothering us, because we really don't bother anybody. The nearest neighbour to us is a mile.

We own all the land around the house and we rent all the land around us too. Probably we planned to do that, if we didn't own the land around it would

eventually just squeeze us tighter and tighter, and you know, at my age that's not that bad. If someone comes along and offers 5000 bucks an acre, I'll take it. (Producer 9)

These two descriptions touch on many uncertain and paradoxical aspects of farming—political-industrial such as the need for quota and expansion, the relative economic stability that multi-generational farms rely on, the need for community, but the need for space as well. The continuity of the farm rests in an uncertain political balance, with tensions between the community and individuals' needs.

4.7 Practices for Resilience

Those I interviewed had attempted many strategies to remain viable since the boom years of the 1970s. As margins became tighter in the 1980s, public ideas about rural and urban lifestyles and technologies changed. Dealing with uncertain weather, changing climatic issues and technology on larger and larger scales, farmers attempted to manage risks and minimise risks wherever possible. Many work off farm for temporary economic relief, and in many cases it has now become a long-term necessity which they feel erodes the purpose of the farm and their ability to enjoy living the rural life that they desire. Many attempted to remain viable by increasing their farm size, postponing their own loss at the expense of their neighbours and communities. Apart from slowly draining communities of residents and social infrastructure, increasing farm size has also increased the workdays of remaining producers and their dependence on expensive technologies to manage increasingly larger tracts of land.

When considering the elements of success brought forward above, an interesting group of farmers emerged as feeling relatively successful across all the factors discussed here—economic viability, autonomy, family and community. These were the producers that took a holistic management²⁰ approach rather than a more conventional modern commodity producer approach. The holistic management farmers first made their family and farm goals explicit then worked out

²⁰ Allan Savory came up with the idea of “Holistic Management” in the 1960's while living and working in Southern Rhodesia (known today as Zimbabwe). The core of the holistic framework is a “holistic guide to decision-making.” This framework allows people to map out a desired way of life based on explicitly understanding what they value most deeply (spiritual and material) and then taking into account the ecosystems and resources needed to support this vision (see Savory and Butterfield, 1999).

a strategy that would manage those goals in light of structural constraints such as geography, personal potentialities, and markets.

4.8 Summary

Farming is clearly a venture that combines the changing realities and tensions of business and family life. All of the farmers I interviewed wanted a viable business that would give them autonomy and a sense of purpose while supporting their families and communities. A measure of a successful farm is that it facilitates a rural lifestyle, which upholds values of family and local community. This might be seen as something obvious and universal, but a viable family farm is central to this social and economic project, something that could not be achieved with normal wage labour separate from the home. Producers want to take care of their farm and the land, and feel it should take care of them and their descendants. If they are new in farming, they are often working within higher debt. If they have taken over a family operation, they usually have more infrastructure that is paid for and work to improve the farm for their ancestors and descendants (which may involve taking on new debt as well). Those that I interviewed also want to have time and money to enjoy and be a part of their farm, family, community, and environment.

The business of farming is, overall, not providing well for ideas of success that families have. The ideology of hard work, good management, and rewards from it; success in business, family, and community is not holding up in the vagaries of the world market. Many of those I interviewed see this as part of urbanization of politics and the domination of business-centred, urban values and ways of life. Most farmers see rural lifestyles as quite different from urban ones, in terms ideology, practices, and population numbers. They see much of their complex social change as an urbanization of publics and governments, challenging rural spaces, values, and ways of life.

At first glance this may appear to be a classical meritocratic ideology: through a person's hard work and good moral action, one can achieve a high level of success. With this rationality, one would expect those who fail to be blamed for their "lack of merit." However, producers point out that the issues they face are explicitly beyond their power, much more than success by following

simple meritocratic ideals. Many apparently good producers leave farming or lose everything farming. Farming in contemporary times is presented by most as a gamble. Losing a farm is unfortunate, but not usually seen as the result of a lack of moral fibre—it could be more of a string of bad luck; or a group of contingencies that just couldn't be managed. The farm crisis that many producers brought up is creating a situation where family farms are financially “brittle” enterprises, unable to weather prolonged crises without support.

Some producers that are doing well but are seen as practising with a business-oriented, profit-centred approach that does not taking into account their communities or neighbours, are seen to have a different ethic or value system, or in more severe criticisms, are seen as immoral. Patterns in ideologies are not clear-cut or simple. Dairy and cow-calf farmers have quite different marketing strategies, and in some way, they have different ideas as to the function of the market and government or institutional intervention. Some spoke of it in terms of choosing freedom and having to live with high risks, less debt, and volatile world markets in the beef farming world, or choosing stability, lower risks, but high debt and constant work in the protected domestic markets of dairy farming.

All farmers made the point that they are far from independent. A stronger split in ideology comes out of discussions of the importance of their work and their ability to be in control of their operations. It appears that many producers see dairy farmers' producer-directed supply management system as doing relatively well, and point out that beef, an export-oriented commodity is not really taking producers into account when decisions are left to government and trans-national corporations. Some want controls and protection that can benefit producers, they feel the farming way of life ought to be protected. Others feel that if markets were properly free, they would do well—government intervention on global markets just causes more problems. This could be thought of as a democratic direction of government to shift markets based on values and ethics, versus an economic direction of farmers practices based on world need with minimal government intervention. Although split on what positions producers should adopt concerning more or less government control over markets, both groups agree that current government priorities are not with family farmers, so either approach becomes ineffective.

The understandings brought forward by the 15 producers I interviewed lay out many of the tensions found in contemporary Saskatchewan agriculture. Now that producers ideas on the success and resiliency of their farm have been considered, and a more complex detailing of recent histories, goals, ideologies and practices has been given, the particular reactions to the BSE crisis that are presented in the next section can be more easily understood.

Chapter 5: Living Through the BSE Crisis

The previous chapter drew on the experiences of producers to develop an understanding of their perceptions and ideas on the historical political, economic, and cultural contexts through which they have managed their farms. This section builds on the previous analysis, examining the experiences and actions of producers as they have lived through the BSE crisis.

Since its discovery, BSE has created massive public and bureaucratic fears resulting in, among other things, long-term trade embargoes throughout the world. For Canadian producers the watershed experience began on May 20th, 2003, when Canada's first domestic BSE infected animal was found, resulting in worldwide border closures to Canadian beef products and live animals. This was no small issue for producers—the beef industry has recently been re-built on exports, which accounted for approximately 50 percent of Canada's cattle and beef market pre-BSE, 70 percent of which went to the United States (Grier 2005). Canada's total exports had increased sharply and steadily from a stable 200,000 kilograms in 1989 to a market that totalled over 1 billion kilograms of beef worth over 4 billion dollars before the market crash of May, 2003 (NFU 2008).

BSE did not appear out of nowhere, the disease had been in Europe for years, and had been imported to Canada in infected animals in 1993. These earlier events did spur action by the CFIA, but did not cause a producer crisis. BSE truly became a critical reality for Canadian beef and dairy farmers in 2003 due to the complete loss of cull cattle²¹ sales and sustained low cattle prices during the prolonged Canada-US border closure (For a graphical depiction of fed cattle

21 Normally cow-calf operators sell older and undesirable breeding animals (culls), regularly, replacing about 10-15 percent of their herd annually with better animals from their herd or outside herds. Profits from cull sales are often earmarked for farm maintenance. Both beef and dairy sell cull animals from their herd (dairy also culls most male calves). The bulk of income for dairy is from weekly milk sales, and for cow-calf operators it is from annual sales of “feeder animals”, those produced to be sold to feed lots or finishers who will then “finish” the animal, which will be bought by packers.

prices, see Appendix C). Businesses that operated on much faster turnover rates were affected immediately—such as the packing plants and the feedlots that supply them²². After a closure of approximately four months, packing plants could once again sell certain cuts of boxed beef across the border. Almost one year passed before ground beef, bone-in cuts of beef, and offal from animals under 30 months of age were also allowed across the border. Exports of live animals to the US remained completely shut down until the border opened 26 months after the initial closure (see *Canada's BSE Timeline* in Appendix B for a more detailed account of how the BSE crisis unfolded). This market closure put great strains on the cattle industry. Typical producers depend on a large once-a-year sale as well as a 10-15 percent regular cull rate throughout the year, and many depend on the ability to sell animals into the US market. With the domestic market flooded, packers and feedlots only took the best animals (or those from particular producers) at yearly sales and stopped accepting culls entirely. Forced to operate within such a buyers market, producers feel the packers took advantage of their vulnerable position.

Although the BSE crisis appears relatively straight-forward and unforeseeable, the general farm crisis within which it occurred had been building for years as a result of government policies, farmer practices, and agribusiness restructuring (NFU 2005; McRae 1999). Aspects of the Canadian BSE crisis are quite unique but on some level farmers may experience it like just any other drawn-out crisis. Once again those in the sector must manage the shocks, testing their resilience and risk handling abilities, and producers feel that once again, they bear the bulk of the burden. One producer provided an eloquent summation of his understanding of producer vulnerability based on the producer's primary position within the interdependent beef supply chain. Within the beef value chain producers have little power to demand particular profit margins through the market:

The retailers need the packing because somebody has got to prepare this meat for me. So, OK. The packing plants need the feedlots because [they] are the ones that provide them with their input. So the packing plants know that...
...they can squeeze us, but they can't kill us because then who is going to supply

²² The feedlots, (those buying from the producers and finishing cattle to the acceptable market weight and conditioning) have a narrow window within which to get a premium price for their animals. Once in production, if a feedlot can't sell an animal to a packing plant within about ten days, with each passing day it will lose its premium status and finally become a liability.

them with live animals? The feedlot operator knows he needs the grain producer and knows he needs the cow-calf person because that is his inputs, and he needs the slaughter plant to buy his fat steers. And he needs services like the trucking industry to move these critters around and to move grain around, he needs services like order-buyers to sort things, he needs grain brokers to source things, he needs ...an animal health industry so that we can have products to keep these animals healthy when they are sick, to vaccinate them and, not to medicate them, but to keep them healthy and going on the right track.

And lately, well it has been a steep learning curve for the cow-calf person but lately they have figured, well, before they kind of figured that the beef industry was them, they took the calf to auction mart, you know you take your calf off to auction mart, that is the beef industry. Where the beef industry is... they are the beginning of it, and we need everybody along the line to reach the consumer to buy the stuff. That is the beef industry. We need everybody. And when one person or one sector in there pushes and shoves, they are not liked, you know. We all got to work together and I think... there is a general understanding and information out there that if we all do good, we will all be prosperous, but if one sector gets too greedy, then it hurts down the line. But all profits and all losses are borne by the cow-calf producer. Because every other player along the line is a margin player, and can pass the costs down, and does so. (Beef Producer 11²³)

In this explanation, the beef producer (and farmers generally) are vulnerable to market shocks because they are only one of a large number of primary producers that sell their animals at auction. They operate in the first position of the long value chain that apparently sets prices backwards from the consumer. Farmers, then cannot take margins out of the value chain—they get what is left over. This producer has not detailed where a farmer can improve his margins. As discussed in the previous chapter, individually decreasing costs as much as possible, and increasing the number of animals on a farm are two ways to increase gains from margins, but it can be fleeting, often resulting in a degradation of the family farm, communities, and even safe practices. Not brought up explicitly within this quote (but brought up previously in the interview) are the power imbalances of the players involved at the different stages of the value chain. The consolidation of packers and retailers, as well as the vertical integration of packers and feedlots gives them much more power to manage their risks and ensure their profits within the supply chain.

23 Please see Appendix A for a list of producers who were interviewed.

Because they cannot compete effectively with the more powerful players (because of the small size of individual operations and the large number of producers), beef producers generally compete with each other on the farm and in the marketplace. Individually, producers do not have the ability to demand a particular profit margin, but they can attempt to better their neighbours in cost-per-pound efficiencies, improving management (increasing rates of gain and other favourable genetic traits, and improving herd health), securing cheaper input costs and finding more profitable markets for their particular animals. Apart from farm-gate sales, beef farmers generally assume that it is impossible to raise retail prices to better reflect beef producers' needs because of competition in the market—beef is competing with other meats for retail dollars at the supermarket, such as the more industrially-produced pork or chicken.

5.1 Initial Impact and Producer Responses

In the interviews, producers explained how BSE had affected them, and the strategies they had used to manage through difficulties. For many this involved changing their farm operations to a basic survival mode, for a few it was to turn the crisis situation around and take advantage of it. The initial border closure, stalled beef exports, and subsequent domestic oversupply first affected most beef and dairy producers financially. A dairy farmer explains the impacts to his farm because of international markets:

Yeah, the first year it hit actually, it cost us about 60,000 bucks with loss of revenue. ...our biggest amount of income came from selling breeding stock. ...and a lot of the breeding market was dependent on, in the case of dairy, on an American market. The Canadian dairy industry roughly puts out about a million cows, a million dairy cows in Canada... so there is roughly 600,000 or 700,000 heifers born a year. Of that, 100,000 heifers born a year was going to the 'States—so a big percentage of the surplus heifers are going to the 'States. (Producer 2)

Another mixed dairy/beef producer describes the financial impacts on a smaller herd:

We lost about four or five thousand bucks just on cull cows. We have a small beef herd, about 30 animals. That hit us a bit hard there, but we just kept the heifers longer that is all. We do some exporting of Holsteins, that quit. We were working on a China deal the day that the border closed, getting animals ready

for quarantine for China, and that was done, it was over. So that affected our side business of marketing Holsteins in the 'States and doing some exports of live cattle because that just stopped, and has still stopped. ...Cull cows were worthless. (Producer 9)

When BSE appeared in Canada, all but one of the producers I interviewed felt they were already managing through a general farm crisis. This was brought on by years of expensive inputs and the thin profit margins of the world marketplace exacerbated by numerous local and regional emergencies brought on by weather and pests: locusts, drought, flooding, and early frosts. Buyers can purchase globally, but producers deal with local realities, disconnecting the laws of supply and demand for the producer's market. Local prices are based on international and even global supplies, and will not reflect local or even regional difficulties in operations. Those caught in local emergencies were often in more desperate situations coming into the BSE crisis.

It is this very local environment and contingent nature of farming that producers brought up again and again. No two farms are alike: one may get rain, another drought; one neighbour is hit by frost and another is untouched, one has good soil, one poor, market shifts may benefit one but hurt another. It is easy to get caught in the individual details, but different levels of abstraction can help to tease out the trends in commonalities and differences. For all the individual geographical and climatic differences, producers selling different beef and grain commodities (slaughter animals, purebred animals, dairy culls, calves, grain, oilseeds, pulses, feed, etc) were affected differently, but all negatively.

Although I only interviewed two purebred breeders directly, most producers agreed that purebred breeders or those selling specialized genetics were hit the hardest of all producers. Traditionally, they are the farmers with the best breeding knowledge, who have invested countless hours and money into the genetic improvement of their herds. They produce fewer, more specialized, highly valued animals (bulls) for sale to cow-calf operations who are improving their herds. However during the BSE crisis, cow-calf operations could not afford to buy specialized bulls (or semen) at pre-BSE prices. So to maintain their customer base, pure-bred breeders have had to sell at a loss. Between the two purebred beef and dairy producers I interviewed, most of their bigger customers were in the USA, so when the border shut to live animals, the bulk of their buyers were

inaccessible. Those farmers that had dairy herds managed the crisis more easily than other producers. Their constant milk cheque allowed most to manage relatively easily. As well, the producer board did increase the price of milk to compensate dairy producers for losses on cull animals. However, if they did lose their milk market dairy producers would be in a much more difficult position than beef farmers, as they usually carry much more debt than cow-calf producers and they supply milk on a frequent, regular basis. Operating a mixed farm appeared to be helpful if one was able to balance a downturn in beef revenues with income from other commodities. However, it was not always so straightforward, and in many instances poor weather (frost, drought, and flooding) during the BSE crisis caused multiple disasters rather than a balancing effect.

5.1.1 Waiting out the Market

According to producers' reports the initial BSE problem was framed as a necessary bureaucratic border quarantine that would soon be sorted out, and as such, initial strategies were aimed at returning exports to normal levels. Generally, the initial strategy adopted by producers was to simply “wait out the market”—holding on until the border opened up and things returned to business as usual. Obviously such a strategy can only be successful if producers manage to buffer losses and remain solvent while they wait for more profitable markets. This strategy risks the farm on the competence and interests of institutions outside of producers' control. It may be that there is comfort in such a simple approach, or that there is little choice. Regardless of the reason, most farmers adopted this strategy.

Producers (and the beef industry generally) were completely reliant on government to sort through international bureaucratic affairs and disputes. Government actions were watched closely as they navigated the uncertainty of global trade disputes and health issues. Producers based their farm management decisions on public government reassurances. In retrospect, beef and dairy farmers pointed out that this initial attitude was misleading:

When BSE first broke out people thought oh, it will be here for three months, then it will be back to normal, but the borders have been shut for two or three years, and that really affected some guys' lives. (Producer 9)

A beef farmer explains the financial impacts of the BSE uncertainty on purebred producers' farms, which are dependent on the cow-calf producer as a buyer:

Yup, everybody tightened up their wallet, and to the purebred that is a different story, especially if you had a lot of American buyers. Because basically, suddenly you had nobody to buy your bulls... and if they were worth \$3000.00, now they might be worth \$2000.00 or \$1500.00, because you didn't know. It was the uncertainty. We didn't know what was going to happen. (Producer 11)

In the previous chapter, producers spoke of the general uncertainties in farming (weather, pests, markets, etc.); waiting for politicians is another example of uncertainties outside of farmers' control. Producers' fates were in the hands of powerful institutions with multiple interests, only one of which was the family farm. With producers operating on reduced cash flows, the protracted crisis increased their risks. For all its possibly negative aspects, leaving things to government and waiting out the market is a simple strategy that in the short term may reduce individual risks; producers aren't attempting difficult structural change or bankrolling unknown innovative strategies or tactics. Working within an already stretched budget to adjust structures and change infrastructure involves a whole new complex of risks and time outlays that many producers don't feel they have. However, as time passes and disputes are not settled, weak cash flows decrease the ability for a farm to buffer losses or shift enterprises away from cattle (and perhaps diversify). Over a prolonged crisis, the simple strategy of waiting undermines the ability of farmers to manage risks. Furthermore, if farms are already brittle from a previous financial crisis, the initial strategies that individuals choose may be irrelevant.

The stakes become higher (and risks more serious) when disputes remain unsettled. Income is deferred but costs continue to mount. When producers hold on to their cattle or other commodities in hopes of better returns (or any returns) it affects the normal operation of their farm: necessary space can be taken up by stored stock, bills continue to require payment, and there is often a loss of premium quality (affecting prices, as agricultural commodities generally have an optimal size, maturity or appropriate time for market). The optimal cycles for maintaining one's herd and marketing one's cattle, combined with the particulars of BSE and the structure of the beef industry did add a few punishing twists for producers waiting for a return to

normal market conditions. One beef producer from the north-west discusses the combined effects of a feed crisis in Western Saskatchewan that hit at the same time as BSE:

Well, it [BSE] cut into cash flow and it cut into [savings]. You were feeding animals you shouldn't have been feeding. And we had high price for feed in 2002 and 2003. Well, the big thing for ourselves—we downsized—had sold half the herd earlier. [What would have happened] if we hadn't... I'll give you an example. The freight on the feed which we had to bring in, the freight was more than the feed. I was bringing bales in from at my relatives that bought the cows from me. They gave me the straw, but it cost me 35 dollars a bale to bring that straw in here. But if we had kept all our cows, we would have had to have another 4 semi's of straw and another four loads of bales. We wouldn't have been able to dig ourselves out of that. We were fortunate. (Producer 3)

Producers were initially forced by the closed market to keep their cattle. Then, as markets slowly opened up, many kept animals rather than sell at a loss. Herds grew in size and number, increasing input costs dramatically. The decrease in cash flow also stalled planned maintenance and upgrades that farms need to remain competitive, such as genetic improvement programs, land and herd size increases, etc. Although problematic at that time, the difficulties of managing increasing numbers of animals had the potential to be offset by larger pay-offs if markets recovered. If not, the farmer could lose money, and depending on their particular situation, might risk bankruptcy and foreclosure. One beef and grain farmer explained “You can't be a farmer unless you can take huge risks. I don't need to go to the casino and gamble, I do it everyday on my farm” (Producer 1). No one knew what would happen. A beef farmer discusses those who were selling fed cattle and had hedged in the futures markets to manage uncertainty, found that they had not reduced their losses:

I think that the biggest thing was the uncertainty of “what... do we do?” because all normal rules no longer applied. They were done. Like I think I told you on the phone that a neighbour out here that runs a small feedlot, he had fat cattle hedged on the Chicago mercantile exchange. Basically locked in at a profit, and the border closed, the price of fat cattle in Canada went down, price on the Chicago Mercantile Exchange went up. He lost on both ends. So [one group of] people that lost twice in BSE were those that had hedged, that had their risk covered [theoretically]...They got whacked twice for doing the right thing... (Producer 11)

Before the border shut, producers who had locked in futures prices would have been guaranteed a profit. However, the system changed mid-stream. Because of the closure, he had to pay a higher price for the futures which he could not deliver on, as well as losing money on his animals back in Canada. The normal rules of marketing did not prove trustworthy; rather than protecting himself against risk, he lost twice on the same animals. It appears that the types of risks and uncertainties surrounding BSE are not easily managed by normal individual strategies.

5.1.2 Adapting Farm Practices and Structures

Individual practices in response to the BSE crisis varied dramatically. Most producers adjusted their operations to “survival mode” to “manage through”. Those that could, relied on the production of other commodities and off-farm work to support the beef side of their operations. For many, waiting out the market involved lifestyle adjustments and a deterioration of farm upkeep beyond easy repair. One purebred producer explains:

When the crunch hit with the BSE... I was 15 - 20,000 dollars out from what I ordinarily would have had from cattle sales. I basically run a hundred cow herd. It beat us up bad... I just tried to tighten my belt and wait things out, and consequently things like my barn roof that needed to get redone, have had to wait. There hasn't been much expansion or change as far as infrastructure or machinery. I try to balance the things the best I can (Producer 4).

Producers talked of neighbours pulling together somewhat to help manage, repairing what could be fixed, using extra labour or spare materials. Older farmers remembered coming together to form co-ops in past tough times, but in the BSE crisis, there was little talk of sharing of equipment, or machinery co-ops to get by in other areas. Communities were stretched. There were theories of how to manipulate the market, such as killing and burying half the animals so markets would recover and producers could save on feed costs, or of the dairy producers helping the beef producers by killing all the dairy bull calves to remove them from the market. One purebred dairy producer explains the logic:

When this whole thing first fell out, the best thing, the very best thing, (and somebody should have done this, as far as policy, and it probably should have been the government), they should have put a policy in place that all dairy bull calves get killed. ...Now that probably sounds real hard. The reason why I say that is, what we were dealing with [was] a surplus of beef, right. ...Now at the

time I know people were killing them because they could not get rid of them. Nobody could take them. ... And even my own self, I killed two or three. I said I can't do this. It goes against everything what I believe in. It goes against everything I've ever done to have a healthy live calf and then bang, you shoot it, you know what I mean? I found it to be revolting. So I quit. I didn't do it, I would just give them away or whatever the case was... thinking somebody can do something with this animal.

But the reality is if we would have done that, we would have shorted the market by roughly 500 [000] steers per year. And the reason why I said dairy calves is because you and I both know that you can shut off that pipeline for a year or for two years, or for five years, and as soon as you want that pipeline to start, it will start flowing tomorrow, because the dairy cows are not going anywhere. Dairy cows are here to make milk. The bull calf is a sideline, and it would have cost very little to do, because bull calves are worth nothing and it would have transferred, or would have put pressure on the processors to pay more for the remaining beef, which would have helped the beef industry, right? Now we've got two people, Dairy and Beef, fighting together for the same market. Well, the ones who suffer the most is going to be the beef guys. Because that is whose livelihood it is, right?

The other reason to give you that example is to show that even though it made sense, I couldn't do it. I couldn't do it. Now if there had been some law or policy in place, then it helps you deal with something that you don't want to do. You know what I mean? If only I did this, it wouldn't have helped the big picture, but if everyone had done this, number one it wouldn't make me feel quite so bad, and number two, I would have seen a good result from the action, you know what I mean. (Producer 2)

Although this type of action is a far cry from the cohesion of rural communities that farmers remember from the past (such as coming together to develop local co-operatives or marketing boards), it is a step toward a shared awareness and perhaps solidarity. These actions require an organized effort. As the producer in the above quote notes, shorting national and international markets cannot work if practised individually—the above proposals are one of the many “prisoners dilemmas” that farmers face²⁴. In such a large market it appears that successful

24 “A common view is that the puzzle [a prisoner's dilemma] illustrates a conflict between individual and group rationality. A group whose members pursue rational self-interest may all end up worse off than a group whose members act contrary to rational self-interest. More generally, if the pay-offs are not assumed to represent self-interest, a group whose members rationally pursue any goals may all meet less success than if they had not rationally pursued their goals individually. A closely related view is that the prisoner's dilemma game and its multi-player generalizations model familiar situations in which it is difficult to get rational, selfish agents to cooperate for their common good” (Kuhn 2007).

practices would have to be organized—a whole industry policy, or none at all. Some producers noted that they would like to have people working more together, but it did not happen and they were at a loss to suggest how such individualistic farmers could organize effectively. Some suggested it might take “more tough times” for farmers to see their commonalities and common interests.

In order to survive in their competitive market, producers tried to take advantage of the BSE situation if possible. Those who had the necessary resources or ability to acquire credit could use the crisis as a chance to take advantage of some of the market forces that were initially against them. As the crisis worsened, one man's crisis became another's opportunity (albeit an uncertain, high-risk opportunity). Typical of entrepreneurs or those operating under corporate business logics, if producers had the capital to take advantage of the situation, to buy cheap cattle and land from farmers who could not survive, most would. In this way BSE was an opportunity for those who had money and wanted to expand cattle numbers and land as a hedge against future uncertainty. One purebred beef farmer explains his understanding of the situation:

I think BSE was a huge scam, very much promoted by the Cargills and Tysons and then the Nilsson Brothers who bought out all the Heartland Auctions²⁵. The Nilsson Brothers was an outfit from Alberta, they came into Saskatchewan and bought out all the heartland. With the pool they owned at one time, hey? The auction markets. Or cattle facilities... When this BSE thing hit, then they basically stole our cows and they are still doing it. (Producer 4)

With extra pasture land and deeper pockets, a farmer could buy extra land or animals for next to nothing from a farmer who had held on as long as possible and was finally cutting his losses or facing foreclosure. In the cases of those I interviewed, land was bought by other producers (although not always yet paid for), but the buying of cheap cattle was only brought up in reference to large corporate owners.

Another strategy was to individually move into the value-added business of the packers and retailers, or to put it another way, to “vertically integrate”. Every producer that I interviewed knew others who had set up private abattoirs and sold cattle at the farm gate or to small retail

25 Heartland Livestock Services were formerly owned by the Saskatchewan Wheat Pool.

outlets. One even postulated that these sales may be to such a magnitude that government statistics would not reflect the real farm situation. Although it appears to be a good way for producers to bypass middlemen, it also increases their exposure to risk. If people get sick or injured from improperly handled farm-gate meat (one producer brought up possible problems such as antibiotic residues or a broken needle in the meat), the farmer risks litigation.

The above actions (operating in survival mode, shorting markets, expanding operations, and selling beef in the “grey market”), because of their scale or their effect, act to manage their farm through the crisis by maintaining the *status quo* rather than innovating to create lasting systemic change.

5.2 Emerging Challenges and Shifting Producer Strategies

As producers experienced government reactions to BSE and their financial crises, new challenges emerged and producers began more seriously attempting systemic change. They had discovered weaknesses in the system and wanted to shift the structure of the beef industry so that they would be better shielded from risks. There was a pattern to how farmers managed their farms during the BSE crisis. Like the strategy of waiting out the market, producers report that they first “looked inward to put our own house in order,” and then as difficult times continued, they “looked outside themselves” to different communities and institutions for answers, support and partnerships. In practice this was reflected in first adjusting on-farm practices to be as financially efficient as possible, then attempting structural change as serious problems in the *status quo* became apparent.

After managing their farms at the mercy of quarantine and trade disputes for many months and no sign of an end in sight, farmers began to have deeper understandings of the issues that were affecting them. Their troubles appeared to originate from a few sources—a closed border combined with low in-country slaughter capacity, powerful private interests in the beef value chain, as well as public perception and what they considered political mishandling of regulations and markets after BSE was discovered.

5.2.1 Lack of Slaughter Capacity

Once Canada's exports of live cattle were stopped, it was clear that Canada was severely imbalanced in its beef commodity chain, with less than half of the capacity necessary to manage domestic cattle numbers. Prior to the border closure, more than half of the animals grown in Canada were shipped live to slaughter elsewhere—a risky practice in situations of emerging diseases and cross-border trade disputes. Farmers point out that if Canada could slaughter all its own animals in-country, they would minimise cross-border quarantine problems. Addressing such a structural issue seems straight forward. However, the shape of Canada's industry and the lack of slaughter capacity has a long history. It was partially a result of the loss of the Crow Rate and signing on to the Canada USA free-trade agreement which increased beef production for sale into export markets commodity in the 1990s, as well as a relatively recent concentration of Canadian packing plants.²⁶ These multi-billion dollar transnational corporations hold a lot of power in industry, and arguably in government. Producers thought that packing plants were playing politics for their own gain. Here one dairy and beef producer suggests the packing plants gained by keeping the border shut, and by keeping the Canadian market to themselves:

They [the packing plants] may prefer them [the borders] not opening. Before, when the borders were open, when the prices weren't good enough in Canada, guess where the animals went? The truckloads went to the 'States. They didn't go to those packers in Alberta. This is the best news for them. They will give the old, "it certainly wasn't," but *bullshit*. They never made so much money. Their profits went up unbelievably when the border closed down. People were shoving cattle at them and getting next to nothing for them, the consumer didn't see a cent difference. Cow meat didn't go down one cent for these people. And yet guys were getting, on hamburger cows, 200 or 300 less a cow. The consumer didn't get a benefit, and I didn't get my 200 bucks. Guess who gets it? It sure wasn't the poor trucker, he didn't get it neither. So it was either the stores or the packers, and I think both shared in it quite nicely (Producer 9).

All of the farmers I interviewed believed the packers benefited from, and took advantage of the border closure. During the BSE crisis, Alberta premier Ralph Klein promised that no beef would leave Alberta outside of a box, meaning that all Alberta beef would be processed in Alberta to

²⁶ As of 2008, only three corporations—Cargill, Tyson, and XL (Nilsson Brothers Inc.)—control 89 percent of the packing industry (NFU 2008). By March of 2009 Nilsson Brothers Inc. had bought Tyson's Canadian plant (Lakeside Packers) so now only two corporations controlled 89 percent of the packing industry (Monk 2009).

pro-actively circumvent cross-border quarantine safeguards used for trade barriers. Saskatchewan made no such promises. According to producers who were trying to mobilize government to help with building packing plants, it appeared that the Federal and Saskatchewan governments did not want to put money into helping producers with increasing slaughter capacity. Governments saw it as unprofitable because of multinational competition.

5.2.2 Power in the Value Chain: Supply and Demand

Producers also noted that normal laws of supply and demand did not seem to be operating—the domestic oversupply of beef was not reflected in prices consumers paid in the grocery store, but it was definitely seen in the low price farmers got at the auction market (particularly feeder and fed cattle). To producers it was clear that the packing industry and retailers were taking advantage of their consolidated oligopoly/oligopsony positions within the beef value chain. Any increase in consumption was not reflected in the price to producers (NFU 2008). One pure bred farmer makes a point of several problems with the concentration and control of the cattle industry by transnational corporations:

They [Nilsson Brothers] basically stole our cows and they are still doing it. There are cows selling on the markets right now for 4-6-8 cents a lb. I took a cow into the abattoir on Wednesday. By the time she is cut up and processed...there is probably going to be 1,100 bucks worth. So you realize the profit they are making... The thing is they don't have any competition. So you bring your cull cows in, and they charge you commission... say you've got a 1400 lb cow in they charge you a 25-28 dollar commission for selling her, then buy her, and they are the only ones buying cows. So...what is that around 100 bucks, 115 dollars? And Cargill, the meat processing organization, a year ago, apparently I saw some stats on them that they made over a billion dollars profit.

And....they can't do this in the states, but in Canada they can buy all kinds of feeders and have their own feedlots. And then they feed these cattle and put them through their processing plant. At the point in time when the other independent feedlots want to move their cattle, they are at the mercy of Cargill, they make you an offer, and if you don't like it, tough. We will put our own cattle through in the meantime, and you will have to back down and come down to our price. It is a monopoly. (Producer 4)

This producer sees the vertical integration of transnational corporations into the feedlot business, effectively reducing the corporation's risk by taking control of the supply of feeder and fed cattle, but putting the producers in a much more vulnerable position. As well, the industry worked hard to keep the domestic consumption of beef high even though the price did not drop. One dairy and beef producer noted the effect of the more concentrated packing and retail sectors of the beef industry on consumption and getting the border open:

But, you know the consumers wanted the beef, not because it was a better price, but because the beef industry did such a good job marketing it. It is really too bad that... ..the processors, the packers and the retailers didn't say, well, we can make it even better. They didn't, they kept the price up. Oh great... the industry has spent all this money telling them to consume more beef, why drop the price? [The beef industry] spent millions, millions propping up consumption.

Interviewer: and the consumer ate it thinking they were supporting the producer, not the packing industry?

They did, ...because they gave it the confidence, eh. It was a great marketing plan, they did a helluva job. But the stores, say oh, we got more people buying beef, maybe we will drop the price? No, we will keep it the same. You know, it was just ludicrous. And then those guys to talk about things like they are friends of the industry. Bullshit, they are not. They are far from the friends. I know some guys who work in industry, they say, yeah, they don't want it open. If all the animals go down to the 'States there are less animals for them to process. Nothing is better for a packer than to have them lined up at the gate to come in. It is good news. (Producer 9)

According to this producer, the beef sector worked with media to convince the public that beef was safe, and the packers and retailers profited from increased sales at the expense of both the producer and consumer. Furthermore, it was in the transnational corporations interests to keep the border closed.

5.2.3 Interested Politics

The border closure became politicized within and beyond the immediate BSE issue. Powerful stakeholders (such as transnational packing corporations, government and the CFIA, media and R-CALF²⁷) with conflicting positions as to the seriousness and approach to address the BSE crisis

²⁷ R-CALF USA, the Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America, represents a

only added uncertainty to markets and increased the risk to farmers. Some producers blamed powerful consolidated packers and retailers, political (as compared with evidence-based) trade embargoes by powerful countries, poor government handling of international affairs, and the government's inability or unwillingness to bring farmers and their interests into the decision-making process. Although the Canadian government reassured the public that it was working on the problem, the multiple interests of government and other powerful institutions did not appear to be adjusting the system to benefit Saskatchewan producers in the long term.

5.2.3.1 Uncertainty and False Reassurances.

As mentioned previously, repeated government reassurances that the border would open in a month or two months had proved to be misleading. Producers felt they were left in the dark as to the seriousness of the border closure; that government knew it was serious and didn't warn the producers. Here a mixed farmer (dairy, beef and grain) expresses his frustration with the situation:

I felt cheated in that as myself and all of my neighbours felt this was a six-month issue and nobody at any level politically or otherwise, came forward and said “look, this can be very serious over the long term, you know, conduct yourselves accordingly.” And that is the part that I was really upset with, because I'm sure CFIA and others knew that this wasn't gonna just blow over. And there was nothing in the media, the papers or the TV, unless I missed it, it was all we found this and we are doing this and we are cleaning out the herd, and... but everybody expected it, especially in my area where we went through the foot and mouth thing [in the 1950s], you know, six months later the issue is gone and it is back to normal. That is what we expected. This didn't work that way, and I'm sure they knew. That is the information that should have been out in the farmers... this is a long-term issue that should be looked at seriously. I don't know if I would have changed anything, but at least I'd have been thinking different and maybe made some other choices. But I felt really upset with the fact that there wasn't more of a government intervention saying look this is serious, you've got to think about it... you know. I'll leave it at that. (Producer 5)

For this producer the problems were more than uncertainty about the length of the border closure, but a lack of accurate information. Most producers I interviewed did not know what was happening behind the scenes, and these producers felt that government practices were

segment of the US cattle producers. R-CALF focuses on domestic and international trade and marketing issues (See appendix B for more information).

disconnected from their realities. Some producers remained relatively well informed through their inside positions within producer organizations. Here one beef producer confirms that he did know what was happening because of his work with producer organizations:

I guess my position as a [Saskatchewan] Cattle Feeder [producer organization] I was fairly fortunate to be in the information loop. And that helped tremendously... ..because I knew what was going on behind the scenes. I knew what was being worked on. I had the information that most people didn't. [Which had] created the uncertainty which everybody feared. ... And you know, that... Saskatchewan Stock Growers [producer organization] would have been in the same boat. Along with the CCA and all the other provincial organizations that were meeting with government and you know trying to work on stuff; work on programs that would alleviate the situation. ...you just kind of hunkered down and stuck with your plan because jumping ship kind of half-way through and jumping back, it sometimes doesn't work. We just kind of carry on with what we are doing and hope for the best. Having the information of what was going on behind the scenes really helped. (Producer 11)

Although this may appear to contradict the argument that producers would have reacted differently had they had more “insider information”, this producers point is that because of his direct involvement with producer organizations, he was privy to information that most others would not have received. Comments such as this suggest that farmers do not all operate with the same understandings. Those in closer dialogues with government through producer organizations may have better knowledge (and perhaps agency) within the industry.

5.2.3.2 Politics over Trade Disputes

Many of those I interviewed felt that there was more politics involved in the BSE dispute than science or market economics. This is seen in questions regarding accepting help from the Japanese, in testing all animals for BSE, and in the way we carry out testing procedures. Some farmers questioned the democratic legitimacy of the CFIA:

If it was more [about] marketing we would have started testing for BSE a long time ago... ..Because if it was about markets we would have been in Japan following '03 if we would have tested. ...I think there was a tremendous lobby effort from the packing industry that they didn't want to change and that is why we are not [testing]. ...And then CFIA is a kind of a strange organism, because it kind of has a life of its own. And because it is under the department of agriculture and also the department of health, it has got two bosses which it can

play off of each other. And runs with a mandate that neither department can control. (Producer 11)

Most producers had many questions about the multiple interests of the CFIA. Having so many parties with their own complexes of interests and risks all making decisions that combine marketing, politics, science, food safety, and economics made the disputes and issues surrounding BSE quite contentious. Basic questions are hard to answer. Should science or politics lead? How should the food chain be managed? Which basic ethics underlie our decisions? How much power and voice should particular groups (with particular economic and circumstances) have in international trade disputes? What should we pay for food and who should get the money? How much uncertainty and risk are we comfortable with?

One of the most prominent political issues across all of the interviews was the R-CALF disputes. In an ironic act of farmer agency across international boundaries, a small group of economically interested American producers extended the Canada-US border closure for another five months. During this dispute it seemed that bureaucratic safeguards and food safety rules were being used as non-tariff trade barriers once again.

In the case of Japan, livestock producers perceive that politics and dogmatic scientific standpoints on public risk perception take precedence over practical trade and economic opportunities. This rancher explains his understanding of part of the problem:

Government should use their power to bring people together from both sides of the fence to sit down and resolve issues, but there always appears to be a buffer zone, or a no-go zone in which you can't seem to get there. A good example of this is when BSE broke out and the CFIA refused the Japanese technical team to come and observe the inspection procedures. To me that was a slap on the face of the Japanese and the start of aggravation. It is almost saying one of two things... ..either we have bigger problem here that we don't want you to see, or it is a case of professional smugness that we are smart enough to look after our own, we don't need you along. Government needs to facilitate these things so we can look at our differences and get back to some balance (Producer 15).

As explained above, producers need government to help them to sort out these issues. Farmers brought up many contradictory positions of government and other powerful organizations, some

that appear to help them, others that do not. Large consolidated packing plants and retailers appear to be opportunists, making money from the misfortune of smaller organizations such as farms and smaller feedlots. Media and industry is quelling public fears in the interest of upholding industry and reducing economic fallout. The CFIA appears to be unaccountable for their actions. Reportable diseases are bartered for trade access (Bluetongue and Blackleg) undermining the legitimacy of the regulatory process. Politicians such as Ralph Klein appear to speak with two agendas—on one side representing government and its precautionary measures to quell public fears and international embargoes, on the other suggesting farmers circumvent national strategies to keep the disease out of government and public surveillance²⁸. The uncertainty surrounding the BSE disease, the border opening, and the lack of positive changes within Canada became the crux of the BSE crisis. In a time of new uncertainty many normal modes of operation failed. Markets move much more quickly than government administration, and scientific research. Normal contingency planning and risk analysis failed and the mixed messages of ostensibly public institutions resulted in a threat to individuals and local communities and loss of faith in government and scientific legitimacy.

5.3 Producers Engaging Institutions

At the point where they knew deeper structural issues were involved in the BSE crisis, farmers attempted to engage regulators and the decision-makers, as well as groups that were dealing with the regulators on their behalf. All producers that I had interviewed felt disconnected from the public, and that the general public did not know the farmer perspectives. Most of the producers I spoke with thought they should speak out and let the public know what was going on and to phone or write to their MP, their MLA, the minister of Agriculture, and to talk to the media about what was happening.

When reflecting on interviews with beef and dairy farmers, some interesting differences in approaches to farming and the BSE crisis have come up. For example, structurally there are few dairy farms (only 250 within Saskatchewan), and all belong to a producer marketing board that represents them to government and manages milk prices and quotas on their behalf. With beef

²⁸ Klein made a public comment that farmers might be wise to “shoot, shovel, and shut-up!”

farmers there are many producers (over 10,000 within Saskatchewan), and several different producer organizations. As would be expected, the structures affected the culture of engagement. The beef farmers, even if they were involved with producer organizations, would write personal letters to governments and organizations, often with limited or unknown effectiveness. Most of the producers I interviewed showed me letters that they had sent out, and the form letters they received in return, and expressed frustration at the absence of replies from supposedly accountable politicians, bureaucrats, or executive boards. One particularly vocal beef and grain producer explains his letter writing strategy:

When I write a letter, 305 letters go into Ottawa... One for every MP in Ottawa. ...And this is what is getting Strahl [the Federal Agriculture minister at the time] mad. It is because he is getting challenged every day... But that is how arrogant these guys are. I mean they don't want to listen to us. So what do you do with guys like that? ...with the BSE, Ritz [local MP] was on the ag committee that voted not to have the packers audited. My own MP! So how does an individual farmer or a farmer group like APAS or SARM, or whoever, how do you counter-react that if a guy is going to stand up in front of a room and lie to you, won't acknowledge you. How do you get something done when their agenda is... they have got a certain thing in mind. (Producer 3)

The above mixed grain/beef producer felt upset about the vested interests of those in power and is frustrated by the limited democratic options available to him. A purebred producer with a mixed farm also laments his experiences when he attempted to voice his concerns through writing government, media and producer organizations:

I was going through some extremely bad economic times with the BSE, or, well with the ramifications of BSE. I was riding around in my swather, I got some thoughts in my head and I wrote them down, and I sent them to the Western Producer. It gives you an indication of what I believe are some of our problems. You see where I am coming from. I sent something similar to the CCA, Saskatchewan Stock Growers Association [SSGA], and the Minister of Agriculture. I got a form letter back from the Minister of Agriculture, but I got nothing back from the SSGA or CCA. Basically their hierarchy is in the pocket of the Cargills and the Tysons and the Nilsson Brothers. (Producer 4)

These are two examples of individuals wanting to work for positive action, but engaging government on an individual level rather than through producer organizations. One of the dairy producers pointed out that beef producers, in their open market “don't have the culture of

organizing,” unlike dairy which operates under supply management and on the whole appears quite organized. When interviewing beef producers it was clear that there were producer organizations that they were members of, but they often engaged individually because they felt that the producer organizations were not bringing their personal ideas forward.

Farm organizations may be more locally accessible to producers than government representatives are, but farm organizations appear to be a complicated mix of democratic ideals and powerful players. They may be more powerful than the individuals when they lobby the government, but an organization's interests do not necessarily reflect particular farmers' basic interests. Farm organizations appear to suffer from the same issues that representative democracies do—namely representation of, and action on, the diverse views of members. The voice of the organization, and individuals in power within it, are not necessarily that of its members:

APAS sponsored an all-candidates meeting before the last election in Saskatoon. And they told us ahead of time what MPs were going to be there. And we knew that Gerry Ritz [The local MP] was going to be there, so I got together with a bunch of our constituents here, and I said, “I don't know if any of you guys want to go down there,” but I said “Gerry Ritz is going to be there, and I know what he is going to do, he is going to get up and say something about the BSE issue and the audit, and I know he is going to say that he didn't block it.” So I says, “We need to have questions from the floor asking him why his party kayboshed the original audit on the meat packers.” There were no live mikes, the only mikes were the candidates, we had to put a written question in. So we had it written ahead of time. And do you think APAS would read that question to him? They wouldn't even touch it because they are too afraid they were going to rock the boat. And he got up on his pre-amble and he said, “The only reason that there was an audit done on the meat packers is because the conservative party pushed for it.” Now can you imagine? After he defeated it himself, he voted against it, and the original audit wasn't done and he had guts enough to stand up and say that right in front of me. ...I just about jumped up and said “ Mr Ritz, you are my MP, and you know that that is a bloody lie, you'd better come straight with everybody right now.” But I didn't... (Producer 3)

Farm organizations and government do set up local public meetings, usually before elections, as a forum where farmers can hear what candidates have to say and question them. Producers appreciated these town-hall style meetings, but, as in the above comment about an APAS meeting, many producers have been frustrated because recently there have not been microphones

open to the public. They have had to write their questions down and submit them beforehand—effectively allowing the censoring of more politically sensitive questions and putting limits on dialogue:

This was a question that was to be directed by myself to Chuck Strahl [Minister of Agriculture] at a meeting less than a year ago in Yorkton. And the Garry B. he is an MP in this riding, and he got his orders from higher up that they were not to freely allow questions like in the past. So before I had the ability to ask his questions they had to go through a committee. The committee decided they wouldn't allow this question to be asked...

[Transcript of the farmer's Question: Subtracting government payments, grain producers have realised a net negative farm income even lower than it was during the depression years during the dirty thirties. This is happening despite the fact that farmers are boasting the highest efficiency gains of any sector in the Canadian economy. As fast as we achieve this, our efficiency gains are taken away from us through our escalating input costs and lower prices for the grain that we produce. I am certain that you will agree with me that farmers deserve justice at the marketplace which certainly is not happening at the present. In your personal opinion, what needs to be done to solve this desperate, unjust, farm economic problem - end transcript].

And they wouldn't allow this to come to the floor... The only reason that I can see is that if this had been allowed, and they don't want to deal with this problem here, they just don't want to deal with it. For them the thing was to not let me bring this out at the meeting.

Interviewer: Do you remember what kind of questions came out?

Oh, they allowed some questions to the floor. They have to because it would look pretty bad [otherwise], but basically nothing very controversial. They screened them and only allowed the ones that wouldn't make them look bad. (Producer 6)

This beef farmer expressed what many had experienced. It appears that the ability for producers to speak freely and publicly at local meetings has been severely curtailed in most regions of the province. Even though some public discussions are quite structured, producers (and industry) do use public media²⁹ to be heard. During the BSE crisis, the media appears to have been exceptional

²⁹ Although it appears to be a public forum, the majority of media in Canada is privately owned and profits mainly through advertising (Vipond 2000).

at marketing beef—Canadian beef consumption increased³⁰ after Canada's first domestic case of BSE (The only country on record to have achieved this feat). Like farm organizations and government, media is a complex institution that has diverse political and economic interests, resulting in actions that are both positive and negative for individual farmers. A few farmers spoke publicly through interviews and meetings with the CBC and other media outlets. To those interviewed, these were positive indicators of voice. However, when conservative media was seen as a tool that was manipulating the public to support the agriculture minister's attack on the CWB, one farmer was quite upset:

That is worse than a dictatorship. That is fascism. That is what Stalin and Hitler did. And I mean they do it with the news media. All you have to do is look at what is going on in the United States. With Fox radio, or Fox network, it was controlled by the republicans; it was their mouthpiece, that is how they spread all the propaganda they wanted. We are doing it up here. Look at Rawlco radio. (Producer 3)

The fact that media can be swayed by powerful interests can also be seen as a good or bad thing, depending on which side of the fence you stand:

The media, I'll give credit, the media was positive on this because they really realised that this is, for some communities the beef industry is the heart and soul. In a lot of these communities, a lot of people are from the beef industry, if that industry went down, it would be crippling in some of these areas.

Interviewer: One of the things, you talk about beef, but few people talk about milk or dairy as far as BSE is concerned. Has that come up?

No, no, they get us on price, but Dairy Farmers of Canada was giving a good promotion, and no media has ever said, "Can BSE get in milk?" ...They are shoving a few million bucks into advertising, they have some say. When they say "this is a news release, you should read it," if you don't read it, and you don't report it right, guess what, you got no more advertisements. So there is some say that you have, at least you will get an ear. I will give credit, some of the news releases for Dairy Farmers of Canada or the beef industry put out, they were read on the news word for word. I think the media did not want this to be a failure, they wanted the industry to survive. I mean, it's a pretty serious backbone for a lot of people. (Dairy 9)

30 From farmers' perspectives, the public were trying to help them by consuming more beef, but the money was primarily being taken by more powerful players along the supply chain, namely the packers and retailers.

In a situation of uncertainty, perception appears to be about which possibilities directly affect people or organizations first and foremost. In the above quote, public risks are not explored and public perception is directed by industry to reduce its own exposure to risk. Perhaps things have not changed since Fowke's (1946) history: partnerships were good for producers only when their interests could be seen to align with more powerful groups.

5.4 Going It Alone

Producers did work towards reforming the structure of the beef industry to better reflect their needs, but with limited effectiveness. The most successful attempts at addressing weaknesses through systemic change were by groups of beef producers working to set up producer-run or co-operative meat packing plants to revive the domestic market for cull animals. Three that were mentioned to me were potentially successful: Natural Valley, NESCO, and one unnamed processing facility (Rancher's Choice) that was set up in Alberta because there was insufficient government support in Saskatchewan. Many attempts to build packing plants were unsuccessful. In one particularly unfortunate and negative incident, producers had been conned out of money in a fly-by-night scheme where they thought they were investing in a slaughter facility but in the end the money disappeared. Most stories were of little government support and failed attempts. One of the most successful projects, Natural Valley, got up and running but (according to one producer) was having a difficult time competing with the prices multinational packing plants could offer producers for their cattle. The NESCO meat packing plant in Melfort was incorporating innovative multi-species technology to break into niche markets, but at the time of interviews it was still waiting for government assistance and regulatory paperwork. As one purebred beef producer who was also a NESCO member explains:

There are a lot of hills to climb over to get something like that going... It has taken about three years to get things moving and organized. The thing is that we are going to do the full value-added thing. There are some new products that are going to be processed. It isn't just going to be a slaughter thing, it is going to be a value added... Take some of this money that is available that the middleman has been getting. Right now fat cattle are the same price they were 20 or 25 years ago. And you are paying over twice the price in the store for steaks. Somebody is making a profit. But it isn't us. And that is something we have to deal with. (Producer 4)

These plants are one of the only examples of ordinary producers successfully coming together to create systemic change, addressing one of the core reasons why it was possible for BSE to devastate the Canadian cattle market—the lack of domestic slaughter capacity coupled with the risky business of exporting live animals across international borders.

5.5 What About vCJD?

Producers attempted many different strategies to both manage their own operations and to shift the agricultural system in ways that would shield them from risks of BSE and similar diseases. Many of their stories expressed their understanding of the issues and their frustration in struggles to get government institutions to partner with them to devise solutions and act. While vCJD and other TSEs were part of the context for the BSE crisis, the crises that Saskatchewan cattle producers perceived appeared to be disconnected from the possible reality of a global health crisis—the emergence of a new and potentially deadly disease that jumps species barriers, is both difficult to detect and impossible to destroy, and can move around the world in animals and animal products.

I found it surprising that the dangers of BSE were not raised more frequently in the interviews. The possibility of a health crisis was not something that farmers wanted to talk about; it was the politics and economics of BSE that appeared more important. This may be related to the similar direction of public discourse as well. While the CFIA and others were working to create an animal testing and action plan, Alberta Premier Ralph Klein commented that producers ought to “Shoot, Shovel and Shut-up.” The popular media spent considerable effort to balance talk of legitimate fears with discussion of economic realities (Ruth and Eubanks 2004). R-CALF used the crisis as a way to launch its own lawsuit to keep the border shut for Canada's violation of trading regulations (not quarantine). The Canadian Government appeared to bargain US border access to Canadian live cattle over thirty months when our BSE status was not yet “BSE free” in exchange for Canada softening our stance on Blackleg and Bluetongue (reportable/quarantineable diseases). The CFIA finally stopped reporting actions on disease outbreaks until the outbreak was confirmed to protect the public from undue “panic.” Because of such ambiguity in facts and political actions, minimization of public fear to keep markets operating, and the uncertain and

unknown nature of BSE and vCJD, there appears to be an underlying message that until we see otherwise, the human health risks are in reality not so great.

There appears to be more involved in farmers' perceptions of risk than probability theories (actuarial and econometric approaches) can take into account. There were uncertainties embedded in the individual and industry-wide risks involved with finding BSE. Many producers explained that they had no idea what would happen to their farm if BSE were to be found in their herd. One rancher explains:

We have created an organization in this country, the CFIA, that is very very hard to penetrate and to understand. I have criticized them lots about their information on their side of the fence getting out to producers. There needs to be handbooks out there that are getting to producers on understanding the definition of a reportable disease and a notifiable disease, a list of those diseases, an explanation of their powers and how they exercise those powers; the whole thing. It is a mysterious thing. For those that are caught up in this investigation it is very frustrating because CFIA doesn't tell them anything until it apparently comes to an end and they receive hand delivered, sealed letters – a one-way dialogue until you are informed of a decision.... Probably 35 or 40 years ago it was different. Food safety is now one of the top 5 fears of life. This changes the whole political format. (Producer 13).

Not only is information on the diseases a problem, but also information on government procedures. There was a high degree of uncertainty with respect to government actions and, therefore, the risks of compliance with government programs aimed at discovering BSE could not be calculated—you may have no problems at all, or you could lose the farm. Producers had many questions. If the government is seen as concerned only with international perceptions of the national risk management program, not the actual welfare of individual producers, where will they put their aid? If a farm were quarantined, would it ever start up again? Would dairy farmers be able to maintain their milk quota when under quarantine? Would they have to sell it? The producers I interviewed viewed the government as working on an *ad hoc*, reactionary basis, leaving farmers to do the same. Farmers were left to assess the risks with incomplete information. They imagined the worst-case scenarios and cautiously dealt with issues while waiting for a situation to presents itself where they could get a clear understanding of what to do.

5.6 Rejecting Public Institutions

Although farmers have a reputation for being fiercely independent and also anti-government, it appears that the recent series of crises has both highlighted their dependence on government and hardened their views with respect to the legitimacy of government actions. As discussed previously (see section 5.2.3.1, page 82), many of the producers that I interviewed found government reassurances that the border would open shortly to be both misleading and contributing to uncertainty. Most farmers believed that the government did in fact know that re-opening the closed border would neither be quick or simple. The uncertainty and heavy politicking involved caused a deepening of producer scepticism towards government actions. Those making decisions in government were not the ones who were directly affected. Nor did they appear to be listening to producers. The early stages of the BSE crisis brought increased risks for beef and dairy farmers, and narrowed the viable options for those working faithfully within the system. They felt that they were misled, and many had not fared well. While there was a financial crisis, there was also a crisis of government legitimacy and of democracy.

Perhaps because of the lack of information, uncertainty around interventions, and the multiple interests of government where producers find themselves as far from a priority, producers did not want to risk having BSE discovered on their farm. As one producer put it “Nobody wants to get tagged with it”. Farmers tended to exercise caution, to “take care of their own” and to disengage from controlling institutions where results of surveillance might increase risks (either through increased expenses or through further delays in the border opening). Instead of having cull animals inspected by bringing a veterinarian out to their farm, which is expensive and perhaps risky in the sense that they *may find* BSE there, or sending them to slaughter where they also would be checked, it was a commonly reported practice to shoot your own lame or cull animals, and to “let the coyotes eat them.” In this environment it was difficult for government programs designed to control and monitor the BSE crisis at the farm-level to be effective. The program under which farmers and veterinarians were paid a small fee to check lame animals for BSE was only used by a few of the farmers I talked with. Those that invited the checks were pasture grazing. They felt that their animals were at low risk of contracting BSE because they did not use

any pre-packaged or mixed feeds that might be contaminated with risky bovine material. Testing on these “safe” farms added to the quota necessary for compliance with international regulations without really raising the possibility of discovering BSE.

Why was “getting tagged with it” such an issue? All but one of the farmers I interviewed had strong personal and family ties to their way of life, the history of their farms and their animals. For most, the loss of the farm would have been much more than just a business loss, and they did not want to expose their farm, or their neighbours farms, to the possibility of being the next BSE case. There were many rationalizations. Some producers noted the program did not pay much. Others mentioned that it left a dead animal in their yard until the lab test was completed, an animal which they then may have been forced to dispose of properly. But perhaps more importantly, it would put their farm (and Canadian beef farms generally) in jeopardy. It is allowing institutional surveillance on their operations, and, in a way, displaying their co-operation with government programs and inviting community critique. One producer that did not have strong historical ties to his farm felt it might actually be better if BSE was found in his herd, at least then he would have his animals taken care of and paid for. For most of the rest, they feel they would not only be increasing their personal risk of quarantine and depopulation, but they would be increasing the risk of all beef farmers in the case of another international intervention. All this by agreeing to a government program apparently designed for food safety and to ally public fears and international quarantine reactions—fears that are difficult to quantify, but with strong effects nonetheless.

This brings up serious issues of the responsibility for public welfare. Producers have done what they can to protect themselves, their communities and the industry that supports them. Issues of the common good are left to the government, which, in producers' memories of recent crises, appear to have been acting on other principles (public perceptions and politics for global trade and industry without taking the farmers' voices or well-being into account). Many producers continued with risky practices in order to avoid government involvement when they could. Government involvement appeared to be a greater risk to them than a case of BSE that might go undetected. While to date it does not seem that serious animal and human health repercussions

have come of this, the unknowns about BSE, vCJD and the possibility of transmission across species and into human populations are still here.

5.7 Summary

After exploring the understandings and practices of producers it appears that their initial strategies were typically to maintain the *status quo*: Waiting out the international market; maintaining domestic markets, and adapting farming practices to operate in “survival mode.” Larger organizations that were better positioned financially could take advantage of the situation—buying cheap stock and cheap land from those who could not wait out the market and were forced or wanted out of cattle and/or farming.

As conditions persisted, some producers and producer organizations tried to act to take over middleman positions, to build organizational capacity and utilize government assistance (where possible) to adjust apparent systemic risks built into the structures of the beef industry. Most attempts to engage government and powerful institutions have not resulted in satisfactory changes. Many of the same risks still remain and the perceived poor performance of government to act with and for producers has led to a democratic crisis and possibly a legitimization crisis which, by farmers disengaging, may have more serious consequences for policy creation, effectiveness and food safety.

It appears that there was a restricted movement of knowledge and information through government, farm organizations and producers. In such issues as the BSE crisis, one can conceptualise knowledges and understandings at three main levels. At the top level are the government bureaucracies and agencies involved in agricultural safety and trade, such as CFIA, along with powerful interested private institutions such as packing plants and other multinationals. At the bottom are producers and local groups representing the rural individual and public. Working between these are organizations that interpret and shape knowledges between the two poles, such as the CCA, SSGA, NFU, and the media. Each group has their own knowledge and interests regarding the best way to manage issues and outcomes, but knowledge does not flow freely from the top level to the bottom, nor does it flow easily from the farmer up to the

policy-maker. As the voices of farmers in the last two chapters have brought forward, knowledge flow appears to be directed by structural, experiential and ideological factors. Structurally there is the active removal of institutions (such as the dismantling of provincial extension services as well as the extension division at the University of Saskatchewan) that used to carry information from national institutions to the local place and community. Experientially, there are (generational) tensions between rural and urban values, ethics, and ways of working, leading to ideological gaps, misunderstandings, and a fragmentation of common interests into more individual interests. In this situation, those who interpret and shape knowledge have the power to move (and filter) knowledge that will lead to changing practices on farm and in the government. If those in governing positions do not listen to, and deal fairly with, the local producers, the legitimacy of governing institutions suffers.

Beef producers' actions appear to indicate a legitimacy crisis; they needed government intervention and support, but they felt government rationalizations were authoritarian and insincere and rejected government impositions where possible. Holistic beef producers have disengaged from controlling institutions in a more serious manner, consciously building self-directed farms that attempt to fit economic realities to personal and family goals rather than the other way around. This community of practice has limited their risks from uncertain policies and expensive technologies wherever possible.

During interviews, farmers noted that there were better times farming, mostly during the 1970s, when governments had different ideas for farms and rural communities. Fowke (1945) pointed out that in Canada, it has always been that only when producers interests coincided with powerful groups that their voices were heard. However, during the BSE crisis, producers reported the economic impact and the uncertainty in the way government was addressing their issues were the important factors. Powerful institutions contradicted each other regularly, and there was uncertainty and ambiguity with respect to government actions and safety nets if farmers were to find the disease in their herds. Even if not moved to crisis because of government actions on BSE, it appears to be a situation where the government has been losing ground with respect to legitimacy.

Chapter 6: Discussion and Conclusion

6.1 Introduction

This work began with an exploration into what had been happening to Saskatchewan farms producing beef and dairy cattle during the BSE crisis. Because I was working within the ethnographic tradition, I initially took a broad look at understandings and actions at the producer level, keeping theoretical deductions to a minimum, then inductively building and applying theories as I came to better understand producers' situations. I was interested in bringing producer voices to the forefront of the analysis, to learn from those experiencing crisis and acting on risk perceptions in a very direct way. Although employing an approach that is primarily inductive, I was also interested in how concepts and theories of risk, resilience, and the farm crisis could be applied to the BSE crisis.

The interview questions were broad. I wanted to find out how this disease was apprehended and managed by farmers in Saskatchewan, and how this related to current ideologies and global linkages. This included the ways that public and institutional perceptions of risks have affected the resilience of local producers. The literature review presented an historical context and a critical overview of issues confronting farmers in Saskatchewan. It considered contemporary approaches to farming, conceptualizations of risk in mainstream agricultural discourse, and the perceptions of cattle disease and policy in the Canadian cattle industry. All this served as background information to better understand the effects of BSE, vCJD and how crises are addressed. The literature review concluded with a preliminary look at risk and the BSE crisis based on literature alone. The farmer responses documented here have both grounded and added more complexity to my understanding of interconnections between actual practices and theories of resilience and crisis. In the following discussion, I attempt to bring these understandings together to make sense of producers' actions within the BSE crisis and to suggest possible directions for change.

Farmers have particular positions within the agricultural system as well as ideological relationships to one another (which appear to be related). As discussed in the previous two chapters, several patterns came to the forefront in the interviews. For the farmers studied, financial solvency was a necessary goal but cultural/occupational community and family-oriented ideas of success were also of central importance. For producers, success was linked to their sense of purpose, autonomy and ability to improve on the work of their ancestors. They wanted to raise their children well. The farm was expected to provide a venue and a means to do that, as well as providing a family legacy. Ideological divisions were noticeable in two related areas. The first is seen in producers' struggles with, and perceptions of, rural versus urban understandings. The second was between farm operations that focused mainly on individual business versus those that took a more balanced approach to the business of farming as part of supporting communities and a rural way of life. The BSE crisis also highlighted the differences in financial risks between the domestic oriented, supply-managed system in dairy and the international market oriented system in beef. Cultures of organization as well as rural and urban political and ideological divisions appeared to have some effect in the ability of producers to be agents of agricultural change beyond their own farms. Farmers working within a supply managed system appeared better able to lobby government for the benefit of their industry, and were able to utilize the steady income of the "milk cheque" to offset risks in other farming ventures. Cattle farmers were frustrated by democratic deficits and legitimacy issues with respect to the practices of governments and powerful transnational corporations. Although knowledge of government approaches and agency within the beef sector were stronger for those farmers that were directly involved with larger producer organizations, the average beef farmer was typically left without the knowledge or ability to act. This is closely related to what Stirling (2001) refers to as political de-skilling.

6.2 Crisis Context: Success and the Family Farm

The Saskatchewan family farmers I interviewed frequently portrayed themselves as the most undervalued (and vulnerable) players in the Canadian agriculture industry. Their communities and farming practices (which they generally feel are threatened) have a long history built, in part,

around government projects and policies. These include the railroads connecting the country and bringing homesteaders to settle and break land in the prairies, the Crow Rate which supported wheat production in Western provinces and subsidised local infrastructures including schools, hospitals, post offices, electrification, telephones and highways. Government support for local infrastructure has been slowly withdrawn since the 1970s, resulting in changes in farm practices and rural life, and leaving many producers in shrinking and non-existent communities (see Epp and Whitson 2001). More recently the loss of the Crow Rate and government attempts to dismantle the Canadian Wheat Board have made it clear to many producers that governments are not interested in enabling family farms to survive in their present form.

Governments appear to have shifted from directed support of rural communities to a reliance on the “invisible hand” of the global marketplace. In this “unregulated” system, farmers find themselves increasingly dependent on expensive technologies and larger farms that make farming more risky as they try to maintain their families and produce for markets thousands of miles away from their communities, often in other countries. Unlike the multinational corporations that they interact with, farmers generally do not have large amounts of liquid capital; they are tied to their land and farm investments, as well as their way of life and communities. Producers point out that in this system of producing for global markets, multinationals (rather than farmers) have what governments want. Deep pockets and ease of mobility give large global corporations bargaining power for government support. Without strong government support, farmers have a more individualized understanding of their risks. Rather than governments partnering with them to devise a workable strategy, farmers are left to adapt themselves to what appears to be a biased and chaotic system.

Resilient farmers adapted their farming practices as policies and markets emerged and shifted, and attempted to be part of positive systemic change by engaging governments directly and influencing public opinion. Although resilient in the sense of managing to retain their farms and some aspects of rural life, many producers have not been able to farm successfully by their own definitions. Their best times were when they had cheaper input costs and high grain prices in the 1970s. At that time Russia was buying large amounts of wheat on the world market, and

Saskatchewan wheat farmers did relatively well. Later, the oil crisis of the 1970s, high interest rates in the 1980s, the US moving off the gold standard, Cargill moving into Canada, Canada-US free trade agreements, the loss of the Crow Benefit and the beef industry's strong entry into the export market all changed the face of farming and impacted farm viability (NFU 2008). It was in this increasingly precarious position within the agricultural system that producers entered the BSE crisis.

6.3 Buffering Crises

As with other emergencies and crises on farms, one of the most salient effects of the BSE crisis was that many farmers lost income. The BSE-induced border closures were much longer than other quarantines that farmers could remember, such as those related to foot and mouth disease. When borders first closed, it was clear that this was an international as well as a domestic issue. Producers felt it was in the hands of government, but producers could adjust their practices if they knew the extent of the crisis. On the advice of government relayed through the media, most producers managed initial financial difficulties by relying on their capacity to buffer such shocks—rather than actively trying to change the system or radically alter their own enterprises, they waited out the market mainly by “tightening their belts” and relying more on off-farm work.

According to the farmers who were interviewed, the BSE crisis presented an anomaly to the supply-and-demand market theory to which they had ascribed. Stable or rising prices at the retail level were not reflected in the prices farmers received for cull cows, fed cows, and feeder cows; the “invisible hand” and the classic laws of supply and demand did not seem to have been operating as farmers understood them. The government did step in to support the beef industry during the BSE crisis, but producers felt most of the money eventually ended up in the hands of packers and retailers. Even when money was given directly to producers, it was siphoned off by more powerful actors along the supply chain. Beef producers, the weakest players in the chain, felt they were the ones who had borne the costs and increasing risks of beef production over the long term. As the system adjusted to regulate the value chain more, producers were the ones that would pay for the safety measures (Specified Risk Material (SRM) removal, RFID ear tags, and monitoring systems). Producers began to suspect that powerful, profit-motivated interests within

the beef supply chain were taking advantage of the BSE crisis and influencing government practices, and there was little they could do to stop it.

6.4 Adaptation and Change

BSE has brought an awareness of unequal partnerships to the forefront for many beef and dairy producers. Producers worked to bring their issues to government and to press government to adapt policies with their situation in mind. While farmers had differing and sometimes conflicting ideologies concerning government intervention and control, all producers I spoke with became increasingly convinced that there was a need to take action as the crisis continued. Few felt they were effective. Only when the farmers' interests coincided with those of more powerful players did they realise any of their goals. This seems to be consistent with Fowke's (1946) conclusion concerning pre-1950s agriculture: farmer voices were only heard when what they were asking for was congruent with the interests of the ruling class. Perhaps a lack of a common voice kept beef producers from accessing government support. More organized and powerful players appeared to have stronger positions to take advantage of various forms of governmental assistance and interventions. These were seemingly designed and delivered without the benefit of the knowledge and direction that farm communities could have provided.

Farmers were not the only ones that could not communicate effectively as a group. The producers interviewed gave evidence that supported Leiss' (2000) contention that government and media gave conflicting reports, downplayed significant issues, and through poor risk communication, misled the public and producers as to the probable length and seriousness of the BSE crisis. False reassurances and uncertain time frames made innovation more risky. Given the length of the crisis, most producers took significant losses as they resorted to the general practice of waiting markets out. As the crisis wore on, the majority of farmers became convinced that the government had been less than sincere or forthcoming in its public pronouncements regarding BSE. Government's capacity as a knowledge broker is an area that producers feel governments are responsible to them. Producers see government as essential to their ability to participate in the world market but government actions have been seen as predominantly urban-centric and focused on partnering with multinationals rather than on supporting the interests of rural people by acting

to sustain farmers or develop rural communities. This, combined with recent difficulties in farming and the dismantling of infrastructures, has caused producers to feel an increasing uneasiness when “partnering” with government. Unequal and insincere partnerships can increase producers' risks substantially. Farmers working within the system appear to have fewer viable options. It appears that farmers are reaching the limits of a representative democracy within a capitalist economy. A representative democracy can be conceptualised as the “reversal of traditional [ruling] ideas, for the government was to be responsive to the people’s wishes, not the people to the wishes of the government” (Henslin et al. 2004). For the majority of farmers it seems the people must be responsive to the wishes of government.

6.5 Contested Rationalities

The BSE crisis, both an agriculture and a health crises, has caused farmers, consumers, experts, industry and governments—all of whom have particular interests—to increasingly contest each others rationalities. The effectiveness and loyalties of government are contested. In order to regain trust and legitimacy, governments must go beyond the *status quo*—which appears to benefit powerful organizations—and take into account diverse positions, stakeholders, and consequences. Beyond questions of political viability and legitimacy, government's practices ought to reflect a commitment to the well-being of citizens and others residing within the national borders, not only to organizations with deep pockets and mobile capital. For most producers not directly connected to producer organizations, attempts at change involved what proved to be rather futile attempts to deal with government, and to some extent producer organizations. For most beef farmers this resulted in a caution against dependence on government. For the holistic farmers I interviewed, this extended to a rejection to what they perceived as “urban,” “academic” or “institutional” knowledge. The holistic management farmers attempted to reduce their dependence on dominant external institutions and were more likely to engage with their own networks. Those that I interviewed worked within conventional agricultural markets, but in other ways distinguished themselves from conventional approaches. First they made their individual, family, and community goals explicit. Only after these social goals had been put in place did they address (through careful planning and support from a holistic community of practice) how they

would work to minimize the negative effects of market forces by employing integrated low-input and low-cost holistic practices.

The interviews suggest that government risk concerns were focused primarily on financial viability within the world market for family farmers and for the agribusiness firms involved in the industry (a rationality based on neo-liberal economics). If agro-industrial firms are one key for shaping the future of farming, the uncertainties (and risks) to be faced in agriculture (and consequently in health) at a global level will reflect the character of an industrial-commercial rationality. Marketing approaches will be used to push ideas rather than more informed, communicative choices that involve stakeholders in creating and implementing innovative social and political approaches. Strategies based only on industrial-commercial rationalities run counter to the more encompassing representative ideal in which democratic governments base claims for legitimacy. That is, protecting the welfare of the citizenry via rational and fair policies that take into account their diverse needs, views and historical understandings.

Some of the farmers interviewed pointed to a world-wide climate of increasing uncertainty and adoption of risky practices, and the movement of risky technologies and materials among and between developed and developing countries (see also Jaffe and Gertler 2008). Many farmers accept these risks, either unknowingly or unwillingly, because of financial pressures, and the realities of operating in the world market. Farmers and others concerned with agriculture, generally see themselves working in a “Rural Crisis,” an “Agricultural Crisis” or a “Farming Crisis.” For government, a crisis rationale may suspend more holistic views, excluding any consideration of important dimensions of rural life that go beyond financial solvency for particular actors. Farmers base many of their decisions on the family aspects of the farm enterprise. They want to remain financially solvent for the purpose of living up to a long family history, raising children in a rural environment and leaving a productive farm for their offspring. These family matters do not disappear in a crisis, and may even weigh more heavily in producers' decisions. Although farmers have important local knowledge and perspectives to bring to policy formation, the attempts of those interviewed to voice their concerns publicly and to engage public institutions seemed to be quite limited in effectiveness. Individual strategies and suggestions

appear to be easily ignored or manipulated by governments and by farm organizations who neither appear to operate with farmers' concerns in mind nor to recognize farmers as equal partners.

Operating with an emergency rationality (as may have been the case with the CFIA), can lead to suspension of even narrow economic logics, and easily moves to an authoritative hierarchical expert-based mode of operation with extremely specific, short-term goals, and a blind eye for long-term, less direct consequences of actions. Such a logic effectively solidifies the power of governmental systems outside of democratic checks and balances. Other voices and knowledges are suspended from the debate, so change takes place without representation of those effected. Furthermore, in the case of BSE, action often appears to have been based primarily on political rationalities rather than on rational action informed by current knowledge of trade, disease, and rural realities. The border closure and testing practices appear to be more about trade protection and issues of national sovereignty than pragmatic approaches to maintain national animal health standards and satisfy trading partners. Canada's historical quarantines for Blackleg and Bluetongue on American imports appeared to have been settled to smooth negotiations on quarantines related to BSE. Linkages such as these make it seem as if the quarantines are used as non-tariff trade barriers to support industry and the national economy rather than to maintain disease-free agricultural systems. During the BSE crisis, balanced economic arguments, and industry press releases were presented by media in a manner calculated to reduce public perceptions of risk and to keep beef consumption levels up. The politics of the border closure overshadowed the basic risks which this disease presented both for health and rural economies. All these risks had the potential to deeply affect the more subtle and particular aspects of producers' lives, rural communities, and practices. A pragmatic focus may be difficult to achieve, but without it, risks to producers can affect the long-term safety and security of our food supply.

One result of the BSE crisis appears to be that many beef farmers no longer regard government discourse as objective or factual. Governments are seen as interested actors, who do not readily take account of, or even understand, rural lifestyles. Farmers in turn, tend to take care of their own issues and sidestep regulating interventions and institutions if possible. As mentioned

previously, regulatory and monitoring policies and programs set up by governments did not necessarily catch on easily. Producers did not feel they needed such monitoring and did not want the hassle. More importantly, monitoring increased institutional and community surveillance on the farmer. Coupled with the uncertainty of political reaction to the discovery of BSE, this surveillance increased farmers' risk of being quarantined, and the possibility of once again putting the whole industry at risk of protectionist over-reactions.

6.5.1 Democracy and Knowledge

Knowledge is key in maintaining autonomy and the capacity to act within a democracy. Individuals must understand their political system, be able to share their understandings of situations, and hear opposing perspectives. Farmers attempt to bring their voice forward individually and through organizations. However, there is not a simple distinction to be made between these two levels of agency. Organizations may promote their agendas to individuals, and powerful individuals can steer organizations. During the BSE crisis one can see that, in terms of representation and knowledge exchange, farmers were not able to partner effectively or anywhere near equally with governments or multi-national agencies and corporations.

Critical Theory generally targets social norms and practices that systematically disenfranchise or oppress people. Bringing forward the voice of those who are disenfranchised creates a space for the system to take into account a wider range of concerns and to progress in a more balanced fashion. This concern is bound up with the philosophical understanding of democracy. In an ideal application, democracy can be practised as direct democracy—a system where each adult member of a society will participate in developing policy. Direct democracy is considered feasible only on a smaller scale—from town-hall meetings to groups as large as city states³¹. In the past, Canada's rural communities have been staunch upholders of community style direct democratic systems. Federal and provincial governments bring direct democracy into a representative democracy framework through plebiscites, referendae and public opinion polls. In

31 There are political movements in other parts of the world that do utilise the practice of direct democracy, such as Argentina's piqueteros in 2001-2002 (McNally 2006)

practice, however, government and political parties often use these as political tools to manage their interactions with more populist agendas.

Theoretically farmers can be represented through federal or provincial elections, assuming there is a candidate who will faithfully represent their interests. For many reasons it appears to them that they are not well represented. As demographic shifts have continued to favour urban over rural, this system has become even less representative of farmer interests. For instance, even by 1996 only 2.5 percent of the Canadian workforce was employed in agriculture; 9 percent in Saskatchewan (Harrison and Friesen 2004:138). With a strong rural/urban divide and the majority of urbanites now multiple generations removed from the experience of farming, the issues that farmers face are no longer the issues of the masses. Farmers note that there are too few farmers or rural people to make a difference or have political effect in constituencies which include an urban area. This is one of the weaknesses of the representational form of government to which we currently adhere. Those who lack numbers do not have the foundation for formal representation to address policies. But the problems of farmers do not appear to lie just in numbers and ideological differences. Farmers (and the public) are extending the questions commonly open to democratic debate. Busch (2003) presents the theoretical argument that many decisions seen as private, corporate, administrative, and techno-scientific have not typically been considered within any kind of democratic politics. And with the BSE crisis (and the farm crisis generally), distinctions between public and private, state and civil society are not so clear. Farmers have been demanding a democratic voice in the design of marketplace regulations at the same time as the state has asserted the importance of “letting the market decide.”

6.5.2 Limited Knowledge Exchange: The Coffee Shop

As government has moved away from supporting the farming sector, academic institutions have also retreated. The Extension Division at the University of Saskatchewan, once a cornerstone of knowledge transfer and university-community support, has been dismantled. Where once there was a small group of provincial extension officers in select communities, now more typically only one government expert remains. Although far from perfect, extension was a systematic attempt to connect scientific experts and local producers (urban-rural knowledge transfer). Now

farmers must increasingly rely on non-specific public media and targeted corporate media for getting information. Much of the information is general knowledge, such as that obtained from the news media, but there are more specialized outlets, such as government and farm organization publications made available on the internet and directly from institutions. Organizations with greater influence on media can control knowledge flows and ideas, shaping awareness and the choices that appear to be available. Rather than an ideal “modern” system where farmers utilize all available knowledge, many farmers end up in more “traditional” knowledge economies, getting their information mainly through either commercially influenced or informal avenues. Those farmers who are the most directly and actively involved with producer organizations, such as the Canadian Cattleman's Association, or the Agriculture Producers Association of Saskatchewan, do get additional access to information but the majority of farmers do not have this benefit. The “average farmer” typically builds an understanding of events by fitting together information and knowledge in more informal ways.

Milestad (2003) has worked to apply the concept of resilience to research on agriculture. She notes three areas in which resilient producers focus on independence from external institutions. First, relying on co-operation and networking between fellow farmers rather than on external institutions when it comes to information exchange and innovations. Second, using support networks based largely in the local community. Third, decreasing their dependence on external inputs. They rely more on their knowledge about the agro-ecosystem in order to sustain farm production. The farmers that I interviewed tended to become more local in their interactions, but also tried to go beyond their communities, frequently without much success. Most farmers in my study were generally pragmatic about using expert knowledge, or even about buying foreign pesticides and herbicides if they could be sourced more cheaply. If a method or product was seen as likely to help the bottom line, it was considered. Only the farmers involved with holistic management were openly critical of mainstream institutions (including universities) as a matter of principle. This type of community of practice appears to result in stronger connections among rural individuals than with anything or anybody that represented industry or government. It appears that during this crisis, the “relevant public” becomes a rather localized community—themselves and their neighbours. The imagined “Canadian” or “Global” citizen was far from the

farm family's consciousness. In the bigger picture, there appeared to be a narrowing of understanding of the “common community” and “common good” in the perspective of government as well as farmers. In government's case the most relevant publics became urban consumers and agribusiness owners. In the latter it was more often their own occupational communities..

6.6 Risk and the BSE Crisis

Because the BSE crisis was a complex and novel situation that required action on multiple levels, it was an opportunity for considered change within the beef sector that may have provided a legacy of positive outcomes for farmers and for agricultural systems generally. By addressing structural and ideological barriers, producers, various interested publics and governments had the chance to learn and innovate in order to create a better system—perhaps one that was more inclusive, reflexive, robust and sustainable. The BSE crisis had the potential to broaden unhelpfully narrow rural and urban worldviews, and thus to support more effective and fully informed public and producer participation in interactions between government, academics, and business. However, it appears from the field research that the BSE crisis did not lead to this type of collaborative, innovative change. Rather, it became a push to return to the *status quo ante* led by the powerful stakeholders who were best positioned to benefit from existing arrangements—and the crisis. While attempting significant systemic change, farmers faced challenges emanating from different frameworks of knowledge and democracy, contested cultural values and understandings, and divided responsibilities. Ultimately their agendas were subordinated to those of more powerful players with vested interests.

Producers have faced many risks during the BSE crisis and they have responded on multiple levels. Beck's (1992) and Giddens' (1990) ideas of a Risk Society have been useful to explain social changes in the wake of the BSE crisis in Great Britain and Europe. This theory has helped to explain why the average consumer lost trust in the checks and balances of policy and the benevolence of public institutions, as a result of growing awareness of individual risks spurred on by episodes of high-risk crises. In Canada, however, consumers have shown themselves to be relatively generous in their response to BSE and the risk of contracting vCJD. By consuming

more beef, the public overall, appeared to display continued trust in the legitimacy and efficacy of governments. They appeared to trust governments to oversee regulators and regulations that would protect the public health of consumers. Producers, on the other hand, appeared to have serious misgivings about government interests, actions, abilities and willingness to protect them. History and experiences made producers more locally focused and cautious. They were also less receptive to government regulatory oversight and programmatic directives. On the surface, farmers' actions and reactions appear to better fit those of a Risk Society awareness than those of the general public. Farmers regularly deal with natural risks and natural disasters. However, they expect assistance from their governments when it comes to managing critical external and manufactured risks (Giddens 1999).

These types of external and human-created risks have become much more prominent in recent agricultural and food safety crises such as BSE. The disease (itself arguably a manufactured risk), presents individuals with both economic and health-related risks. I would argue that in order to be apprehended effectively this disease also requires manufactured counter-measures. However, in a similar fashion to the Canadian public who continue to consume beef, farmers on the whole do not fear the presence of the BSE disease *per se*; they fear the market crisis that results from its discovery. Giddens' (1990) ideas of a loss of faith in the modern project appears to hold up in the case of farmers dealing with the BSE crisis, where a fragmented and variable trust in industry, governments and experts appears to be present. In the risk society theories, the distribution of risk originates not primarily from differential wealth, but from differential knowledge and access to information. With regards to producers living through the BSE crisis, a key predictor of their perception of the risks involved and their confidence in subsequent actions, was their access to information—especially on government activities. Farmer responses to the health aspects of BSE appear to contradict their “public” responsibilities. As producers of the “intimate commodity” (and stewards of the land) their actions affect the public in many ways. The public puts their trust in producers and the governments' ability to regulate them. In this crisis, it became apparent that powerful players within the industry, because of their wealth and strategic position, could control information to promote their own interests. The unfolding of this crisis illustrates how risks

permeate family farms. They act both as a “public” which is exposed to risk, and as an “institution” which can produce it.

Producers were concerned with managing their farms through the border closure. The initial risks appeared to be primarily business and financial risks associated with producers' abilities to manage the slow economic drain caused by stalled markets. However, beyond financial difficulties and decreased profits, the ultimate risk of losing the farm and way of life was an important concern. This was not a far-fetched fear. The number of Saskatchewan farms has fallen over 60 percent since the 1940s (Canada 2001). Those farms remaining have operated in increasingly challenging situations (Canada 2003) and many have become economically vulnerable. Marginally viable farms may translate into producers being much more wary of any risk of surveillance or external pressures on the sources of their livelihood and the stability of their homes. The most aggravated and acute problem for farmers is the unknown risk of a BSE infected animal or BSE infected feed being found on an individual's farm. The farm would most likely be quarantined and the animals killed. Beyond that, producers felt they were in the dark. Nobody knew what compensation they might get. For dairy farmers, for example, there was uncertainty about whether they would be able to maintain, pay for, and fill their quota during and after CFIA sanctions. Uncertainties emanating from government actions and inactions may indicate a movement to the type of risks that are beyond insurance³²—more fully fitting Beck's (1999) conception of a World Risk Society. Regardless, because government had not made its positions and intentions clear, producers were not inclined to subscribe to its directives and proposed solutions.

The theoretical approach proposed by Beck and Giddens does seem to provide an explanation for some of the macro-economic and -political phenomenon that farmers experienced during the BSE crisis. It is not as effective, however, at explaining more micro phenomenon such as the way

³² Insurability is an important indicator of the degree of risk that enterprises or individuals are exposed to. In cases where actors must operate without insurance, rather than being low risk, it may be that they are too risky to insure—that rather than being able to collectively cover a few individual's misfortune, an insurer must now use a few successes to cover the collective—an impossible task. In the case of agriculture in increasingly risky situations such as the BSE crisis, it is disaster relief that is required, and only governments will have the resources to manage such tasks. If such relief is not forthcoming then individuals must focus more on their individual survival than that of the collective.

culture and subcultures intersect with these risk perceptions, including the shifts that have occurred in Canada over the past few decades that appear to have left farmers with little voice in directing national agricultural policies. For farmers facing crisis situations, cultural factors appear to play an important role in framing interests, goals, success, and perceptions of risks to them. Although I did not use her methodology explicitly, Mary Douglas' (1982) theories of risk, culture and blame may be better tools with which to further explore these culturally mediated understandings and actions. With regards to the farm crisis, few farmers subscribed to the idea that individuals were responsible for their own downfall. Farming as an enterprise was perceived to be extremely risky. In most cases the uncertain nature of farming and the global marketplace were seen as the primary cause of failure. This consciousness appears to be different the entrepreneurial, individualistic attitudes that others have documented during the US farm crisis of the 1980s (see Dudley 2000). I would attribute Saskatchewan farmers' understandings in this regard to a rural consciousness and community ethic that they perceive as being encroached upon by outside urban ways of thinking and global businesses practices.

Although producers did not blame individuals when their farms experienced troubles during the farm crisis, producers did feel responsible for the community effects of their actions during the BSE crisis. Some of those I interviewed blamed the cattlemen that let the disease come to the public's attention in the initial cases. Rather than praise them for protecting the public by detecting the disease in its early stages, they rebuked them for getting caught by government surveillance and allowing the media to invade the privacy of rural places. There is a contradiction here—for the general farm crisis the system is seen as problematic, but in the BSE crisis the blame rests on the shoulders of individual farmer. Perhaps in part because of producer individuality, and in part because of their rural sense of community, if a BSE case was to be discovered on their farm, most producers would probably feel personally responsible for media attention and trade repercussions. The consequent blame of neighbours and fellow cattlemen would be expected. There is a moral dilemma as to what to do if BSE is suspected on one's farm. Is it better to “shoot, shovel and shut-up” or to have a suspected animal tested? This presents an awkward need to balance the responsibility to the general public (the common good) against the needs of the local community.

There is a notable ambivalence of producers to the human and animal health risks posed by BSE, and government attempts to manage associated public health and trade risks. To many the precautionary measures enacted by the CFIA and others (under the rationale of protecting public health) appear to be prioritising trade, politics, and public perception over epidemiological efficacy. Rather than concerns with ensuring a healthy product, producers (and the industry generally) were more focused on increases in costs that might have reduced the competitive edge for Canadian beef producers in world markets. This may be a reflection of the brittle financial condition of family farms causing relatively manageable risks to be inflated to the serious possibility of loss of the farm and a way of life. Interested, controlling institutions (including the Canadian government) have failed the legitimacy tests of producers, and the results are unsettling. The perception that the government is not interested in creating a system where producers livelihoods will be supported has far-reaching effects.

6.7 Summary

As contemporary capitalism has evolved and changed the division of labour within agriculture, it has repositioned farmers within a larger, globally networked agri-food system. The current complex agricultural system has emerged, with multiple players interested in the products of agriculture and how farmers produce them; essentially actors with a stake in controlling the practice of farming and the products produced from it. These groups are consciously or unconsciously part of a political, economic, and cultural struggle with farmers for how the land will support humanity, and what risks we will accept. This struggle is carried out in international boardrooms, auction markets, small-town coffee shops and kitchens around the world. This struggle spans societal levels from individual farms and local farming communities, to regional and national producer organisations, to multinational companies and international trade organisations. Those involved have different capacities to act on the agri-food system, from members of small Saskatchewan communities struggling to survive, to multi-billion dollar multinationals such as Cargill opening or closing a meat packing plant. Those involved are informed by multiple interests and understandings, and competing political and economic ideologies. Each has its own particular tangible and “imagined” communities.

I began this study by problematising the impacts of modern, global agricultural systems on people living in local places. I attempted to connect local struggles with market restructuring and resulting risks as well as historical and theoretical knowledge. Based on the experiences voiced by farmers I thought this research could bring forward new knowledge and insights on how crises unfold in rural regions. In doing this I hoped to explore new ways of conceptualizing agricultural issues and possible solutions. I did get some answers, but also many more avenues for further research. This exploration of the BSE crisis has pointed to economic, political, and cultural causes underlying agricultural crises and emergencies worldwide. Current agricultural systems have changed so that many producers are operating with economically marginal farms. Through increasingly global markets and years of crisis and adaptation, many Saskatchewan producers have increased their risky practices and suffered an erosion of their capacity to buffer long-term crises. Although they can further adapt their operations, they appear to have little capacity to offset systemic change outside the farm gate due to their weak political position and cultural dissonance with urban publics.

Although in crisis there is frequently an opening for positive individual and structural changes, this does not appear to have been a major feature of the BSE crisis. The farmers I interviewed have experienced many negative, uneven and contradictory outcomes. The producers' perspectives have provided credence to much of what was brought forward in literature on the farm crisis. Farmers were experiencing multiple crises and emergencies on their farms, and their own ideas of success had become increasingly difficult to achieve through what they feel are normal farming practices. They did not feel that they are able to effectively improve the contemporary agricultural system, or innovate within it. They felt that the situations that they have been presented with by powerful players within the industry had not left them enough opportunity, influence, or indeed time to direct the systems in ways that further benefit their position. Farmers were also not united. They often had as much critical to say about producers not being able to come together as a whole as they did praise for the ideal life of farming. Most cannot see progress in the direction of industry, and cannot see their place within it. In these ways, farmers appear to have been experiencing something of a postmodern farming age, where

truth is difficult to comprehend, scientific rationality does not appear to be reliable, and groups who were once united are now fragmented and individualised. However, this type of assessment appears too simple. Farmers did have strong ideas about personal success, clear indications of reasons for the agricultural system failing them and ideas about how science was potentially useful (although misused or perverted by corporations and politics). Rather than the absence of a common understanding of success, their problems lay more in their lack of a method to address issues, resulting in an inability to better their situation.

Governments do not appear to have isolated producers from the full costs of this crisis. The structure of the beef commodity chain (and the agriculture system generally) allowed powerful organizations to deflect risks and even take a profit during the crisis, leaving little for the average producer. Financial pressures have led to increasing farm sizes, shifting social and cultural ways of life, as well as environmental pressures—all directions that undermine rural communities and small family farms. Benefits appear to be in the form of profit and consolidation of power, largely taken up by those who have sway within the industry; large, concentrated, globally-mobile organizations that assert their control over resources and policy directions.

From farmers' perspectives, government policies, and the markets which they influence are two of the most important factors affecting the viability of their agricultural enterprises. Rather than using markets to enable farmers to maintain their livelihoods and continue or improve their practices, governments and powerful actors are using the market both as a meta-regulatory tool to direct farming practices, and as an unforgiving moral compass; if farmers cannot compete, it is the farmers who are performing poorly. If they want to survive, they should adapt and try something more fitting to the market. Markets, rather than people, are deciding the shape of the rural landscape. As well, for the majority of farmers it seems the people must be responsive to the wishes of government, and not vice versa. As Calhoun (2004) postulated, we may be operating in a global system of “rolling emergencies” or on-going crises that suspend more holistic thought and democratic practices. As well there is some evidence to support Klein's (2007) theory that crises, and shocks, allows those in power to consolidate their position rather than open up avenues for change to create a system more advantageous for all involved.

BSE is more than an economic concern, it is also about the ability of people and institutions working within modern agriculture systems to manage public health and food safety. Health issues have been addressed by governments in ways that include primary producers mainly as entities to be managed rather than as experts essential to the implementation of policies. Producers' large personal investment in their farm and communities is overlooked at considerable cost. By attempting to control disease with strong measures but without clear communications and inclusion of producers as experts in their own right, those involved may have exacerbated the BSE crisis and risked the health of the general public. When producers avoid being managed by a system that they feel does not represent them, they also avoid participating in the governments' risk-management schemes. This approach appears to have slowed the detection of BSE in Saskatchewan cattle, but it may also have hindered the larger projects of regulating farm practices and food safety. The goals and ideals of producers rooted beyond the financial realm emerge as crucial factors in their daily practices, the efficacy of government policies, and ultimately public well-being.

Public health and welfare ought to be paramount food system priorities. Government has the task of striking a balance between individual producer interests and the welfare of the public—whether that public is international, national, or local; rural or urban. Globally interconnected systems make complete awareness of all aspects of the system extremely difficult, if not impossible, to attain. One group can be played against another because of knowledge gaps, ideological differences, (mis)understandings and simplistic conceptions of how enterprises and markets operate. Within the beef sector (and arguably other industries composed of many actors), the system has a large effect on the individual, but individuals have limited effect on the system. Producers realize that recently they do not have a strong record of coming together (perhaps because of their inherent competition with each other); they rely on governments to advance appropriate policies to manage this complex dilemma. For farmers, one problem is that governments are working on a different set of values, and therefore priorities. Adam Smith's 1776 (2003) warnings of the necessity of effective safeguards and civic engagement to ensure that position and power are not abused are still germane. In a global market-based system, without an

explicitly holistic ethic to direct their practices, those with power will use it to shape the system to their individual advantage.

Global trade can be changed to focus on reducing risk to individuals, groups and publics but powerful organizations that profit from current arrangements appear interested in maintaining the *status quo* for their benefit. Complicity in the current system runs from the general public that consumes agricultural products all the way through the supply chain to the producer, and also to the universities and agribusiness firms that develop and market technology. If one looks more deeply, the system is also supported by the division and interdependence of rural and urban societies. Innovation is risky, there is a stability and strength in the certainty that the *status quo* and stakeholders positions in it may offer. Although typical urban ideologies appear to separate home life and work life, hiding values, ethics, and ideals from formal risk assessment, family farmers view financial risks as intimately interlinked with important personal goals, communities and ways of life. Because of high personal stakes in the strongly divided labour system, the elusive common good cannot remain a practical common aim. When governments policies fail to take into account the interests of rural producers, imagined global and national communities lose their solidity. Survival of local communities and individuals becomes the central focus for all energies.

6.8 Implications and Emergent Questions

Although no study can comprehensively address all the issues surrounding crisis, risk, resilience within modern agriculture, this institutional ethnography has flagged some important issues to orient further research on emergent concerns in agricultural systems. The small sample size of this study facilitated a more in-depth understandings of a few producers, but new global diseases that stem from modern agricultural practices have the potential to include all members of society as stakeholders and as sources of risk. A focus on particular subregions of Saskatchewan has also brought forward the need for cross-border analyses, especially those that examine how different economic and political structures affect producer agency. This can be seen in the politicized producer groups in the USA (R-CALF) and in the more interventionist policies of Alberta that in the past countered a dependence on the Crow Rate, and during the BSE crisis led some

Saskatchewan farmers to support producer-run feedlots in that province. Differences found between beef and dairy farmers raise many questions regarding the underlying causes of differences in their world view and social cohesion. Further studies may be able to address how differences in community size, modes of market insertion, and number of competing farm organizations may effect the agency and risk perceptions of “the average farmer.” This research highlights the effects of multiple interested actors, differences in perspectives based on specific culturally-based ideologies, and the power of information control. I have problematised power within the value chain from the farmers' perspective, but this is only one part of the story. The understanding and practices of other influential players managing this crisis is essential for a broader view of the complex issues of modern agriculture. Continued exploration of farm organizations and institutions within the beef industry, (especially up and down the value chain) could be especially interesting to extend this study to relate culture, power, interests, ideology, and resilience among different communities of practice. In more quantitative studies, this research could be extended to include an examination of quantitative economic situations into the qualitative risk perceptions by people caught in crises. This could include a more detailed recent history, exploration of concrete indicators of economic success and risk as well as memories and support narratives to uncover links between perceptions of risk and apparent financial realities.

Although limited in several respects, this study has generated interesting results because of its relatively in-depth exploration into crisis and the understandings of farmers involved. It has reaffirmed the important place of the household and community in the decision logics of farm families. It has revealed strong producer perceptions of democratic deficits and ideological differences between rural and urban populations, as well as the effects of unequal and unregulated commodity-chain relationships. Uncertainty and ambiguity in policy-makers' actions when dealing with high-risk situations has the potential for exacerbating crises and even creating disasters. In this case, government ambiguity and lack of accountability to producers resulted in producers questioning the intent of government actions, and subsequently adopting individual, group, and community-based strategies that narrowed understandings of (and actions based on) the “public good” to a very local focus that could have put the greater population at risk over the long term. This analysis indicates that overall farmers see government as necessary and

important, but they lack voice and understanding within it. What may appeal to farmers is a style of government decision-making that includes clear communication and participation by actors operating at different levels of power that could more effectively monitor and regulate markets and allow more comprehensive risk awareness and quicker action when confronted with global health and trade-related crises. Underlying this approach is a call for greater awareness of the limitations of reductionist scientific and economic logics.

An economic rationality based around global markets marginalises other ways of developing agriculture. A crisis rationality leads individuals to struggle on despite developing widening gaps between their lived reality and their images of success. An emergency rationality allows governments and their delegated agents to take over policing roles without due process or protections. Many producers face situations where far-reaching interdependencies and rather depleted reserves make the difference between stability and spiralling descent a very thin, contingent line. To properly address the critical changes that are taking place both gradually and rapidly, we need to expand the rationalities we use to confront larger questions of purpose and about the nature and direction of progress for our societies and our own lives. When should we rely on science? When should we rely on politics? How should the food system be managed? How much should farmers receive for commodities? What do we want the countrysides to look like? What foodscapes will we strive for? What will our future hold? How will we achieve this? We have many common needs, but we also have unique perspectives on how best to achieve them. There are costs associated with attempts to create zero health-risk agricultural systems, but also with systems where almost anything goes. Busch (2003) has identified vigilance and voice as the two key issues of our time—to attain them both we need a new way of thinking about complex agrifood issues in which “...relationships among people – as individuals, in organizations, and as members of diverse cultures – and with nature are rethought.” We need to create new approaches that can ensure greater food safety without becoming oppressive. We need to invent methods of organizing and addressing issues that permit greater voice for all. Farmers have challenged the state, demanding that it not discount their ways of life, and that it expand democratic spaces to include new forms of participation that can take into account diverse perspectives. If we explicitly address cultural differences and explore common goals, a crises

does not have to be a disaster; it can be an opportunity for the creation of appropriate solutions to achieve a much more genuine and lasting common good.

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Appendix A: Aggregated Farm Interview Information

In order to retain confidentiality, the individual farm information from my original list of 15 beef and dairy producers has been aggregated and summarized.

Type of farm and region: Six mixed beef, grain, and feed producers, including one purebred beef producer. One was in the NE, two in the NW, two in the SW, and one in the SE. Three dairy producers were interviewed, one of whom produced beef regularly, two who produced grain, including one that produced purebred animals for sale. Two were centrally located, and one was located in the SE. Two holistic beef farmers were interviewed, both in the NW, and a third (counted in the six beef and grain producers cited previously) considered his farm holistic, but not in its entirety. There were also four fairly specialized beef producers, one located centrally, two in the SW, and one in the NW. Seven of the farmers identified themselves as third generation farmers or ranchers, although the farms may not have been third generation farms. Two identified themselves as second generation farmers, and two as first generation farmers.

Farm size: The smallest dairy herd had 50 cows, a mid-sized operation had 240 head and the largest, 500 cows. The beef operations ranged from 30, 50, 60, 70, and 90 cow herds to 150, 200, 240, 250, 275, 300, 400 and even 500 head herds. In terms of acres in production or pasture, the range of farms included enterprises that could be considered small, medium, and large: 600, 1000, 1500, 1500, 3000, 3500, 5000, 6700, 10000, 14000, and 16000 acres.

Age range and sex of respondents: Two farm families were in their 30s, five in their 40s, four in their 50s, one in their 60s, and two in their 70s. One farmer was a widower, two were divorced, and the rest were married. Six of the farm families worked on the farm as a couple. In six of the families the wives worked off-farm, including one where the husband also worked off-farm professionally. In the case where female farmers stayed on farm, all but one of the male farmers had to work off farm. During three of the interviews I met with both the man and woman of the farm. In one case I sat with the whole family, including the adult children who were working on the farm. In the remaining interviews woman farmers were not present, or were present only part of the time as they were at work off the farm during the time of the interviews.

Children: All but the two youngest farm families had children. In four of the families the children did not want to take over the farm. In three cases one or more of the adult children were staying on the farm. In one case a farmer's sons farmed elsewhere, and daughters in another. In the rest of the families the children were too young to work off the farm.

Farm Organizations: Three farmers talked about working directly with APAS, six were associated with the NFU, two with Canadian Cattle Feeders association and three with both the Canadian Cattleman's Association and the Saskatchewan Stock Growers Association.

Appendix B: Canadian Cattle Industry BSE Timeline

Industry Shifts Pre-BSE

1897 – Crows Nest Pass Act. CPR received a subsidy to build a railway through crows nest pass in return for cheaper transportation rates. This later became the WGTA (Western Grain Transportation Act)

1979 – USA subsidized grain destined for export markets (Export Enhancement Programs) because of frustration with European subsidization policies. This drove down the worldwide grain prices, and made it more difficult for Canadian grain to compete. These led to a decreasing export marketability for grain, especially for regions far from port terminals. There was a push to either use grains locally for cattle or other livestock, or to shift farm production systems away from grain and into cattle (or other livestock), or to remain in grain and try to get small margins to be profitable by getting bigger and using more technology.

1989 – Cargill opened the Canadian High-River packing plant. Canada entered into the Canadian-US Free-Trade agreement (CUSTA). This started a shift in power that favoured processors over producers (NFU 2008).

1996 – Canadian government policy shifted to favour animals over grain in the removal of the Crow Rate in 1996 when the WGTA was abandoned. At the same time the US herds did not expand, as it was more profitable for them to continue growing grain.

1997 – R-CALF was born. Meat packers in the USA were seen as using cheap Canadian cattle (primarily due to the low Canadian dollar) to depress the prices that were paid for American animals. Canada was accused of dumping cattle (selling them below the cost of production). Dennis McDonald started a class action lawsuit by gathering the support of 27,000 individual beef producers and 126 cattle organizations in three months. The ITC (International Trade Commission) examined the case, and ruled that Canada was indeed dumping, but no action was taken because Canada was seen to have a small enough share in the market that it would not affect prices.

Canada's BSE Timeline*

1992: The CFIA implements a national BSE surveillance program. All animals with clinical signs of the disease are tested, as are some animals with no clinical signs. In May 2003, federal Agriculture Minister Lyle Vanclief said the number of samples tested in Canada was double the international standard set by the OIE, the international organization that collects and analyses information on animal disease control.

1993: A single cow in Red Deer, Alta., is found with BSE. The cow had been imported from Britain in 1987. The herd of origin is destroyed along with other cattle determined to be at risk.

Spring 1997: A female Black Angus calf is born and later sold to an Alberta farmer for breeding purposes.

1997: The CFIA bans the use of brains, spinal cords and other parts, known as specified risk material, or SRM, in cattle feed. The policy also applies to the remains of animals such as sheep, goats, bison, elk and deer. However, cattle can still be fed the remains of chickens, hogs and other animals, and cow blood is still used in cattle feed.

Summer or Fall 1998: The Black Angus (now a cow) sold to Saskatchewan farm, where it lives for four years and gives birth to four calves.

Aug. 23, 2002: Marwyn Peaster, who farms near Wanham, Alta., buys the Black Angus cow along with others at a cattle auction.

Jan. 31, 2003: The Black Angus cow was killed in northern Alberta. It was deemed unfit for consumption because it was underweight and suspected of having pneumonia. The head was kept for testing.

May 16, 2003: The Black Angus cow killed in Alberta in January is tested for pneumonia and BSE, even though it didn't show symptoms of BSE. The provincial lab notified the CFIA later that day.

May 17-19, 2003: A federal lab tests the head of the Black Angus cow on May 17 and 18. As with previous findings, this test does not rule out BSE. Specimens are sent to the World Reference Laboratory in Britain on May 19.

May 20, 2003: The World Reference Laboratory confirms the Black Angus cow had BSE. Within hours, the US announces a ban on all imports of Canadian beef. In Canada, federal and provincial agriculture ministers take to the airwaves to reassure the public that the diseased cow didn't go into the food system and that the animal's home ranch is quarantined.

May 23, 2003: At least seven ranches in Alberta and two ranches in Saskatchewan are quarantined because of concerns over mad cow disease. Food inspectors say the quarantines are merely a precaution and that there is no evidence that more than one cow in Canada has been diagnosed with bovine spongiform encephalopathy.

May 24, 2003: Investigators from the CFIA add three British Columbia farms to the quarantine list, but stress that so far there's only one known case of the disease. Sixteen farms are now under quarantine including 11 in Alberta, two in Saskatchewan and three in B.C.

May 25, 2003: Officials say there's no evidence that more than one animal on a ranch in Alberta had mad cow disease. Preliminary tests on the herd of 150 cattle come back negative for bovine spongiform encephalopathy.

May 26, 2003: Abattoirs have so far slaughtered nearly 400 cows during the investigation of a single case of mad cow disease in Alberta, according to federal officials. Two entire herds - including the 192-head northern Alberta herd where the infected cow last lived, and another in Saskatchewan where it might have stayed for up to four years - have been killed and the animals' brains tested for bovine spongiform encephalopathy.

May 27, 2003: Manitoba conservation officials say they are deciding how to dispose of hundreds of tonnes of cattle parts. This comes two days after the province's largest rendering plant, Rothsay, announced it would no longer process the parts because it can't sell them south of the border. The United States stopped importing beef from Canada because of the mad cow disease scare.

May 28, 2003: Agriculture officials announce they plan to kill up to 700 more cattle as they try to determine how a single Alberta cow wound up with mad cow disease, and whether more cattle are infected. More than 1,000 animals will have been slaughtered in the wake of the mad cow infection discovered earlier in May in a cow that was sent to slaughter in January.

May 29, 2003: Federal Agriculture Minister Lyle Vanclief says it's unhelpful for any province to talk about banning Alberta cattle because of fears about mad cow disease. He made the comment in response to reports that Ontario Agriculture Minister Helen Johns is looking at ways the province could prevent Prairie cattle from entering her province. Meanwhile, cattle farmers are struggling to find ways of disposing of dead cattle that normally would end up in rendering plants in Canada and the United States. Since the incidence of mad cow disease, demand for the cattle has dropped 50 per cent.

May 30, 2003: Tests on three more cattle herds linked to Canada's only case of mad cow disease show all of the animals were free of the disease. Three hundred and seventy animals, including the infected cow's last herd, have been slaughtered and tested. All of the tests have come back negative.

June 7, 2003: A team of international scientists arrives in Regina to examine Canada's response to the mad cow outbreak. The scientists - from Europe, New Zealand and the United States - were invited by Canadian officials, who hope the international review, plus negative tests on 1,400 cattle, should help make the case that Canadian beef is safe. No second case of BSE has turned up yet.

June 8, 2003: Alberta Premier Ralph Klein accuses the federal government of a double standard because Ottawa relaxed employment insurance rules for workers affected by SARS in Ontario but not for Western beef industry workers. "We think the federal government should treat B.C., Alberta, Saskatchewan and wherever beef is produced the same as Ontario," he said.

June 9, 2003: Western premiers say Ottawa should provide \$360 million in compensation to help the cattle industry recover from lost revenue from the mad cow scare. The proposed Canada Temporary Slaughter Cattle Disaster Assistance program would run until Aug. 31 or until the U.S. opens the border to Canadian cattle exports.

June 18, 2003: Federal, provincial and territorial governments introduced the *BSE Recovery Program*. This program was extended in August 2003, bringing total program funding to \$520 million. The program helped to keep the domestic market moving and provided improved returns to feedlots and processors in light of severely depressed prices (Canada 2008).

June 18, 2003: The Government of Canada announced it had signed Work Sharing agreements in Alberta and Saskatchewan to assist some companies affected by BSE. In Alberta, an agreement worth more than \$9 million was signed with Lakeside Packers to help avert the layoff of 900 employees. In Saskatchewan, an agreement worth more than \$400,000 was signed with Heartland Livestock Services, owned by Nilsson Bros. Inc., to help avert the layoff of 53 employees (Canada 2008).

June 26, 2003: Health Minister Anne McLellan and Agriculture Minister Lyle Vanclief promise a quick response to recommendations from an international team of experts looking into Canada's handling of a mad cow case. The four-person investigative team examined how the CFIA handled the case of the cow from Alberta that was diagnosed with BSE.

The team's recommendations included:

- * Removing certain animal tissues from products destined for human consumption,
- * Reviewing animal feed restrictions,
- * Strengthening tracking and tracing systems,
- * Improving disease testing and surveillance,
- * Improving disease awareness among producers, veterinarians and the public.

July 8, 2003: Provincial and territorial governments announce they are considering limits on American beef if the U.S. doesn't reopen its border to the Canadian product. The U.S. banned Canadian beef after a single case of mad cow disease was reported in Alberta in May. Since then, Canada's 90,000-plus beef producers have lost an estimated \$11 million per day.

July 9, 2003: Mexico's ambassador to Canada says his country may soon reopen its borders to Canadian beef. Maria Teresa Garcia de Madero doesn't give a firm date, but says her country would be the first to once again import Canadian beef. Mexico is Canada's second-largest beef market, buying \$197 million in beef last year. Almost 99 per cent of the beef was from Alberta. The border has been closed since May when Canadian officials announced a single cow in Alberta had been diagnosed with bovine spongiform encephalopathy (BSE).

July 10, 2003: Federal and provincial agriculture ministers wraps up a two-day meeting promising to work harder on convincing the world that Canadian beef is safe from mad cow disease. They agree to move quickly on recent recommendations about the way animals are

slaughtered. Parts of cows that might be infected with BSE, such as brains and spinal cords, will be removed from all carcasses that are being processed into human or animal feed. Details are not released on the exact new rules or a timetable for implementing them.

July 12, 2003: Federal Agriculture Minister Lyle Vanclief fails to persuade Japan to start importing Canadian beef again even though officials insist the animals are free of mad cow disease. "I'm frustrated that scientific data isn't getting through to the world," Vanclief told reporters after an 80-minute meeting with his Japanese counterpart, Yoshiyuki Kamei, in Ottawa. Japan is not prepared to lift its ban on Canadian beef, although Vanclief said he's not sure why.

July 14, 2003: A Canadian beef industry official expresses sympathy Monday for Japanese officials who refuse to let Canadian beef into their country. Japan went through its own mad cow crisis two years ago, Ted Haney, president of the Canadian Beef Export Association, told CBC Newsworld. "The minister of agriculture lost his job. The entire government was called into question," he said. "That crisis still haunts many regulators in Japan." As a result, they need their comfort zone raised, Haney said.

July 15, 2003: Alberta Premier Ralph Klein says Canada may have to consider trade sanctions against Japan and the United States unless they allow imports of Canadian beef. Klein said the bans, originally imposed because one Alberta cow was found to have mad cow disease (bovine spongiform encephalopathy) on May 20, have no scientific basis and are more about politics than food safety. Klein wasn't calling for immediate action, but he suggested sanctions may be the only way to end the dispute. "Something is going to have to be done."

July 19, 2003: Ottawa announces that, to reduce the risk of mad cow disease, Canada's beef industry must remove certain parts of cattle carcasses. Beginning July 24, slaughterhouses must get rid of "specified risk materials" (SRMs), such as brains and spinal cords, from the bodies of cattle older than 30 months. The new safeguards were outlined by federal Agriculture Minister Lyle Vanclief and federal Health Minister Minister Anne McLellan.

July 25, 2003: The government of Alberta announces it will put another \$79 million into programs to help farmers hard hit by the mad cow crisis. Provincial Agriculture Minister Shirley McClellan says the money will be used to pay producers who keep cattle from slaughter, in the hope that will boost prices. The Stranded Beef program pays for the storage of Canadian beef that is sitting in bonded warehouses in foreign markets, held up by the ban.

July 25, 2003: The Province of Saskatchewan announced a *set aside option* to the BSE Recovery Program. The new *set aside option* under the BSE Recovery Program will allow Saskatchewan producers to enroll a portion of their fed cattle inventory as of July 25th, 2003, in the set aside option, and receive compensation at the same level as they could under the BSE Recovery Program. Producers must agree to hold back these cattle from slaughter for a period of at least 60 days in order to receive the compensation (Saskatchewan 2009).

"The BSE Recovery set aside option is designed to help reduce the current backlog of producers trying to access limited slaughter capacity, allow additional marketing options for producers, and

provide some much needed cash flow for producers unable to access slaughter capacity," Deputy Premier and Agriculture, Food and Rural Revitalization Minister Clay Serby said (Saskatchewan 2009).

July 26, 2003: 2,000 ranchers gather near a border crossing between Alberta and Montana to eat free hamburgers and discuss how to lift a ban on Canadian beef exports. The producers from both countries held a barbecue and urged politicians to remove the trade restriction imposed after a single case of mad cow disease was reported in Canada in May 2003.

July 30, 2003: In a meeting with Canadian Agriculture Minister Lyle Vanclief, Japan's agriculture minister, Yoshiyuki Kamei, says he won't budge on his country's ban of Canadian beef. Vanclief said he tried to convince Kamei that science was on Canada's side. Vanclief outlined all the steps Canada has taken to ensure the safety of Canadian beef. "In just about every case we've been ahead of what's been happening and what has happened in the last few years in Japan."

Aug. 8, 2003: Tory Leader Peter MacKay announces that former prime minister Brian Mulroney is willing to lead a delegation to Washington to convince the Americans to re-open the border to Canadian beef. The Conservative plan is sent in a letter to Prime Minister Jean Chrétien.

The U.S. partially lifted the ban on Canadian beef, allowing imports of cuts of Canadian boneless beef from cattle under 30 months of age (Canada, 2005)

Aug. 9, 2003: The U.S. Department of Agriculture announces it is easing its total ban on Canadian beef, which was imposed May 20. The announcement was a shot in the arm for Canada's beef industry. The beef trade between Canada and the United States was almost \$2 billion in 2002. That market was completely lost since the border closed in May. The cost has been estimated at \$11 million per day, and 5,000 jobs in Canada.

Aug. 11, 2003: Mexico announces it partially lifted its ban on Canadian beef imports. The move comes just three days after the U.S. made a similar decision. Like the U.S., Mexico will still ban the importation of live Canadian cattle, but the ban will be lifted for boneless meat cuts from cattle under 30 months of age, as well as lambs and goats under 12 months of age.

Aug. 28, 2003: The Alberta government announces that Canadian beef could be moving across the U.S. border within days. Terry Willock of Alberta Agriculture said officials have been told the United States began to issue import permits. Those permits will allow the first shipments of Canadian beef into the United States since a single case of mad cow disease slammed the border shut three months earlier.

September, 2003: Saskatchewan Fed Livestock Competitive Market Adjustment Program (SFLCMAP) The SFLCMAP was announced in September 2003 due to the continuing border closure to live cattle exports, the backlog of market-ready cattle and continuing low prices. The intent of the program was to help alleviate the effects of the backlog and offset some of the financial hardship experienced by producers when cattle were sold. Other ruminants and

cervids were included in the program. Compensation was based on a portion of the difference between the Canadian and U.S. price, capped at \$250 per head (for cattle). The 1,555 applicants who applied under this program received payments totalling approximately \$11.5 million. (Saskatchewan 2004)

Sept. 1, 2003: More than 450,000 kilograms of beef are served for free at hundreds of barbecues across Canada in an effort to pull the country's beef industry out of a slump caused by a single case of BSE.

Sept. 4, 2003: Canadian beef producers ask the federal agriculture minister to approve a mass slaughter of 620,000 cattle. Terry Hildebrandt, the president of the Agricultural Producers Association of Saskatchewan, says the size of the Canadian herd needs to be reduced by 12 per cent immediately to prevent further damage to the sagging beef industry.

Sept. 11, 2003: Almost four months after a single case of BSE was found in Alberta, beef shipments from that province begin crossing into the United States. So far though, shipments of live cattle are still not allowed – only selected cuts from cattle under 30 months old (boneless beef from cattle under 30 months of age, boneless veal and liver).

October, 2003: BSE Livestock Loan Guarantee Program The BSE Livestock Loan Guarantee Program was enacted in October 2003. It was designed to provide cash flow assistance to livestock producers affected by continued export market restrictions. Loans were available from financial institutions and were 100 per cent guaranteed by the Government of Saskatchewan. Under the program a total of \$35.2 million was disbursed to 2,719 producers. The program was enacted under The Agricultural Credit Corporation of Saskatchewan Act. All loans are to be fully repaid by January 31, 2008 (Saskatchewan 2004).

Oct. 20, 2003: CBC News reports that Canadian cattle could be moving across the border into the United States by early December. The U.S. Office of Management and Budget, which manages White House regulatory policies, is expected to end the ban on imports of live Canadian cattle under 30 months old. The ruling would apply to cattle from all regions across Canada.

Nov. 4, 2003: B.C. Agriculture Minister John van Dongen announces as much as \$7.3 million in assistance for ranchers still suffering from the mad cow crisis. Ranchers are suffering from low prices for their cattle and a shortage of feed brought on by the summer drought, according to van Dongen.

Nov. 4, 2003: Japan confirms that a bull it killed in October had mad cow disease. The 21-month-old Holstein tested positive on Oct. 29. The bull had been housed in a slaughterhouse in Hiroshima state in western Japan. It's the ninth mad cow case for Japan since the illness was discovered in the country in 2001 and its second in less than a month. Japan banned Canadian beef earlier in 2003 after a single case of mad cow disease was discovered in Alberta.

Nov. 21, 2003: The federal government announced \$120 million for the *Cull Animal Program* (Canada 2008). Agriculture and Agri-Food Minister Lyle Vanclief today announced the Cull

Animal Program that would pay producers up to \$320 per cow when their older animals are sold for slaughter. Mr. Vanclief introduced the new program to help Canadian cattle producers deal with older animals that need to be culled from herds (Canada 2009). The CCA (Canadian Cattlemen's Association) is not convinced the program will benefit cattle producers (CCA 2003).

Dec. 23, 2003: The U.S. announces its first apparent case of bovine spongiform encephalopathy (BSE), in a Holstein cow in Washington state. U.S. Secretary of Agriculture Ann Veneman confirmed the discovery, saying the animal was a "downer," one that is too sick to walk. Veneman said the USDA is taking "all appropriate actions" to deal with the situation, but told a hastily called news conference that "the risk to human health from BSE is extremely low."

Dec. 24, 2003: Mexico, Russia, Brazil, South Africa, Hong Kong, Japan, Singapore, Taiwan, Malaysia and South Korea are among the countries to ban the import of American beef. (The European Union already bans U.S. beef because of concerns about the use of growth hormones.) Canada restricts imports of cattle-related products from the U.S. to dairy products, cattle destined for immediate slaughter and boneless beef cuts from cattle under 30 months of age.

Dec. 25, 2003: Scientists in the U.K. confirm on Christmas Day that a cow in Washington state did have mad cow disease. Canada decides not to expand its U.S. beef import restrictions.

Dec. 27, 2003: American officials announce that an ear tag on an American cow diagnosed with BSE suggests that it was imported from Canada as part of a herd of 74 dairy cows from Alberta. Officials with the CFIA say DNA tests will confirm whether the cow did indeed come from Canada.

Jan. 6, 2004: Officials from the U.S. and Canada announce that DNA tests confirm a cow that tested positive for mad cow disease in Washington state was born in Alberta. The cow's DNA matched samples from the bull that sired her and from a calf she gave birth to while in Canada.

Feb. 16, 2004: the Government of Canada announced that producers would no longer have to wait until cattle are slaughtered to receive assistance under the *Cull Animal Program* (Canada 2008). (See November 2003 for start of program)

March 22, 2004: the Government of Canada announced \$930 million for the *Transitional Industry Support Program* (TISP) to support the integrity of the Canadian agricultural industry. The program includes direct payments to producers of cattle and other ruminant animals totaling \$680 million, and general payments that represent bridging assistance to help the industry transition to new business risk management programming totaling \$250 million (Canada 2008).

March 30, 2004: The financial records of five of Canada's largest meat packers are subpoenaed to determine whether the companies profited unfairly from the mad cow crisis. The investigation is instigated by complaints that farmers have been getting low prices since BSE was found, but consumers are not paying less for their beef in stores.

April 18, 2004: The U.S. lifts import restrictions on ground beef, bone-in cuts of beef and offal

from animals younger than 30 months. The import of live cows and meat from older animals from Canada is still banned.

July 9, 2004: Ottawa announces it will bring in new regulations to prevent animal parts linked to BSE from being fed to pets and to livestock such as chicken and pigs. The new rules would complement existing rules against using animal parts in feed for ruminants, such as cows and sheep.

May 6, 2004: The House of Commons finds Lakeside and Cargill in contempt of Parliament for refusing to give financial statements to the federal agriculture committee.

May 13, 2004: MPs from the Conservative party and Bloc Québécois block a House of Commons motion to impose fines on meat packers Lakeside and Cargill for refusing to release financial information. The all-party agriculture committee asked for fines of \$250,000 until the companies open their books to federal auditors.

June 15, 2004: The Alberta government reports that more than 10 per cent of the province's \$400 million in mad cow aid went to two meat-packing companies: Lakeside Farm Industries and Cargill Foods. The province's agriculture minister says they got the biggest cheques because they have the most invested in the industry.

Aug. 3, 2004: Alberta's auditor general reports that the province's meat packers nearly tripled their profits because of mad cow disease. Cattle prices dropped, but consumer demand remained high, so packers didn't change their prices. But the packers did not receive money from a provincial program designed to help cattle producers, the auditor says.

Aug. 12, 2004: A group of cattle producers called Canadian Cattlemen for Fair Trade files a lawsuit against the U.S. government seeking \$150 million under a provision of NAFTA. The group says its members have suffered because of the U.S. decision to close the border to Canadian beef in May 2003.

Sept. 10, 2004: Federal Agriculture Minister Andy Mitchell announces another \$488 million in aid to the Canadian cattle industry. Ottawa's plans include increasing slaughterhouse capacity, expanding foreign markets for Canadian beef and direct aid to farmers.

The Government of Canada announced the *Repositioning the Livestock Industry Strategy* with a federal investment of up to \$488 million to assist Canada's livestock industry in repositioning itself to ensure its long-term viability. The strategy, developed in close consultation with the provinces, territories and industry, is aimed at continuing efforts to reopen the US border, taking steps to increasing ruminant slaughter in Canada, introducing measures to sustain the cattle industry until capacity comes online and expanding access to export markets for both livestock and beef products. To date, Manitoba, Alberta, Saskatchewan, British Columbia and Ontario have announced their participation in the various programs. (Canada 2008)

The *Loan Loss Reserve Program* was announced on September 10 as part of the national strategy

to reposition the Canadian livestock industry. The purpose is to facilitate a more rapid expansion of ruminant slaughter capacity, the Loan Loss Reserve Program will support the provision of debt capital to all but the largest slaughter facilities. Following the model of the Loan/Investment Fund Program of Western Economic Diversification, the Loan Loss Reserve Program will provide \$37.5 million for the creation of Loan Loss Reserves to support loans for the expansion and establishment of small and medium-sized ruminant slaughter facilities (Canada 2008).

Sept. 22, 2004: “federal, provincial and territorial Agriculture Ministers agreed to extend the 1/3 simplified deposit for CAIS for the 2004 program year. They also agreed to extend the deadline by which deposits for 2003 and 2004 must be made to March 31, 2005.

In addition, the federal government has also announced a CAIS special per/head interim for 2004 for producers of eligible cattle and specified ruminants based on inventories as of December 23, 2003 in order to address cash flow and liquidity issues related to BSE. These special interims will begin to flow to producers once authorities are in place” (Canada, 2008).

Dec. 1, 2004: U.S. President George W. Bush makes his first official visit to Canada and says the process that will open the American border to Canadian beef will take a few months. That night, he dines on Alberta beef at an official dinner.

Dec. 29, 2004: The U.S. Department of Agriculture announces that young live cattle from Canada will be allowed across the border into the United States beginning March 7, 2005.

The U.S. Department of Agriculture ("USDA") declared Canada a "minimal-risk region," effective March 7, 2005. The USDA rule would have allowed Canada to resume shipping cattle under 30 months of age to the U.S. (Canada 2005)

Dec. 30, 2004: The CFIA says initial tests may have turned up another case of BSE - in a 10 year old dairy cow. The federal agency offers few other details, saying complete test results would be available within a few days.

Jan 3. 2005: Officials confirm that a second case of BSE has been found in Alberta.

Jan. 7, 2005: CFIA officials tracking 141 cattle from the same farm that raised Canada's second confirmed case of BSE say cattle infected with the disease may have been eaten by people. The agency says the risk that cattle carried the infection into the human food chain is "very low."

Jan. 11, 2005 – Fourth case in N.A.: The CFIA announces that a third case of mad cow disease has been found in Alberta. Agency staff say the animal was born after the 1997 ban on feeding cattle remains to cattle, but became infected by eating leftover feed produced before the ban came into effect.

Jan. 12, 2005: U.S. Agriculture Secretary Ann Veneman announces that the border will reopen March 7 as planned, but she's monitoring the latest BSE investigation very closely and has sent an American team to join the probe.

Jan. 13, 2005: The Canadian Cattlemen's Association announces that it's discussing the possible cull or slaughter of the 1.76 million cattle born before 1997 to help restore faith in Canada's beef industry.

Feb. 9, 2005: The United States is set to reopen its border to Canadian cattle on March 7. Agriculture Minister Andy Mitchell and a group of government officials had been lobbying for several days in Washington for the reopening. But trade regulations have been tightened, and fewer cattle are expected to cross the border than before it was closed.

March 2, 2005: U.S. District Judge Richard Cebull grants a temporary injunction preventing Washington from reopening the border to Canadian cattle, scheduled for March 7. The Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America (R-CALF USA), filed a lawsuit claiming that reopening the border would cause immediate and irreparable damage.

March 29, 2005: The federal government will give farmers \$1 billion to help them through hard times brought on by a high Canadian dollar, low prices, drought and the closed border with the U.S. Payments will begin next month and the sum will be split between grain and oilseed producers, and cattle farmers. Farmers have received about \$2 billion in mad cow relief since last March, but the industry is expected to be in the red again for what will be the third year in a row.

April 12, 2005: A CBC News investigation raises questions about two suspected cases of mad cow disease in the U.S. in 1997. The investigation found that brain parts necessary for a proper diagnosis went missing.

April 14, 2005: The U.S. Department of Agriculture admits there were problems with the samples taken from the two cows in 1997, but insists the two cows did not have BSE.

May 27, 2005: The World Organization for Animal Health (OIE) has adopted a number of changes to its code on BSE that support reopening or maintaining trade in beef from countries such as Canada that have had cases of BSE but have taken all the necessary precautions to ensure a safe food product (CCA 2005).

The OIE has stated that boneless beef from cattle under 30 months and some other products can be freely traded without risk to consumers regardless of a country's BSE status provided animals are inspected before and after slaughter, specified risk materials are removed, and approved slaughter methods are used. Canada meets or exceeds all of these conditions (CCA 2005).

June 6, 2005: Japan confirms its 20th case of mad cow disease.

June 10, 2005: The U.S. Department of Agriculture announces that it is investigating another possible case of BSE, but that the animal did not enter the human food or feed chain. It says the test will take several weeks.

June 15, 2005: The Canadian Cattlemen's Association (CCA) learned today that its amicus curiae "friend of the court" brief has been accepted by the judge hearing the case for a permanent injunction against live Canadian cattle and beef exports in U.S. District Court, Montana Division. That hearing takes place July 27 in Billings, Montana. Amicus curiae written briefs permit those affected by the outcome of a case to provide relevant information for consideration by the judge or judges deciding the matter. An amicus curiae brief submitted by Alberta Beef Producers (ABP) was also accepted (CCA 2005).

June 24, 2005: The U.S. Department of Agriculture announces that tests have confirmed the second case of mad cow disease in the United States.

July 14, 2005: A three-judge panel of the U.S. Ninth Circuit Court of Appeals overturns a temporary injunction that banned importation of Canadian cattle. U.S. Agriculture Secretary Mike Johanns later announces that the U.S. border is "immediately" open to live Canadian cattle.

July 18, 2005: A truck carrying live Canadian cattle from Elmwood, Ont., crosses the border at Lewiston, N.Y., the first to do so after a 26-month ban on cattle imports was lifted.

July 25, 2005: The opinion delivered by the Court clearly supports the United States Department of Agriculture (USDA) rule to permit imports of Canadian cattle and an expanded list of beef products. The opinion, released today, states in part that the U.S. Secretary of Agriculture had a firm basis for determining that the resumption of ruminant imports from Canada would not significantly increase the risk of BSE to the American population, that Canada's already low risk of BSE is decreasing, and that R-CALF has not shown a likelihood of success on the merits of its action (CCA 2005).

Oct. 14, 2005: A United States court denies an appeal from R-CALF, a Montana-based lobby group, to extend the Canadian beef ban. The Canadian Cattlemen's Association has a final legal obstacle in Montana, where a lower court judge may rehear the case and reinstate the border ban.

Dec. 12, 2005: Japan eases the ban it imposed on Canadian and American beef two years earlier. Cattle younger than 21 months would be allowed into the country as long as high-risk materials such as the spinal cords and heads have been removed. By the end of the month, Canadian beef would once again be in Japanese supermarkets.

Jan. 22, 2006: Preliminary tests on a dead cow in Alberta suggest the animal might have had bovine spongiform encephalopathy (BSE), according to officials with the Canadian Food Inspection Agency.

Jan. 23, 2006: The Canadian Food Inspection Agency confirms Canada's fourth case of BSE since the first one was recorded in May 2003. The animal was discovered on the Alberta farm where it was born - and no part of it entered the food chain, the agency said.

March 13, 2006: The U.S. Department of Agriculture confirms that a cow in Alabama has tested

positive for mad cow disease. The department's chief veterinarian, John Clifford, says the cow spent its last year on a farm in Alabama, but officials are still trying to determine where the cow was born and raised.

April 5, 2006: The request by U.S. trade-protectionist group R-CALF for a permanent injunction against Canadian live cattle and beef has been denied by the U.S. District Court in Billings, Montana. The case had been pending before Judge Richard Cebull of that court since last July. Today Judge Cebull issued his order denying R-CALF's motion for summary judgment (CCA 2009).

April 16, 2006: The CFIA confirms the presence of mad cow disease in a cow at a farm in the Fraser Valley in British Columbia. Officials say no part of the dairy cow entered the human or animal food systems, and there's no risk of the disease spreading from the dead cow.

June 26, 2006: The CFIA announces new rules that would ban cattle tissues that could transmit BSE from pet foods, livestock feed and fertilizer. The new rules widen the ban, which previously applied only to cattle and ruminant feed.

July 4, 2006: The CFIA confirms a diagnosis of BSE in a 15-year-old beef cow from Manitoba. Officials say the animal did not enter the food system and there is almost no chance the cow could have passed the disease to its offspring.

July 10, 2006: The Canadian Food Inspection Agency (CFIA) reports a potential case of BSE in an Alberta dairy cow. The four-year-old cow did not enter the human or animal food system, the agency says.

August 23, 2006: The Canadian Food Inspection Agency (CFIA) confirmed a BSE case in an old Alberta cow. No part of the animal entered the food chain, and because it was eight to 10 years old, the animal may have contracted the disease before Canada banned the use of cattle parts in cattle feed, the agency said. It's the fifth case in 2006.

Oct. 23, 2006: The U.S. Department of Agriculture is scheduled to respond to R-CALF's appeal of its decision to allow Canadian cattle and beef products into the U.S.

*Adapted from CBC *Timeline of BSE in Canada and the U.S.* (2006) and Canada Competition Bureau Technical Backgrounder *Acquisition of Better Beef by Cargill Limited* (2009). Bold texts are common to both documents. Items are also drawn from *Measures To Assist Industry In Response To BSE* (Canada 2009) and the *Saskatchewan Agriculture, Food and Rural Revitalization (SAFRR) 2003-2004 Annual Report* (Saskatchewan 2004) as well as items from the *Canadian Cattlemen's Association Statements on BSE in Canada* (CCA 2009).

As well as the listed government programs above, the Government of Canada considers three other programs part of the measures to assist farmers in response to BSE. The Fairness provisions

of the Income Tax Act, the Canadian Agricultural Income Stabilization (CAIS) program and the earlier Net Income Stabilization Accounts (NISA) program.

Fairness provisions of the Income Tax Act

The fairness provisions of the Income Tax Act give the Canada Revenue Agency (CRA) discretion to cancel or waive penalties and interest to those who, because of extraordinary circumstances, are unable to meet their tax or duty obligations. The CRA has indicated it will seriously consider applying these provisions to individuals or businesses whose tax, GST or employee deduction payments are late due to situations resulting from BSE (Canada 2008).

Canadian Agricultural Income Stabilization (CAIS) program

This CAIS program is available to producers across Canada and will provide assistance to those producers who have experienced a loss of income as a result of BSE or other factors. The program integrates stabilization and disaster protection into a single program, helping producers protect their farming operations from both small and large drops in income (Canada 2008).

Net Income Stabilization Accounts (NISA) Program

The new CAIS program replaces NISA, but the money in NISA accounts continues to be owned by producers. After completing their 2002 deposit and withdrawal options, producers have immediate access to money in their NISA accounts and had the option of withdrawing it as a lump sum or over up to five years. There is more than \$2 billion available to producers in their NISA accounts. Since January 2004, producers have withdrawn almost \$2 billion from their NISA accounts (Canada 2008).

Appendix C: Alberta Weekly Fed Steer Prices 2002-2004

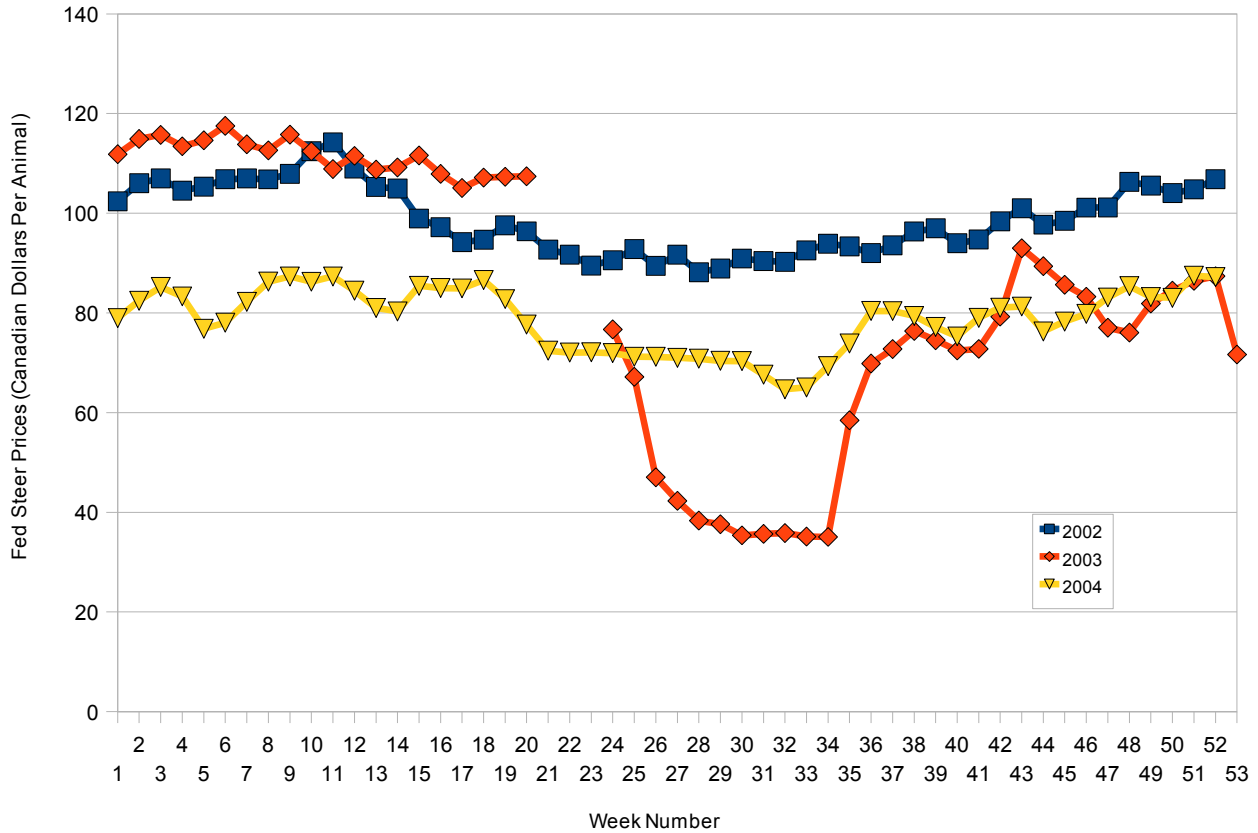


Figure C: Alberta weekly fed steer prices for 2002, 2003, and 2004. Source: Canfax Data supplied by Anne Dunford.