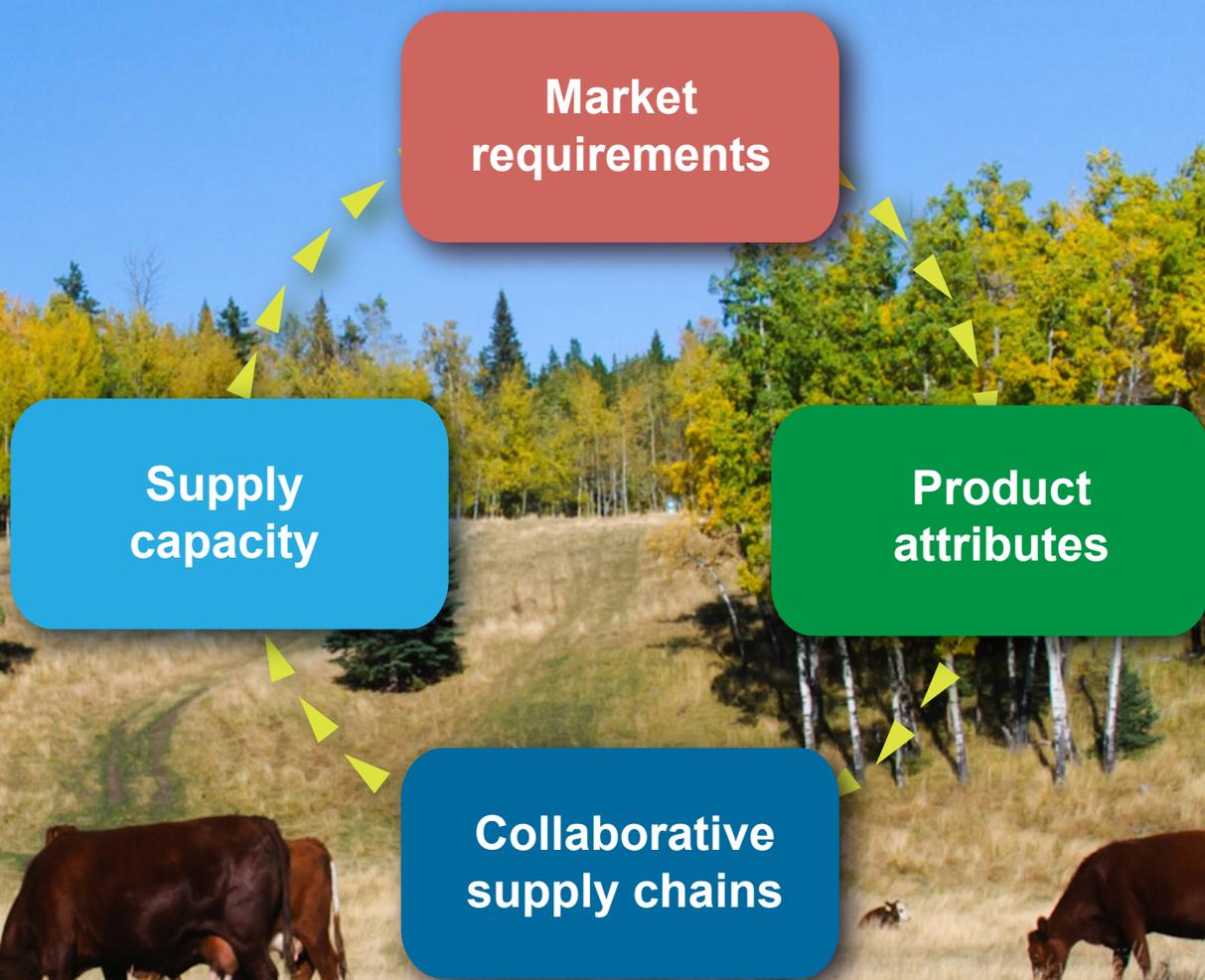


# CANADA'S BEEF FOOD SYSTEM



**A ROADMAP FOR DIALOGUE ON STRATEGY**



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## EXECUTIVE SUMMARY

Canada's beef sector needs a robust, long-term strategy – and a sustained commitment to execute the strategy – if it wishes to secure its place as a competitive force in domestic and global markets. For this report, the Canadian Agri-Food Policy Institute (CAPI) undertook a comprehensive study of Canada's beef sector. The feedback indicates that Canada does not possess such a strategy for the beef sector. The research also indicates that the sector is foregoing economic opportunities and its competitive position is falling behind. There is a prevailing view among many in the beef sector that a course correction is required. Stakeholders are keen to have a new dialogue on strategy. But this discussion can only occur if leaders in the sector are willing to act.

Chapter 1 of this report largely focuses on the interview feedback and the key themes generated from what we heard. Chapter 2 sets out the challenges facing the sector – of which the salient points are addressed below. Chapter 3 addresses the opportunities and suggests that “information” can be the basis for improving the sector's performance in domestic and export markets and achieving a competitive advantage. In Chapter 4, the report shares several case studies on strategy development here and abroad and describes in detail a roadmap to help facilitate the dialogue on strategy. CAPI's mandate is to foster a dialogue on emerging issues and present alternative solutions as a basis to help the country's agri-food sector to succeed.

The Canadian beef sector has rallied in the past. After reeling from the 2003 BSE crisis, the sector came together and, working with government, found a direction forward. But the marketplace has since moved on, and the sector faces many new challenges, of which our balance of trade with the US is a paramount concern. CAPI has identified “three pertinent questions” and, based on our research, offers in this report responses and key strategic questions for the beef sector to consider. The prospects of the Canadian beef industry may well depend on how the sector responds to these questions:

*The beef sector is foregoing economic opportunities and its competitive position is falling behind.*

### Three Pertinent Questions

1. Recent government initiatives to pursue and open new foreign markets should prompt the relevant question: What is the beef sector's strategy to follow through on emerging opportunities?

CAPI research reveals the sector is not positioned to take advantage of trade doors being opened for it.

- Some 85% of our beef and cattle export trade is with the US. This important market generates \$1.8 billion in total sales for Canada's beef sector. Is it not important to diversify our markets by increasing the proportion of exports to those markets beyond the US that are now open to us?

- The value of beef exports to other countries often exceeds the value received for Canada's exports to the US. Such substantive dependence on the US appears to be costing Canada valuable opportunities. How does the sector decide what is the optimum export market mix and strategic path forward based on existing and potential strengths?
  - Increasing exports depends on having beef supply to export. Yet Canada's cow herd has declined by 1 million head or 20% since 2005. How do we ensure a critical mass of cattle to meet future market opportunities?
2. In the domestic market, Canada's trade balance is worsening. Canada is at risk of becoming a net importer of beef. What are beef stakeholders doing about trying to regain our own domestic beef market share?

*The data reveal that our dependence on the US is generating greater benefits to that country than to our own.*

The data reveal that our significant dependence on the US is generating greater benefits to that country than to our own beef sector.

- In 2011, Canada had a net trade balance in beef of \$42 million with the US (excluding beef offal, livers and tongues). In 2002, Canada's beef trade balance was nearly \$1.4 billion. Is the erosion of Canada's trade balance not a strong signal of a loss of competitiveness?
  - The unit value of Canada's exports to the US is only about 60% of the value of US imports to Canada. We are diverting economic (value-added) activity to the US as American processors, in turn, export higher value product back to Canada. Are we missing a bigger economic opportunity to better serve our own domestic market (i.e., increased and further processing)?
- With Canada "backfilling" product to the US, that country is realizing a greater advantage by significantly expanding exports (beyond) Canada. Since 2005, US beef exports are up 280% on a value basis, and 159% on a tonnage basis. Canada's exports beyond the US have increased by 45%, in terms of value, and 13% in tonnage of beef. Compared to 2002, Canada's exports to international markets other than the US were down 3.5% while the US beef industry increased exports to the international market by 51% (excluding shipments to Canada).
  - Are we satisfied with the US growing its exports with, essentially, the use of Canadian slaughter and feeder cattle augmenting domestic supply?

3. Consumers and other food stakeholders are increasingly raising concerns about how beef, and their food in general, are produced. What does this mean for positioning beef relative to competing proteins and maintaining consumer trust?
  - Global poultry consumption has increased 10.3% over the last three years (2008-2011) while beef consumption has declined 3.5%. Per capita consumption of beef is falling in Canada, and across the OECD. In Canada, it has declined 10.7% since 2001. Pork consumption over that period has declined by 28%, while poultry (chicken, hen and turkey) consumption has increased 3.4%. Price is a key determinant. Beef costs more to produce than other proteins. Moreover, despite improvements, more grain is required per kilo of beef production than for other meat proteins. This also feeds the criticism that beef's environmental footprint is unsustainable and, for some, a reason not to consume beef. There are also concerns about the perceived healthfulness of beef and the ethical treatment of animals. How are consumer perceptions and concerns with beef shaping consumption behaviour?
  - Meat consumption is rising in the developing world. The forecasts for continued growth are very positive given the growing affluence of middle classes. Other countries, however, are also positioning themselves to serve these markets. What are the beef sector's objectives to target specific market segments?

In our interviews, many beef stakeholders told us that the sector is operating without a strategy, that there is minimal collaboration, no vision, no sense of common objectives and fragmented leadership.

After speaking with over 80 individual stakeholders, we distilled their main concerns in this way:

### Three Key Points of Feedback

1. "The need for a strategy": Many interviewees suggested that change is required. As noted at the outset, many noted the absence of an explicit strategy for the sector, and no long-term and shared strategic plan that brings stakeholders together.
2. "The need for alignment": Many interviewees indicated that the sector suffers from a minimal amount of collaboration among its stakeholders.
3. "The need for leadership": A number of interviewees noted that there are too many voices speaking for the beef sector, coupled with an absence of shared or collaborative industry leadership. Leadership is needed to galvanize (and align) stakeholders in order to adapt to change.

*Our objective is to help create the conditions for a new dialogue to occur across the beef sector.*

Our objective is to help create the conditions for a new dialogue to occur across the beef sector. CAPI's role is not to prepare the sector's strategy but to present ideas for such a strategic dialogue to occur. Its report offers the following suggestions:

### Three suggestions:

A long-term strategy is needed to build the beef brand and to generate consumer trust in the product and production processes.

1. A competitive advantage can be built around the sophisticated use of "information":

Canada's current program of cattle and premises identification schemes is largely superior to those in place in the US. Canada is close to having the ability to deliver information up and down the supply chain to benefit producers, processors and consumers. Knowing more about variations in yield, grade and quality of beef cuts is key to consumer satisfaction and to generating greater economic value to the sector. This is about linking the genetic potential of cattle, best animal care handling practices, nutrition and animal health to consumer preferences and to industry marketing efforts.

2. Government must encourage the development of a strategy.

Government has leverage. While a strategy must be industry-led, government should tie its financial support to the development of a robust industry strategy. Government then must align its own policies, initiatives, funding and regulation to enable this strategy. Importantly, government must also approach market access negotiations for the beef industry with a strategic plan which aligns with the industry strategy and positioning.

*Many beef stakeholders told us that the sector is operating without a strategy, minimal collaboration, no vision, no sense of common objectives and fragmented leadership.*

3. This report emphasizes the need for leadership to initiate change.

Champions in each supply chain need to act. But should there be a national organization with a mandate and the financial means to articulate and support an overall domestic and international strategy? The merits of this idea should form part of the dialogue. Put another way, without such leadership, will the status quo prevail?

## A New Approach

The central premise of this report is “what’s the strategy?” and “how do we get there?”

The response starts with dialogue. We offer a lens through which such a robust dialogue can occur: through a “food systems” perspective. The issues are connected and complex; many players need to be part of the conversation; food production and supply are connected to the broader societal context in which the agri-food (and beef) sector operates.

CABI’s food systems concept has three dimensions.<sup>1</sup> First, it is about how supply chains collaborate to profitably meet consumer needs. Identifying common objectives for mutual benefit is critical. Second, food system thinking elevates the discussion to consider broader societal implications. The marketplace is signalling the need to be attentive to this dynamic. Consumers are interested in how food production impacts them and their world. Third, a food systems approach recognizes that supply chains interact and collaborate with many other diverse players, such as those in the fields of health, environment, input suppliers, research, and governments. This report offers a tool (or “Roadmap”) to help structure this conversation by linking their interests.

*A long-term and shared strategy is needed to build the beef brand and to generate consumer trust.*

For this report, CABI interviewed over 80 beef stakeholders and a broad variety of support players in the fall of 2011. During the winter of 2012, the authors received feedback from industry associations representing the cattle sector at both the provincial and national levels, representatives of the meat packing segment of the sector, representatives of food retailing and the food service sector, governments, and from the diverse membership of the Beef Value Chain Roundtable. Consultations with the sector continued through 2012.

In short, while building on the progressive steps already underway, Canada’s beef sector needs to decide how to position itself in this ever-changing marketplace. Continued indecision will rob us of our very real opportunities.

1. CABI’s food systems concept was developed in its report, *Canada’s Agri-Food Destination: A New Strategic Approach*, 2011.



## INTRODUCTION

The Canadian beef industry generates over \$6 billion in farm gate sales, contributes over \$26 billion to the Canadian economy, and represents 15% of the value of agricultural production.<sup>2</sup> While this is a substantial achievement, economic trends suggest that the sector is in decline. At this stage, the development of a comprehensive and long-term strategy that sets the groundwork for improving the industry's performance in domestic and export markets could prove immensely beneficial. Recent government initiatives have been undertaken to vigorously pursue and open new foreign markets. These efforts should prompt the very relevant question: What is the beef sector's strategy to follow through on these emerging opportunities?

In the domestic market, Canada's beef trade balance is worsening. Canada is at risk of becoming a net importer of beef with the US. What are beef stakeholders doing to regain our own domestic beef market share? At the same time, consumers and other food stakeholders are increasingly concerned about how their food is produced. What does this mean for positioning beef relative to competing proteins and maintaining consumer trust? Our future competitive prospects depend on how the sector responds to these questions. Our capacity and willingness to do so is worth investigation.

In the research conducted for this report, many beef stakeholders told us that the sector is operating without a strategy, that there is minimal collaboration, an absence of vision, no sense of common objectives, and fragmented leadership. After reeling from the 2003 BSE crisis, Canada's beef sector successfully rallied. Today, however, the sector faces a rapidly evolving and competitive marketplace. Stakeholders need to consider the measures now needed to create profitable opportunities and advantage at home and abroad in the future.

The Canadian Agri-Food Policy Institute (CAPI) initiated this case study with financial support from the Alberta Livestock and Meat Agency (ALMA), the primary sponsor, as well as with support from the Royal Bank of Canada (RBC) and the Saskatchewan Ministry of Agriculture.

CAPI's mandate is to foster a dialogue on emerging agricultural issues and present alternative solutions as a basis to help position the country's agri-food sector for future success. This report presents ideas to enhance the competitiveness of the beef sector in Canada.

2. Statistics Canada, Farm Cash Receipts, November 2011. Publication 21-011-X. <http://www.statcan.gc.ca/pub/21-011-x/2011002/t031-eng.htm>

## Overview of this Report

- Chapter 1 summarizes the interview feedback and “what we heard.” As well, this chapter outlines the beef food system (also discussed in chapter 4).
- Chapter 2 sets out certain challenges facing the beef sector. The report categorizes the feedback under four broad headings: Canada’s trade position, national herd size, competing proteins and supply chain dynamics. These subjects help to frame CAPI’s “Roadmap for Dialogue on Strategy” which is introduced in Chapter 4.
- Chapter 3 addresses the opportunities. The chapter focuses on whether “information” can form the basis for defining a competitive advantage. Deriving economic opportunities from meeting consumer food needs is the opportunity, and information flow is the means. For instance, the transformative use of information (in terms of beef carcass yield and grade through improved genetics and feeding) is now possible because of cattle identification. As will be explained, this can be the basis to develop a competitive advantage over the US.
- Chapter 4 is about developing strategy. The chapter highlights the lessons from strategic approaches taken by a variety of organizations. Many stakeholders told us that a dialogue on strategy is needed. However, the fragmented nature of beef supply chains has made alignment difficult. “Systems thinking” is offered as a basis to help stimulate discussion; but leadership and a desire to change are required. The chapter outlines a tool, or Roadmap, to help facilitate a systematic discussion on strategy.
- The conclusion emphasizes that it is not up to CAPI to write a strategic plan for the sector. Strategy must be industry-led. It must define its competitive advantage and the course to get there. Government can play a critical role by encouraging and assisting the sector in demonstrating (or developing) its long-term strategy. Government can also do its part by aligning its policies to support this strategy. While this work is focused on beef, this report also has some implications for other agri-food sectors; the general approach and the Roadmap could be applied (with adaptation) to create a dialogue on strategy for other sectors.
- The appendices offer some additional background on issues that are referenced in the chapters.

## CHAPTER I: What We Heard

This report is based on a synthesis of more than 80 interviews conducted in the fall of 2011, and extensive consultations that took place in the winter and spring of 2012. (See Appendix J for a list of participating organizations.) Representatives of each segment of the beef supply chain were interviewed, including cow-calf operators and ranchers, feedlot operators, beef packers, food service operators, and retailers. Non-traditional beef players from outside the supply chains were also interviewed, such as players representing health, information management and financial services. Organizations from across the country were consulted, with over half of them based in western Canada.<sup>3</sup>

### Assessment of the Canadian Beef Sector

The following assessment of the Canadian beef sector is based on a synthesis of our interviews. The feedback is categorized in a “SWOT” fashion; that is, views are captured as being a Strength, Weakness, Opportunity or Threat as a basis for understanding the state of the Canadian beef sector. A general overview of the beef operating environment precedes the SWOT summary.

Notably, our assessment of these many discussions revealed three key preoccupations held by many across the sector; these have to do with shortcomings on strategy, alignment, and leadership, as noted further below. Concerted action taken on these three key points was seen as fundamental to fulfilling Canada’s potential as a beef supplier to its domestic market and to consumers abroad.

### “Operating Environment”

Interviewees made the following comments on the operating environment within which the beef sector functions. These views are vital to understanding stakeholder perspectives but it is important to note that the following statements (including statistics) have not been validated for accuracy or context by CAPI. These following points reflect the views held by interviewees; therefore, readers should be cautious in how they may reference data from this section. (The next chapter addresses certain key data relating to the beef sector, such as on exports, herd size, etc.).

#### Interviewees’ general comments:

- Declining per capita domestic beef consumption
- Consumers are more informed and aware of issues
- Some consumers are cutting back on the amount of meat they eat due to concerns about health, the environment, and social responsibility issues, i.e. ethical treatment of animals
- Consumers’ purchasing decisions are increasingly driven by degrees of trust in the product and the source of supply
- Traditional beef sector accounts for over 95% of volumes

3. CAPI sincerely appreciates the time commitment and thoughtful contributions made by all those with whom we spoke and by those who provided thoughtful guidance and feedback. We also gratefully acknowledge the many invitations made to us by stakeholders to present our unfolding work.

- Economies of scale in the packing sector result in cost disadvantages for smaller processing plants
- Over 90% of packing occurs in two provinces: Alberta and Ontario
- Two companies process the majority of Canadian beef
- Essentially it is a supply-push sector into the packing plants
- Absence of demand-pull results in waste (inefficient resource use) and higher costs
- Business model of “information asymmetry” and minimal collaboration
- Some integrated supply chains: packer-feedlot and feedlot-ranch
- While some niche value chains are in operation, there is a lack of critical mass which is a weakness
- 2010 exports accounted for 65% of slaughter volume (w/live)
- Strong economic linkage to US market
- Growth potential projected from developing markets such as China and Latin America; however, low-cost exporting countries such as Brazil and Argentina are competing for those export markets
- Retailer feedback notes that volumes of ground beef have increased

### “Strengths”

- World-class Canadian genetics in demand worldwide form the basis of a superior herd
- The Canadian herd is one of the healthiest, if not the healthiest, in the world as it does not suffer from ticks and diseases of warmer climates
- Natural resource base conducive to cow-calf operations
- Large resource base to support beef production
- Size of the national cow herd provides necessary critical mass
- Beef sector infrastructure in western Canada, including both production and processing, as well as the inputs/service industries
- Quality of Canadian beef
- Demand within Canada for Canadian beef (if labelled and appropriately-priced)
- High-quality beef products and supporting infrastructure (Canada Beef Advantage, food safety regime)
- The “Canadian brand” is well perceived and respected around the world
- Food safety systems considered as good, or better, than anywhere in the world
- Animal identification and traceability systems in place

### “Weaknesses”

- Declining domestic consumption (in total and on a per capita basis)
- The sector does not understand markets sufficiently to achieve its potential
- Not enough supply chain focus on the end customer

- Size of table-ready cuts relative to consumer needs (without losing necessary cut thickness)
- Not enough counter-ready meats provided to retailers, which results in more system waste compared with products packaged at centralized locations
- A supply-push sector versus demand-pull sector, with few value chains
- Due to the size of the Canadian market, the overall beef sector is dependent on the export market to maximize carcass values
- Large dependency on the US market
- Lack of equivalency with US grades, resulting in lower carcass cut-out values
- Stronger Canadian dollar has resulted in a higher supply chain cost structure compared with the 1990s, when industry expansion occurred
- Cost level within the supply chain
- Concentration in the beef processing sector, resulting in few market outlets for market ready cattle in Canada
- Low level of information flow for efficient resource allocation
- High level of business independence, or “the cowboy mentality,” which contributes to minimal collaboration
- Minimal collaboration up and down the supply chain, which leads to concerns of higher cost
- Minimal productivity advances in the overall supply chain
- Low levels of innovation (application of genetics, nutrition, new products, technology) to address productivity and cost issues, which is ascribed in part to low levels of collaboration (though there are exceptions to this condition, and those exceptions are in world-class areas)
- Low levels of innovation in part due to Canada’s risk-averse culture and poor profitability
- Mature industry with low levels of R&D investment activity

### “Opportunities”

- Strategic pursuit of specific export markets, particularly those with low beef consumptions and with increasing disposable incomes, such as China
- Reducing dependency on the US market
- Leveraging the strengths of animal identification and traceability in select markets
- Specialty segments in the domestic market such as cattle raised without added hormones
- Domestic market growth based on a better understanding of consumer requirements
- Better communication with consumers on beef-related issues, such as nutrition of beef, how to prepare beef products, and ethical treatment of animals
- How to inform consumers on beef attributes and how to prepare beef cuts
- Stronger focus on understanding customer needs and innovation to meet those needs
- Attractively priced products in retail segments such as discount stores, where shoppers buy on the basis of price
- Promoting Canadian beef in domestic and export markets using the “Canada brand”

- Organic, hormone-free, natural and overall “green” image market segments for beef within Canada
- Collaboration among specific value chains on achieving necessary critical mass for non-middle meat primals to enhance the value of organic, natural, and hormone-free beef carcass
- Use of hot boning to satisfy high-quality cut market and grind rest of carcass
- Lower overall supply chain costs through innovation, productivity improvements, and reduction of system waste
- Productivity improvements to increase cow-calf sector returns and maintain/build cow herd
- Investment in new product developments
- Access to the China market ahead of the US
- Smarter, more strategic approach to market access.

### “Threats”

- Share of protein consumption moving toward poultry (perceived as lower cost) and fish/seafood and plant-based protein (both perceived to be healthier)
- Consumers concerns with health issues, how animals are treated, and environmental impact of beef production
- Misinformation on health and nutritional attributes of beef
- Cost-competitiveness with respect to other proteins
- Providing a high-quality meat product that requires more grain than other meats, particularly in an expensive grain environment
- Losing domestic market share to US beef imports
- Strong competition from lower-priced imports in the domestic market, particularly high-quality middle meat products from the US
- Moving from being a net exporter of beef (in value terms) to a net importer of beef
- Competing with other beef export suppliers with a strong Canadian dollar
- Cost-competitiveness of Canadian beef production relative to the US industry
- Uncompetitive South Korean duty access for the foreseeable future
- Cost-competitiveness of Canadian beef production relative to the southern hemisphere
- Canada’s declining world beef market share
- Dependency on the US market for a significant percentage of export volume, with border disruptions a possibility
- The “branch plant mentality” of foreign-owned multinationals can impede development and execution of a beef sector strategy in Canada
- Lack of a genuine industry-owned, made-in-Canada beef strategy
- Lack of harmonization/equivalency on technical standards
- Slow approval process on new products (animal health) and industry supported regulatory changes.

## Key Themes

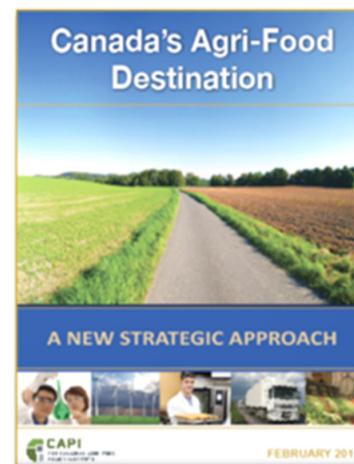
The interviews conducted for this report revealed fundamental concerns about the state and prospects of the country's beef sector. Many interviewees touched on one or more of the following areas:

1. The need for a strategy: The sector has no long-term and shared strategic plan, and needs an explicit strategy that brings stakeholders together.
2. The need for alignment: The sector is characterized by minimal collaboration, and participants along the supply chain need to align their objectives.
3. The need for leadership: Too many voices speak for the sector, and leadership is needed to improve the dialogue and move toward greater collaboration and unified purpose.

When shared with stakeholders in 2012, these themes were met with some challenges. Some stakeholders, for instance, felt that there is already an adequate strategy in place. Others felt that collaboration, while attractive, has its limitations given the structure of the beef sector; that is, many smaller beef producers at one end and a handful of large processors and retailers at the other. As well, some felt that there are sufficient mechanisms now in place to facilitate dialogue, such as national organizations or the Beef Value Chain Roundtable.

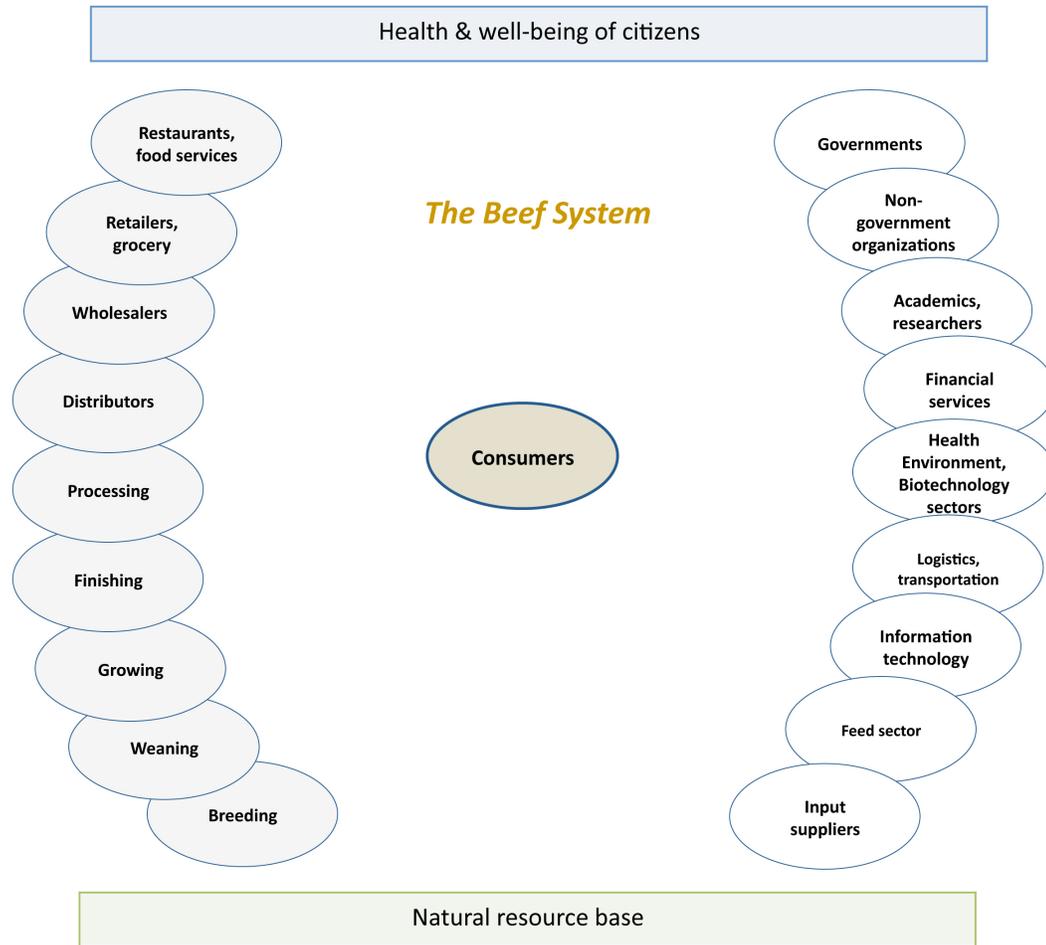
## Why Food System Thinking Matters

This report suggests that the sector could become more profitable and competitive by adopting “food system” thinking, which is explained below. The food system concept was broadly outlined in CAPI's report *Canada's Agri-Food Destination: A New Strategic Approach*, which was released in February of 2011 after considerable stakeholder input.



## The Beef Sector Food System

As noted in Chapter 2, addressing issues and opportunities in Canada's beef sector is a complicated undertaking. The sector encompasses a wide variety of stakeholders and interests. The sector's productivity entails a series of activities that include breeding, weaning, growing and finishing cattle, processing, marketing, branding and retailing. Other key players include governments and regulators, input suppliers (e.g., equipment, financing, and veterinary services, etc.), non-food players such as public interest groups, and other supporting organizations (such as innovation and commercialization bodies, health and wellness organizations, and industry associations and trade organizations). This diverse array of stakeholders is part of a broad “food system” working to support and produce food (beef) for consumers (see Figure 1-1).



**Figure I-1: Canada's Beef Food System.**

CAPI's food systems concept has three dimensions. First, it is about how supply chains collaborate to profitably meet consumer needs. Identifying common objectives for mutual benefit is critical. Second, food system thinking elevates the discussion to consider broader societal implications. The marketplace is signalling the need to be attentive to this dynamic. Consumers are interested in how food production affects them and their world. Third, food systems recognize that supply chains interact and collaborate with many other diverse players, as noted above. Chapter 3 elaborates on these ideas with the beef sector in mind. "Mapping the food system" reveals the diversity and importance of the players that need to be "at the table" to resolve issues or create opportunities. A dialogue on complex issues requires that diverse views be shared among the many players who may have an influence on the beef sector.<sup>4</sup> This report offers a tool, or "Roadmap," to help structure this conversation (Figure I-1).

4. As will be portrayed in Chapter 3, for instance, many voices express views about beef production practices, beef nutrition and environmental practices. In addressing how to create greater consumer demand for beef, the sector needs to consider how organizations that represent these concerns or that can shape those opinions need to be part of the broader dialogue.

## The Beef Food System Roadmap

CAPI's "Roadmap for Dialogue on Strategy" (see Figure I-2) was designed largely from the ideas shared by many stakeholders. This feedback is structured under four categories or "prerequisites" required to develop an effective strategy:

1. achieving a better understanding of what the market requires;
2. determining how to deliver the product attributes to satisfy the market;
3. exploring how supply chains can become more collaborative; and
4. ensuring the need for sufficient supply capacity of cattle and beef.

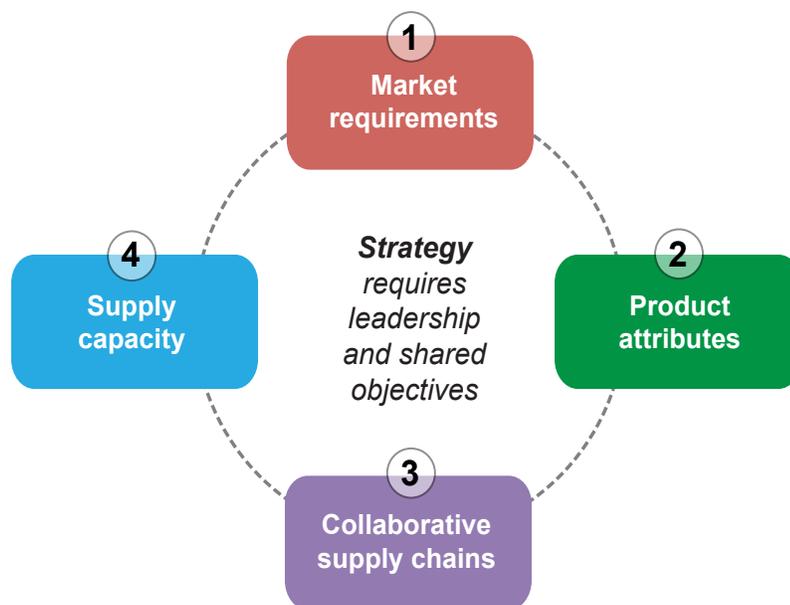


Figure I-2: The Beef Food System Roadmap for Dialogue on Strategy: the four prerequisites.

## Applying the Roadmap

As noted in Chapter 4, there are certain conditions required to use the Roadmap:

- There needs to be a specific issue or problem to address.
- A champion is needed to drive the process forward.
- The right players need to be at the table (including those who may be from outside the sector).
- The issue must be analyzed and its implications understood.

- Clear objectives and milestones must be established so that actions can be taken.
- There needs to be broad buy-in among the players. This requires collaboration and co-leadership.
- Above all, there must be a common understanding of the “destination” (the ultimate goal to achieve success based on what the consumer is asking for). This is the basis for strategically responding to the challenges and to help position the industry to achieve a sustainable and prosperous future.

The Roadmap recognizes that issues facing the beef sector are likely associated with one or more of the four prerequisites (i.e., a market requirement, a product attribute, supply chain function, and/or a supply capacity issue). The Roadmap reveals what is intuitively understood: the issues and opportunities to create value are linked. If the right people are at the table, and the right approach is taken, the Roadmap can generate ideas that help address the challenges and capitalize on the opportunities.

In applying the Roadmap, players may begin by asking critical questions:

- Retailers, food service and wholesalers: How do we work with the rest of the supply chain to obtain the necessary critical mass of product with “new” attributes of interest to customers? This is about seeking niches with substantial critical mass that can change the economics of the beef system. Indeed, this question is relevant to every segment.
- The processing sector: How do we create higher carcass values and create more economic activity in Canada?
- The feeding sector: How can greater value be created by facilitating the flow of carcass value and attributes back through to cow/calf producers?
- The cow-calf sector: How do we find ways to use information on product attributes to increase profitability?

The Roadmap can be deployed for a wide variety of purposes across the beef food system. (Chapter 4 and Appendix I offer scenarios that show how the Roadmap can be used. These relate to beef exports to the EU and Japan, responding to the use of antibiotics in beef production, and a generic description.) Non-supply chain players may also find the Roadmap helpful. For example, researchers might use this tool to translate innovative thinking into commercialization opportunities; government may find it helpful to prioritize industry issues and any resulting regulatory action or program support. While CAPI can suggest how this tool may be applied, each stakeholder will need to define how best to use the Roadmap.

## CHAPTER 2: The Context in which We Operate — Challenges

A crisis can compel an industry to act. For Canada's beef sector, the 2003 BSE outbreak was such a crisis. It resulted in the instant closure of foreign markets. As a "burning platform," the event galvanized the sector. Since then, the industry, with government support, has done much to regain market confidence and navigate through the crisis. New markets are opening up, new food safety measures are in place and the Canada beef brand, "the Canadian Beef Advantage," is being actively promoted. Thanks to the resilience of the beef stakeholders and the determination of governments to support the sector over that time, the industry is now positioned to consider ways to improve its prosperity.

Since the BSE crisis, many challenges have emerged for Canada's beef sector (which are well-known by those in the industry), particularly in our trade relationship with the US. Since 2004, Canada has been suffering a decline in its net trade balance with the US (by value), a strong indicator of a loss of competitiveness. Given that Canada exports 85% of its beef and live cattle to the US, this trade relationship has overwhelming significance for the Canadian industry. Over this same period, beef imports from the US have risen, and Canada is supplying less beef to its own domestic market. Moreover, the average value of these imports (\$6.55 per kg) exceeds the average value of our US-bound exports (\$3.74 per kg). This imbalance is indicative of the fact that Canada is generally importing more higher cuts (muscle cuts) from the US than it is exporting (trim and grinding beef). Increasingly, the US is outpacing Canada in all major facets of the sector.

Moreover, Canada must contend with the following issues:

- Foreign beef suppliers – Canada's competitors – continue to actively position themselves to exploit market access opportunities;
- We conduct business with a dollar that has been hovering around parity with the US dollar;
- The Canadian beef sector operators with high commodity prices and high feed-cost pressures (driven by drought and the global ethanol industry);
- The Canadian sector faces higher cost structures than its competitors – such as in the case of the lower regulatory costs of the US – and notably in the handling and disposing of Specific Risk Materials from the carcass;
- The Canadian industry is subjected to burdensome foreign regulatory requirements, such as US mandatory country-of-origin labelling requirements (although there is recent progress to resolve this case).
- All sectors must cope with less funding given governments' fiscal situation and the challenges of economic cycles.
- Consumer food preferences are evolving in a way that could lead to reduced beef consumption.
- There are rising expectations (among consumers, advocates, and the traditional and social media) for improved ethics and transparency in food production.
- Global supply chains are more demanding as they deploy new protocols for quality, safety and performance.

The conditions to do business and be profitable are clearly buffeted by these and many other factors.

Fully addressing all the reasons for and implications of these issues would require an analysis beyond the scope of this report, which is focused on the views of Canadian beef stakeholders and the implications of those views for the sector's potential. Stakeholders raised many points, which are summarized in the "SWOT" overview in the previous chapter. Based on this feedback and subsequent consultations, we have categorized the feedback in this chapter under four indicators of competitiveness: Canada's trade position, the national herd size, competing proteins, and supply chain dynamics.

This study is not intended to comprehensively dissect Canada's competitiveness. Surely, other matters can be added. But these four categories should help to frame the dialogue that needs to occur as the beef sector considers how to position itself in an ever-more competitive international beef industry.

We also offer another lens through which this dialogue can occur. We propose that a food system perspective be adopted. The issues are connected; many players need to be part of the conversation. Food production and supply are connected to the broader societal context in which the agri-food (and beef) sector operates. The four challenges presented here help to set up the discussion that follows in subsequent chapters.

A key overall theme of this report is how we collectively deal with change. Are only incremental adjustments preferred, or possible? Does it take a crisis like BSE to prompt change? Or should we be considering a new strategic approach to proactively create new, profitable opportunities? This chapter lays the groundwork to make the point that how "information" is strategically shared and acted upon is fundamentally important to systematically respond to the issues.

## **I. Canada's Trade Balance**

Canada's beef trade balance provides a strong measure of competitiveness. This requires understanding the nature of the Canada-US trade relationship in particular, given the prominence of the US market for Canadian exports and the role of American beef imports to Canada.

Although it seems counter-intuitive, Canada is approaching the status of a net importer of beef (in terms of value) with the US. This is a reflection of the value of trade and type of products being traded. Although Canada exports a significant volume of beef and beef products, Canada's trade balance with the US is declining because the per unit value of exports are much less than for imports. It is also important to consider that Canada ships a significant volume of live cattle to the US, while Canadian imports are largely boxed beef.

### **Beef trade balance with the US**

Canada is close to becoming a net importer of beef with the United States. The Canadian beef industry is quickly losing market share within Canada as retailers and the food service industry turn to imported



**Figure 2-1: Canadian net beef trade with the US by value (excludes edible offals, liver, tongue).** Source: Statistics Canada, World Trade Atlas, 2012.

beef. (See Figure 2-1: Canadian Net Beef Trade with the US by Value.)

In 2011, Canada exported \$876.9 million of beef to the US while importing \$835.1 million for a net trade balance of only \$42 million (excluding beef offal, livers and tongues). In 2002, Canada's beef trade balance with the US was \$1.39 billion.<sup>5</sup> The erosion of Canada's trade balance is a strong signal of a loss of competitiveness.

This growing imbalance is reflected in our "self-sufficiency," as noted in Figure 2-2. We supply some 75% of our domestic market's beef<sup>6</sup> but that number has fallen from 87% in 2005 as imports – from the US – have risen.

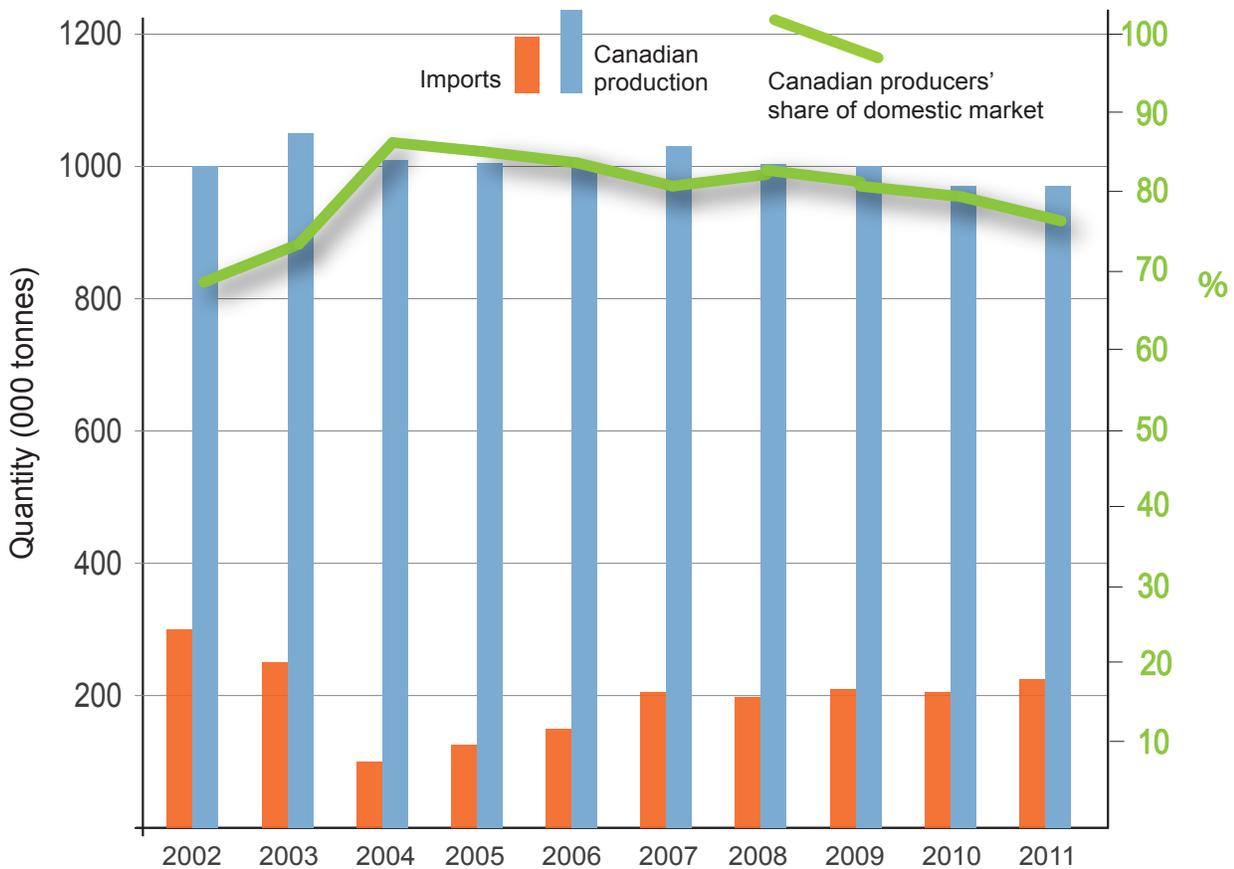
These developments warrant consideration. Canada is a beef exporting country. We export about 50% of total cattle production (measured as beef equivalence).<sup>7</sup> It is noteworthy that on average 85% of Canada's beef and live cattle exports (feeder and fed) are destined for one country: the US.<sup>8</sup> Clearly, the United States is vital to the Canadian beef industry's success for its feeder cattle, fed cattle and beef sector trade. Live cattle exports to the US remain as a robust export business. On a five-year average (2007-2011), Canadian beef and cattle sales

5. Statistics Canada, World Trade Atlas, 2012.

6. Statistics Canada, Supply and Disposition Tables, 2012.

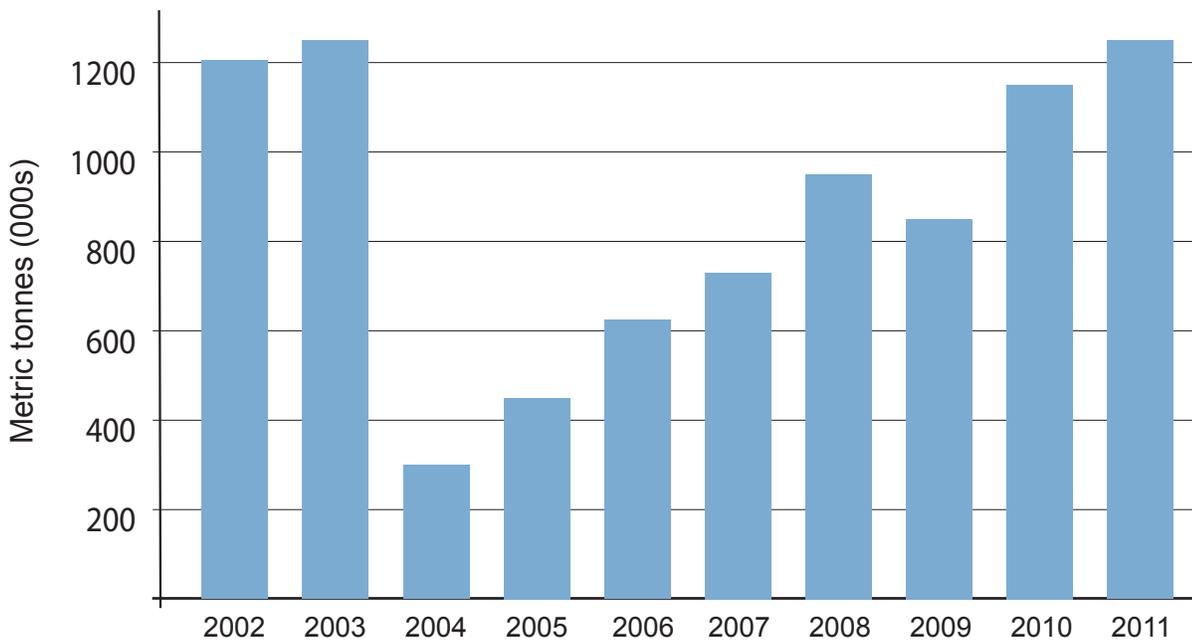
7. CANFAX.

8. This 85% figure is calculated by combining Canada's processed beef exports to the US from 2005-2011 (which have averaged 77.4% of total processed beef exports) and 100% of Canada's live slaughter and feeder cattle exports to the US. (Analysis based on CANFAX data.)



**Figure 2-2: Canadian beef self-sufficiency (imports as a % of domestic disappearance).**

Source: Statistics Canada 2012.



**Figure 2-3: Trend in total US beef exports.** Source: US Meat Export Federation.

to the US were some \$2.2 billion (and a combined total of \$1.8 billion in 2011).<sup>9</sup>

When considering beef exports alone (not including live cattle) in 2011, 74% of Canada's beef exports (quantity) went to the US, representing 72% of the total value of Canadian beef exports. In 2002, 78% of Canadian beef exports (quantity) went to the US, representing 83% of the total value.<sup>10</sup> Importantly, Canada is diversifying its exports away from the US. However, the US has also been significantly expanding its exports (beyond Canada). Since 2005, US beef exports are up 280% on a value basis, and 159% on a tonnage basis. (See Figure 2-3.) Over this same period, Canada's exports beyond the US have increased by 45%, in terms of value, and 13% in tonnage of beef.

### Diversion of economic activity

By importing a growing volume of higher-valued cuts from the US, it is entirely likely that some of the beef being imported by Canada is beef of Canadian origin. This has important implications for Canada's domestic value-added beef processing sector and feedlots. Canada needs to decide whether this is an important policy issue. This point is elaborated upon below.

Canada is diverting significant value-added activity to the US for American processors. The US, in turn, is exporting a higher-value product back to Canada and the world. The data bear this out. The value of Canada's exports to the US is only 60% of the value of US imports to Canada (see Figure 2-4, value of Canadian beef export and imports with the US). In 2011, Canadian exports of beef to the US averaged \$3.74/kg whereas average beef imports from the US were \$6.55/kg. This value is also falling.<sup>11</sup>

### Implications of Canada's US dependence

The type of cuts Canada is exporting to the US, and importing from the US, also has implications for the value of this economy. Canada exports a greater share of trim and grinding beef to the United States but imports a greater share of muscle cuts. On the one hand, this suggests that we are missing a bigger economic opportunity to better serve our own domestic market. How can western Canada play a larger role in supplying eastern Canada with beef? On the other hand, the marketplace is "speaking." The flow of beef to the US follows a north-south trade that is characteristic of Canada's focus on the US economy.



**Figure 2-4: Average value of beef exports to and imports from the US, 2011. Livers, tongues and offal excluded.** Source: Statistics Canada, World Trade Atlas, 2012.

9. World Trade Atlas, 2012.

10. Source: World Trade Atlas, 2012.

11. Note that in 2005 the average value of beef exports to the US was \$4.17 per kg and in 2010 it was \$3.33.

From a strategic perspective, we need to decide whether foregoing important economic opportunities for beef processing in this country is worth addressing.

Retailers and food service providers are expressing a desire to “buy Canadian.” For instance, McDonald’s has pledged to source its beef from Canada; Loblaw is sourcing Ontario Corn-Fed Beef program (for retail in Ontario); Costco is sourcing AAA Canadian beef; and there are others. However, as the data reveal, Canadian retailers and food services providers are buying more beef from the US. They are essentially backfilling product as the Canadian trade of live cattle exports to the US is met with higher beef imports into eastern Canada.

Over-dependence on a single market has consequences. It creates challenges and vulnerabilities. For example, having trade actions being taken against Canada (i.e., a dumping/countervail case in 1995-1996) and being subjected to burdensome requirements like country-of-origin Labelling can have significant economic impacts.

Another implication of our US-dominated export strategy is that we could be foregoing more profitable opportunities elsewhere. For example, Canada’s exports to countries such as Mexico, Japan and Hong Kong (Canada’s next most important export markets) reveals a higher per kilo value of beef than our US trade. (See Figure 2-5: Value of Canada’s Beef Exports.) Export markets are important for arbitrage (enabling the highest price for products to be sought) and to maximize carcass value. Although Canada is now actively pursuing and winning more market access agreements around the world, the higher values that can be captured are limited by low market penetration. As well, it is apparent the US is finding higher prices for its exports in other markets. This raises the prospect of similar opportunities for Canada vis-à-



**Figure 2-5: Value of Canada’s beef exports.** Source: Statistics Canada; CATSNET Analytics, Canadian Beef Exports by Country, 2010.

vis the beef and live cattle we currently export (at a lower price) to the US.<sup>12</sup>

The strategic question is: what should be our export strategy?

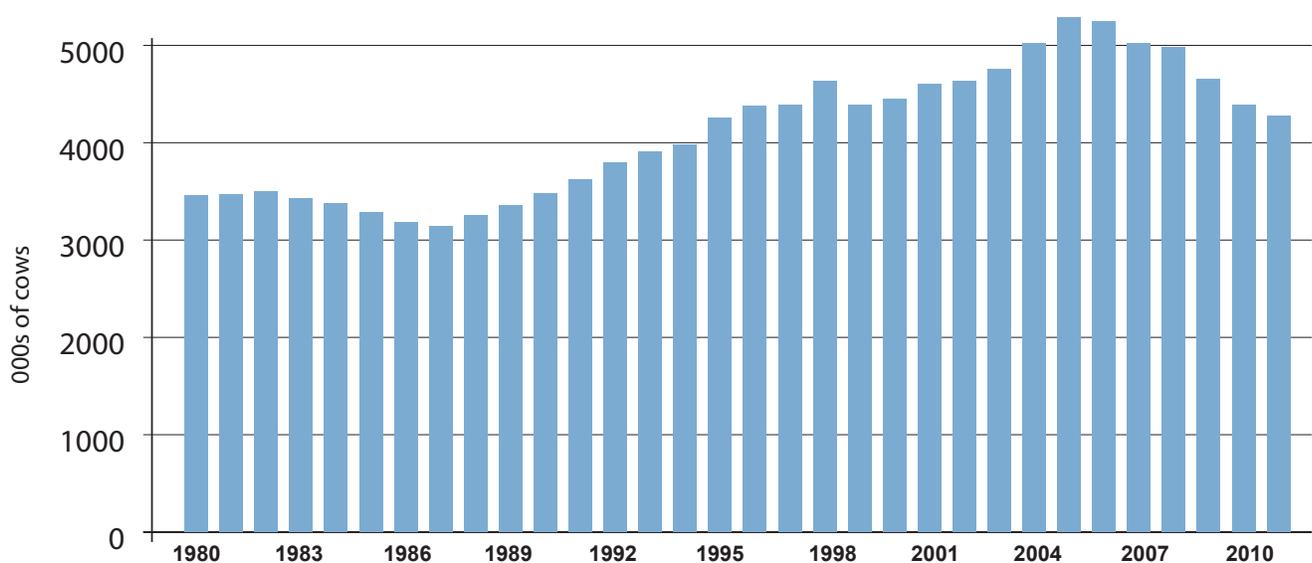
## 2. National Herd Size

Canada's cow herd has declined by 1 million head or 20% since 2005. (See Figure 2-6: Canada's Beef Cow Herd, 1980 to 2011.) The herd size is a vital indicator of future economic success, as it is the source of the beef supply. The marketplace needs confidence that a critical mass of beef supply will be available.

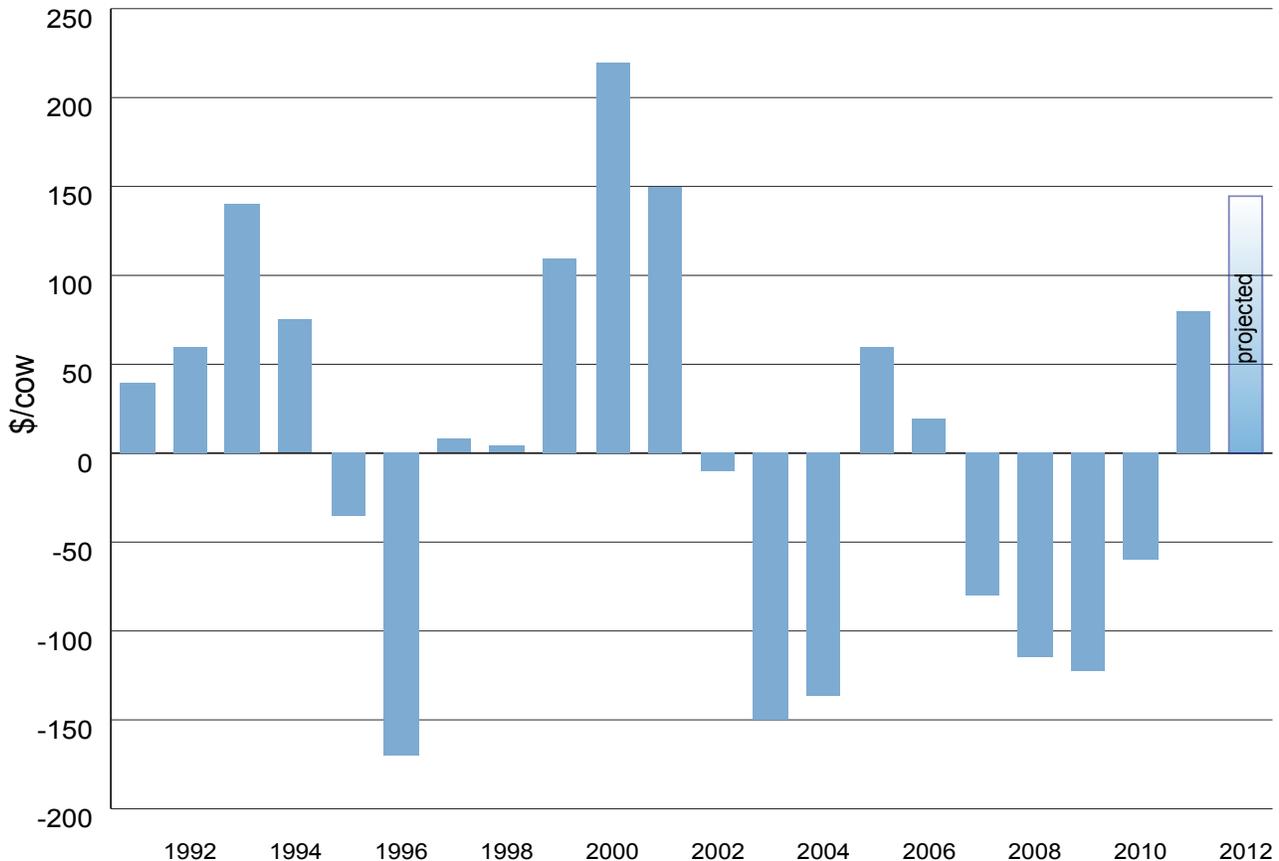
In the broadest sense, a food system begins with the existing land base dedicated to beef production. The industry needs to be aware of the optimal productive capacity of that land base. That capacity can be assured and enhanced through improved pasture and range management, improved feed grain production and, in part, increased animal productivity through the application of genomics. Other elements also play a role, such as processing infrastructure, suitable regulations, and access to capital. Many factors influence the size of the herd over time (which shape what is often described as a cattle cycle) and insufficient critical mass has a number of consequences:

- Under-utilization of capacity and declining margins reduces the likelihood of reinvestment in new technologies;
- Costs rise if toll processing is required at smaller processing plants. Associated small volumes of by-products result in low returns to offal and other by-products;

12. This is based on the aggregate value of exports to each country as reported by the United States Meat Export Federation.



**Figure 2-6: Canada's beef cow herd, 1980 to 2011.** Source: USDA Foreign Agricultural Service, Production, Supply, and Distribution Online Database, (beef cows, beginning stocks).



**Figure 2-7: Alberta cow/calf returns (cash costs).** Source: CANFAX and Canadian Cattlemen's Association.

- c. Insufficient critical mass prohibits featuring by retailers, reducing market reach; it may also increase the likelihood that some retailers will turn to US suppliers to ensure supply;
- d. Often, the product offering that consumers demand is only the middle meats, causing any higher costs of production to be absorbed in the pricing of these middle meats, which limits market growth. This underscores the need to find ways to utilize the entire carcass.

Moreover, some interviews conducted for this report suggest that the decrease in the herd is, in part, a result of farmers and ranchers re-allocating grazing lands to crops or forage. Beef producers are opting for crops for two reasons. First, beef sector returns, which were not positive for most of the last decade, do not justify reinvesting. (See Figure 2-7.) Second, on farmland usable for crops, a higher return can be made from growing grains and oilseeds. Rebuilding the cow herd is made more challenging by the higher overall beef supply chain costs (e.g., labour, regulations, feed). A larger cow-herd will likely be an outcome of improved economics flowing back to the cow-calf sector. This requires a focus on driving costs out of the supply chain, and a focus on creating and capturing more value for the beef carcass.

Increasing the cow herd is based on the expectation of future positive returns. The calculation is a complex one but the signal needs to come from the supply chain. The prospect of creating new and differentiated markets and products (addressed in the section ahead) is about supporting new higher-value consumer demand for quality products and their attributes. Delivering upon this promise – and essentially “growing

the pie” – depends on greater collaboration across the supply chain, such that the productive capacity of the national herd can match anticipated future product requirements.

A dialogue on Canada’s beef future should include a discussion on the optimal carrying capacity of the natural resource base. (Appendix C, *The Herd and Grass: The Foundation of the Beef Sector*, provides background on this matter). Such a discussion could involve many factors, including the impact of drought or the increasing diversion of grasslands on grain production. For an industry that aims to serve its own market and exploit emerging export market opportunities, it is critical to consider the future growth potential of the national herd and to identify the regions that can best support this growth.

The strategic question is: how do we ensure that “market signals” are clear and reliable enough to induce the sector to rebuild the herd’s productive capacity sufficiently to meet future market needs.

### 3. Competing Proteins

#### a. Feed-grain conversion

It is well understood that cattle have a much higher cost of gain than other proteins. As barley, wheat and corn prices have risen, the cost of beef versus pork or chicken has disproportionately increased. These higher production costs eventually need to be passed on to consumers in the form of higher retail prices if industry margins are to return to long-term averages.

Rebuilding the national herd depends in part on feed costs. Indeed, feed-grain conversion disadvantages beef when compared with other proteins, such as poultry and pork. Beef has an average feed conversion ratio of 7-9:1 which means it takes 11 bushels of corn to produce 100 lbs. of boneless fed beef. The pork feed conversion ratio is 3.5:1; it takes approximately 8 bushels of corn to produce 100 pounds of boneless skinless meat. For poultry, the ratio is 1.92:1; or, 3.7 bushels of corn to produce 100 pounds of boneless skinless meat.<sup>13</sup>

#### b. Beef consumption

Per capita beef consumption is falling in Canada and across the OECD. This trend poses a challenge for the beef sector. There are a number of perspectives to this issue. Price is key. The drop in consumption may be based on higher prices of beef, which results in category shifts.<sup>14</sup> In our interviews, retailers and food service operators pointed to the price elasticity of beef as a contributing factor to consumption. The price of beef compared with alternative proteins affects consumption and menu offerings.<sup>15</sup>

Consumption patterns are also influenced by consumer perceptions and concerns with beef production and perceived healthfulness of the various protein choices. The perception of the healthfulness of beef is

13. “Protein Production Drivers,” Tyson Foods Inc., Meat & Poultry Outlook, Feb. 24, 2012.

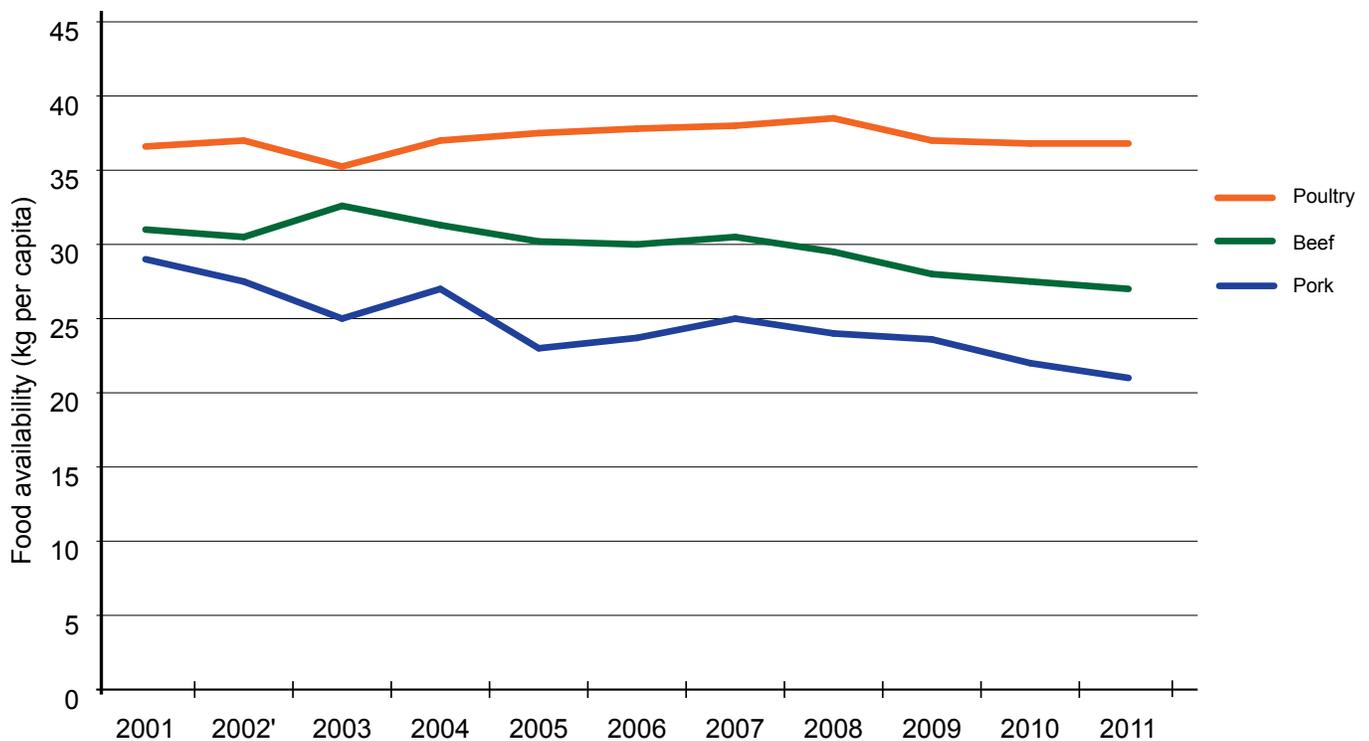
14. Some 52% of beef sold in retail or in restaurants and food service operations is ground beef or hamburger. Our interviews suggested that this number has exceeded 60% due to economic conditions and that consumers have “traded down” to hamburger from more expensive cuts of beef.

15. Nevertheless, generalizations have their limits; there is also a growing popularity of premium or gourmet hamburger (and new restaurant chains that focus on this segment) which emphasize, for instance, high-quality meat types (Angus) and high-quality cuts of meat (sirloin).

falling, while that of fish and chicken has been rising. (See Table 2-1, Ranked Healthfulness or Nutrition of Beef and Other Meats). For some consumers, the ethical treatment of animals or the use of antibiotics come into play. The feed conversion issue is also a contributing factor. Given that more grain is required per kilo of beef production than for other proteins, this feeds the criticism that beef's environmental footprint is unsustainable and a reason not to consume beef. (Perceptions and expectations of beef production are addressed in the next chapter.)

**Table 2-1: Ranked healthfulness or nutrition of beef and other meats by meal preparers/beef eaters aged 20-64.** Source: Canada Beef Inc. "Online Beef Usage & Attitude Study," July 2011.

Food Type	2002 (804)	2005 (807)	2011 (893)
Vegetables and fruit	91%	93%	96%
Fish	76%	77%	85%
Chicken	69%	61%	69%
Beef	53%	43%	37%
Beef steaks and roasts	–	45%	37%
Pork	–	–	32%
Ground beef	–	23%	21%
Processed meats (hotdogs, sausages, deli meats, etc.)	–	5%	2%



**Figure 2-8: Trends in Canadian meat consumption.** Source: Statistics Canada, 2012.

The exact cause may be hard to pin down, but the fact is that per capita beef consumption is falling in Canada. Per capita beef consumption has declined 10.7% since 2001 and now totals 27.5 kg/capita (carcass equivalent). Pork consumption over that time period has declined by 28% while poultry (chicken, hen and turkey) consumption has increased 3.4%.<sup>16</sup> (See Figure 2-8.) Notwithstanding the trends, industry still needs to pursue opportunities that will increase the willingness of consumers to pay higher beef prices. To do so, the industry needs to fully understand consumer needs, wants and preferences and use this information to better position the beef sector. Increasing the demand for our products requires that the sector build trust and loyalty to Canadian beef. The sector needs to be able to provide a consistently high-quality and reliable product in order to motivate more consumers to buy our brand.

### Change in Global Beef Import Requirements

Among OECD member countries, beef consumption has declined 2.5 billion kilograms between 2007 and 2012. (See Table 2-2, Features of Global Beef Consumption). Meanwhile, non-OECD countries have increased consumption, and their overall share of world consumption has risen to 62% of total beef consumption. Opportunities for beef exports await in the developing world's growing middle classes, which can afford beef. The forecast growth of beef consumption in these markets, driven by population growth and rising incomes, shows great potential.

**Table 2-2: Features of global beef consumption.** Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution Online Database, (Beef and Veal consumption).

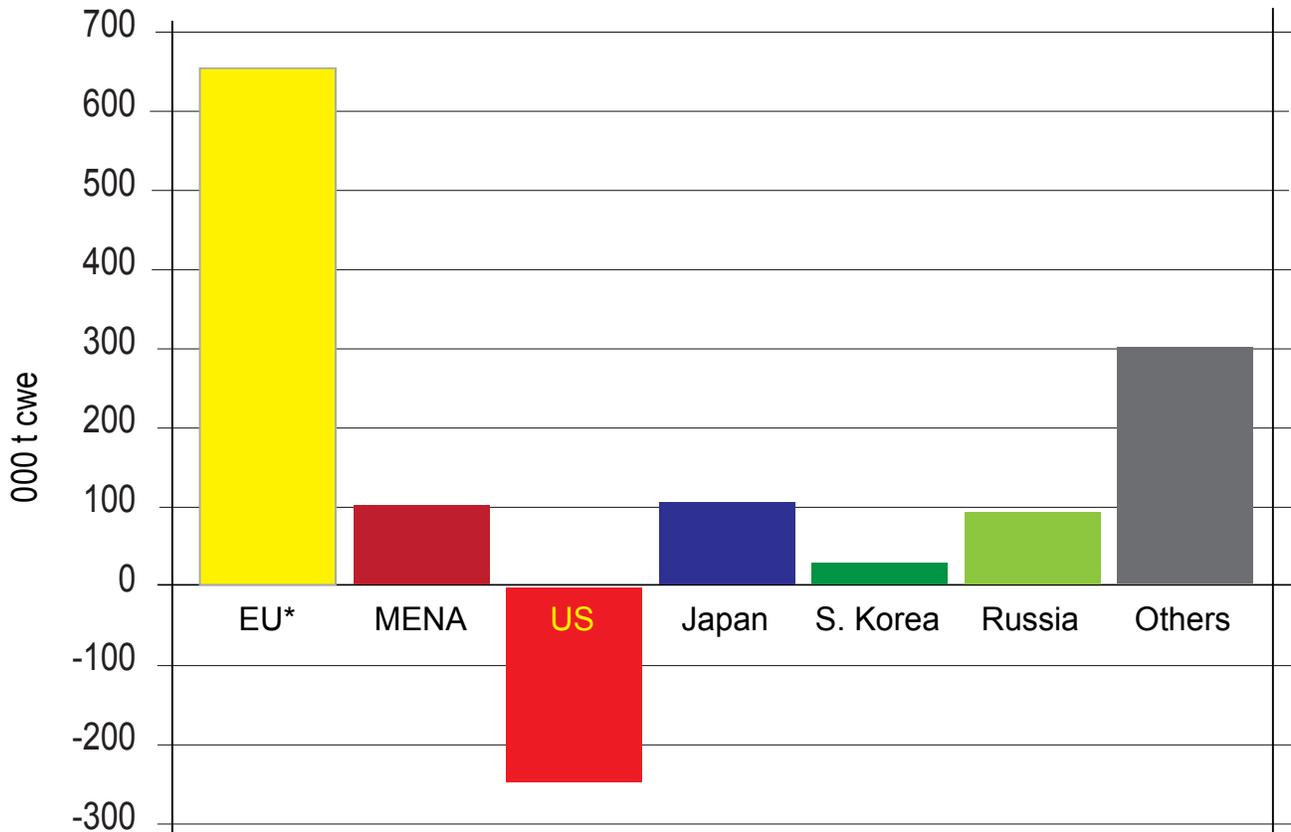
Country	2007	2008	2009	2010	2011	2012
OECD share	41%	40%	40%	40%	39%	38%
ROW share	59%	60%	60%	60%	61%	62%
Consumption (billion kgs)	57.9	57.6	56.5	56.4	55.8	55.6

Trade patterns and beef import requirements adjust to changes in trade liberalization, competitiveness and economic growth. As these adjustments occur, new opportunities can emerge and others may close. The key strategic question is: how do we match Canada's beef sector's strengths to meet these changing market opportunities and consumer preferences, here and abroad?

Canada produces a beef to high food-quality standards. The greatest opportunity to create value for Canadian beef is to continue targeting customers who can afford this product. This holds a promising opportunity as global import demand for beef is forecasted to increase 12.5% between 2010 and 2020.<sup>17</sup> (See Figure 2-9, Beef Importers, Change in Main Country/Regions 2011-2020.) Despite this demand forecast, it should be recognized that global beef consumption has declined 3.5% over the last three

16. Statistics Canada, Cansim Table 002-0011

17. "Long Term Strategic Trends in World Meat Markets," GIRA, 2010. A significant amount of that growth is expected to occur from the EU-27 (652,000 tonnes cwe) and Japan (103,000 tonnes), two stable and higher-valued markets. Import demand from the United States was forecasted to decline due to the lower US dollar.



**Figure 2-9: Beef importers, change in main country/regions 2011-2020. (\*EU = 27 countries; MENA: Middle East and Northern Africa.)** Source: GIRA, Long Term Strategic Trends in World Meat Markets.

years vs. poultry consumption growth of 10.3%.<sup>18</sup> So, while the beef trade is expected to rise, beef may also continue to lose market share to poultry.

While prospects exist for Canada's beef sector to access new markets, there are no assurances that Canada will win over these consumers. Canada competes with lower-cost supply systems (largely grass-fed but some grain-fed) in Brazil, Uruguay and Argentina.<sup>19</sup> In some markets, lower-cost beef may encroach into Canada's market base, particularly where consumers become more interested in pursuing grass-fed beef.

It is beyond the scope of this study to assess the beef market prospects on a country-by-country basis. This "responsibility" largely rests with processors and retailers who are closest to the consumer. The point is that responding to such market opportunities requires that multiple stakeholders in the supply chain become aligned and make more efficient decisions. Market opportunities can only be acted upon if there is an adequate supply of beef, which depends on there being a suitable national herd size. Other players

18. Foreign Agriculture Service, United States Department of Agriculture, 2012. Accessed at : <http://www.fas.usda.gov/psdonline/psdReport.eportRetrievalName=Broiler+Meat+Summary+Selected+Countries&hidReportRetrievalID=1647&hidReportRetrievalTemplateID=7>; and, <http://www.fas.usda.gov/psdonline/psdReport>.

19. Somwaru and Valdes, 2004, "Brazil's Beef Production and its Efficiency: A Comparative Study of Scale Economies," presented at the GTAP Seventh Annual Conference on Global Economic Analysis, June 2004. The authors are with the USDA Economic Research Service.

have a role; for example, government contributes by working to open up markets. To competitively position Canadian beef requires strategically aligning the players so they can assess and act upon market opportunities. Sharing information across the system is central to bringing about this alignment.

## 4. Alignment Among Beef Supply Chains

The many players across the Canadian beef sector – from producers to retailers – are important to any efforts to develop a coherent strategy. Getting alignment is challenging because of the sector's diversity. Geography plays a role, as do the number and size of the players across the cow-calf industry and among others up the chain.

A quick canvass of the beef supply chain reveals that many players occupy distinctive segments. There are over 61,000 cow calf producers operating in Canada. In Alberta and Saskatchewan, alone, there are some 193 feedlots. Moving closer to the consumer, there is greater concentration; two packers account for 80% of federally inspected capacity. (Provincially regulated slaughter facilities accounted for only 5.4% of Canada's total slaughter capacity in 2011, and that percentage is falling.<sup>20</sup>) There are over 80,000 restaurants in Canada; the three largest broad-line food service distributors account for about 40% of sales and the three largest quick service operators represent about 70% of such sales. The country's five largest grocery retailers account for 80% of all grocery sales.

Generally, these dynamics have influenced the tenor and extent of communication and collaboration, or lack thereof, across the sector. While efforts have been taken to facilitate dialogue amongst some of the players and segments, the very make-up of the sector (as we have heard in our interviews) creates challenges in the development of common objectives. While other agri-food sectors may also experience similar challenges, stakeholder feedback for this report commented on the fragmented nature of the beef sector specifically. A key issue is how individual supply chains work together (and with others) to create new value and opportunities. These opportunities depend, for example, on ensuring a consistent beef supply from the Canadian herd.<sup>21</sup>

20. The data by category: there are 61,425 operations reporting owning beef cows: Statistics Canada, Census of Agriculture: 2011. Number of feedlots of 1,000 head of capacity or more as of January 1, 2012: AB and SK only; CANFAX, 2012. The top two packers accounting for federal capacity: CANFAX, 2012. Provincially-regulated facilities which decreased from 7.2% in 2007: Agriculture and Agri-Food Canada, 2012. Number of "commercial foodservice units" is 80,800: June 2012, Canadian Foodservices and Restaurant Association's Provincial InfoStats and Statistics Canada. Foodservice distributors and quick service operators referenced in: Report by the Food Processing Value Chain Roundtable, "Growing the Canadian Food Processing Sector, An Industry/Government Action Plan", Agriculture and Agri-Food Canada, December 2010. The top 5 retailers: AC Nielson, 2011.

21. "Producer clubs" might offer some segments of the industry with an opportunity in solving the critical mass problem. Such horizontal alliances (in which each operation uses the same genetics and management programs to supply uniform cattle to feedlots) create the possibility for critical mass to be achieved. This makes it more inviting for retailers as they need consistent supply to meet consumer needs.

## Conclusion

This chapter is not intended to review and explain all the challenges facing the Canadian beef sector. But it reveals four key challenges to competitiveness. These challenges involve issues relating to Canada's trade balance, the national herd size, competing proteins, and the degree to which there is alignment across the beef supply chains.

Table 2-3 cross-references the four challenges with themes that will be developed later in this report. These themes mark the key elements of CAPI's "Roadmap for Dialogue on Strategy." As will be explained later in this report, the "Roadmap" will be presented as a tool to engage a dialogue among the many stakeholders in order to help formulate a strategy for the beef sector, one based on food system principles.

Addressing these issues will depend on how the players, themselves, work together to respond to challenges and opportunities. How information is shared and acted upon to create a strategy is central in this regard, and is the subject of the next chapter. Chapter 3 posits that the prospects for Canada's beef sector are bright if the sector can harness certain information advantages.

**Table 2-3: Indicators of Canada's competitiveness (addressed in this chapter) linked to CAPI's Roadmap (discussed in chapter 4).**

Indicators of competitiveness	Link to the CAPI "Roadmap" (Addressed ahead)
<p style="text-align: center;"><b>Trade Position</b></p> <p style="text-align: center;">(Trade balance; dependence on US)</p>	<p style="text-align: center;"><b>"Market Requirements"</b></p>
<p style="text-align: center;"><b>National Herd Size</b></p> <p style="text-align: center;"><b>Competing Proteins</b></p> <p style="text-align: center;">(Feed grain conversion; meat consumption; price)</p>	<p style="text-align: center;"><b>"Supply Capacity"</b></p> <p style="text-align: center;"><b>"Product Attributes"</b></p>
<p style="text-align: center;"><b>Supply Chain Alignment</b></p>	<p style="text-align: center;"><b>"Supply Chain Collaboration"</b></p>

## CHAPTER 3: The “Information Advantage”

Information is changing the marketplace. Consumers want to know more about the food they eat. Processors and retailers are disclosing more about where they source their food and are creating supply chain-wide protocols to trace food products to their origin. Producers are now more able to receive and transmit information from others in the supply chain. Many producers want to know which product attributes are achieving premiums in the marketplace. Regulators can be expected to raise the disclosure bar higher; for example, producers may be asked to provide more information on their food safety measures. Non-government organizations and advocacy groups are pursuing higher standards of corporate social responsibility. These developments are not unique to the beef sector, but they clearly show the broad interest in deriving value from information generated on beef production and supply. This section is about the use and implications of such information in the marketplace and its importance to creating a strategic advantage.

### An Information Advantage

Many stakeholders interviewed for this report expressed a broad interest in using information to create opportunities or to respond to society’s increasing desire to know more about the origin and safety of food products.<sup>22</sup> An enhanced focus on providing information about food origin might even change the way we describe how we compete. Today, we tend to categorize the sector as being either supply-push or demand-pull.<sup>23</sup> Such descriptions can polarize the discussion and this report is not about creating a definitional debate. The focus should be on how we can best compete in tomorrow’s marketplace. This is what beef stakeholders expressed to us, and it requires a new mindset. What will enable this? The discussion will become more productive if we consider how information can enable value-creation across beef supply chains and among their support partners.

Information can create a strategic advantage or even a competitive advantage. This is not a far-fetched proposition. A report prepared for the US Meat Export Federation raised the prospect; it noted, “Countries that have well-developed mandatory animal identification and traceability programs enjoy a comparative advantage.”<sup>24</sup> In Canada, a recent report prepared by the Beef Cattle Research Council commented that “an overall common shared vision is lacking, with priorities often being defined very broadly and typically not being articulated in terms of the desired outcomes to be achieved.” Its findings were premised in part on identifying research priorities that “could result in a competitive advantage for the Canadian beef industry.”<sup>25</sup>

22. For example, interviewees noted that: demand in Canada for Canadian beef was a “strength” if labelled and well-priced; there is a low level of information flow for efficient resource allocation across the supply chains which was deemed to be a “weakness”; misinformation on health and nutritional attributes of beef was a “threat”; and leveraging the strengths of animal identification and traceability in select markets was considered an “opportunity.” These and other points ultimately rely on information disclosure, sharing or use in some form or another.

23. The beef sector is often regarded as being largely supply-push-focused, a generalization certainly but it reflects its commodity-focus. Demand-pull, however, is about being consumer-focused and this requires greater collaboration (principles that are emphasized in this report).

24. Brester, G. et al, Economic Assessment of Evolving Red Meat Export Market Access Requirements for Traceability of Livestock and Meat, Project Report Submitted to US Meat Export Federation, March 2011, page 1.

25. “National Beef Research Strategy.” Beef Cattle Research Council, June 2012, pages 8 and 12.

## Defining a Competitive Information Advantage

This section elaborates on what could be the key elements of formulating a competitive information advantage in the beef sector. There are several building blocks:

- Delivering consumer information and enhancing a brand built on trust;
- Translating innovation into marketing and productivity opportunities;
- Improving performance across the supply chains;
- Leveraging the potential of traceability; and
- Deriving benefits from environmental stewardship.

How beef supply chains, in collaboration with other partners in the food system, position themselves to act on these elements may determine the future competitiveness and profitability of the beef sector.

### Consumer Information: Needs, Trends and Pressures

Consumers base food purchase decisions on many factors. Provided the food is safe, price is the primary issue for many consumers. Retailers know this. This is why beef is often headlined in store flyers. It drives store traffic.

But there are important developments taking hold. Increasingly, consumers want to know where their food comes from and how it is produced. Just as social media are dramatically changing the world in which people express themselves, consumers are looking to information as the basis to buy their food, as explained further below.

Then there are societal expectations. This phrase captures how consumer values are shaping purchase decisions. Without a doubt, advocacy groups, the media and opinion leaders influence consumer expectations. Although the majority of Canadians have little connection to farming and how food is produced, they want to know they are making the right choices for their family.<sup>26</sup> They want to know how animals are treated and the environmental impacts of livestock production and processing practices. Food purchases are becoming an ethical calculation for discerning consumers. How Canada's beef sector interprets and responds to these requirements is vitally important. But it is a complex undertaking.

Product preferences vary by demographic segment, income, ethnic background, and many other factors. There is no one consumer. Markets vary within a country and among countries. There is no one market. Traditionally, it has been up to the retailer to decipher consumer requirements. It is increasingly important for producers to also have such insights.

Today, retailers and processors are more transparent about food (and beef) production practices. To target consumers, they are differentiating themselves in the marketplace by offering products based on various attributes. Consumers may want beef that has been grass-fed, is hormone-free and corn-fed, or raised in an "organic" or "natural" way. Location of origin and "buy local" can be a preference. Each

26. Some 94% of the Canadian population knows little or nothing about farming: Farm and Food Care Ontario; Annual Report 2011, page 1.

credence attribute has a prospective economic value. Once a desired attribute is identified, retailers require a critical mass of supply to meet the demand.<sup>27</sup>

Some restaurants are taking advantage of this consumer interest by profiling the farmers or farms directly on their menus, or by catering to a particular consumer interest. Opinion polling supports this trend. In an annual survey of 300 professional Canadian chefs, the “hot trends” in food services in 2012 were found to include locally produced and locally inspired dishes, and foods that were gluten-free, allergy-conscious, made with farm- or estate-branded ingredients, and nutritious and healthy (e.g., low-fat, reduced-sodium, antioxidant-rich, high-fibre). In the red meat category, this survey’s top three trends were locally produced red meat, grass-fed beef and new/fabricated cuts of meat.<sup>28</sup>

Retailers are intent on responding to consumer information needs or anticipating these needs; Canadian supermarkets are moving to provide nutritional profiles on tens of thousands of products accessible by consumer cell phones.<sup>29</sup>

Regulators are also responding. In Japan, restaurants are required by law to display the cattle identification or lot number of beef served to consumers so that consumers can trace beef information on a website of the National Livestock Improvement Centre.<sup>30</sup> Mandatory domestic beef traceability enables South Koreans to do the same at retail locations, such as tracing back to the farm of origin by entering a traceability code into cell phones.<sup>31</sup>

#### **The B.C. Cattlemen’s Association program**

“**Behind the Beef**” puts trained educators into stores and other food locations to answer consumer questions about beef. The program has surpassed initial expectations. It initially targeted 400 in-store visits and, after six months, it expects over 2,000 to be scheduled this year and the program may be expanded to include schools. The stores that have been tracking their sales during an educator visit have reported beef sales increases on that day as high as 400%. The consumer interaction also gives the beef industry direct insights into consumer concerns and perceptions regarding beef production, such as on land stewardship practices and animal care, as well as insights on beef quality, cuts and cooking.

Information-sharing is at the heart of the opportunity. For example, tracking and sharing animal specifications can be a beneficial approach. A potentially important tool to manage information and create opportunities is the new BIXS program. The Canadian Cattlemen’s Association (CCA) recently launched the voluntary Beef InfoXchange System (BIXS). As the CCA notes, “The ability to track and share relevant animal production, performance, health, genetic and carcass data will help improve efficiencies at the ranch, feedlot and processing levels. It will also lead to more precise targeting of beef for specific

27. Loblaw reports that it doubled the number of beef producers (to 500) supplying it with Ontario Corn-Fed Beef. “The Way We Do Business; 2011 Corporate Social Responsibility Report”; accessed, June 2012: <http://www.loblaw-reports.ca/responsibility/2011/index.php#source-with-integrity>.

28. Canadian Chef Survey Results 2012, Canadian Foodservices and Restaurant Association. Accessed June 2012: <http://restaurantcentral.ca/LinkClick.aspx?fileticket=GINAb16Neuk=&tabid=621>

29. The grocery industry identified health and wellness information as a key strategic priority and requested GSI Canada, a standards body, to develop a nutritional product data base; today over 40,000 products have been captured this way, increasing to 50,000 by the end of August 2012. Shelf stable products are the priority as directed by the industry but commodities/single ingredient products such as produce, meat, and poultry are being discussed. (GSI communication with CAPI, June 2012.)

30. GSI Canada; background material supplied to CAPI.

31. Canada Beef Inc.; background material supplied to CAPI.

domestic and international market prospects, and increase the overall quality of beef nation-wide.”<sup>32</sup> It’s early days yet, but this new capability may become a fundamental tool to facilitate information-sharing in the sector and create new profitable opportunities. (This issue is further discussed ahead.)

At the other end of the spectrum, consumers are constantly bombarded with advertisements, news and messages about food. Information can be factual and informative or it can be biased or misleading. There is a yearning for good, reliable information. Producers, themselves, are well-positioned to deliver on this demand. Direct outreach to consumers is also good for business, as the B.C. Cattlemen’s Association has found (see insert).

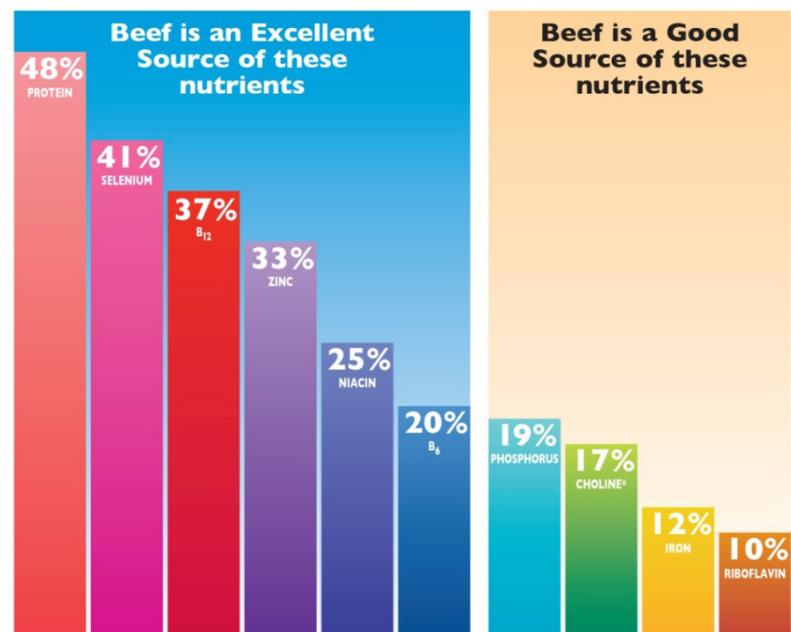
Every sector needs to ensure that its message gets out to consumers. This becomes particularly acute for animal agriculture, which often feels besieged by advocacy groups that rail against meat production. Actively responding to this challenge and presenting the positive attributes of beef is important. (See Figure 3-1, which portrays one advertisement promoting the nutrient value of beef.)

Ideologically driven and public opinion-savvy groups might one day rob producers of safe and efficacious production technology. “Hormone-free beef” presents a case in point.

Modern hormone treatment is an approved and safe practice. But the use of hormones in cattle production garners negative reaction.<sup>33</sup> In response, some suppliers take the very rational approach of producing and advertising “hormone-free beef.” Science-based

### Choose Your Calories by the Company They Keep

**A 3-ounce serving of lean beef (154 calories) contributes less than 10 percent of calories to a 2,000-calorie diet, yet it supplies more than 10 percent of the Daily Value for:**



**Figure 3-1: An example of a campaign to counter anti-beef messaging. (Note: “B<sub>6</sub>” and “B<sub>12</sub>” are vitamins.)** Source: US

Department of Agriculture, Agricultural Research Service, 2009.

USDA Nutrient Database for Standard Reference, Release 22.

Nutrient Laboratory homepage: [www.nal.usda.gov/fnic/foodcomp](http://www.nal.usda.gov/fnic/foodcomp).

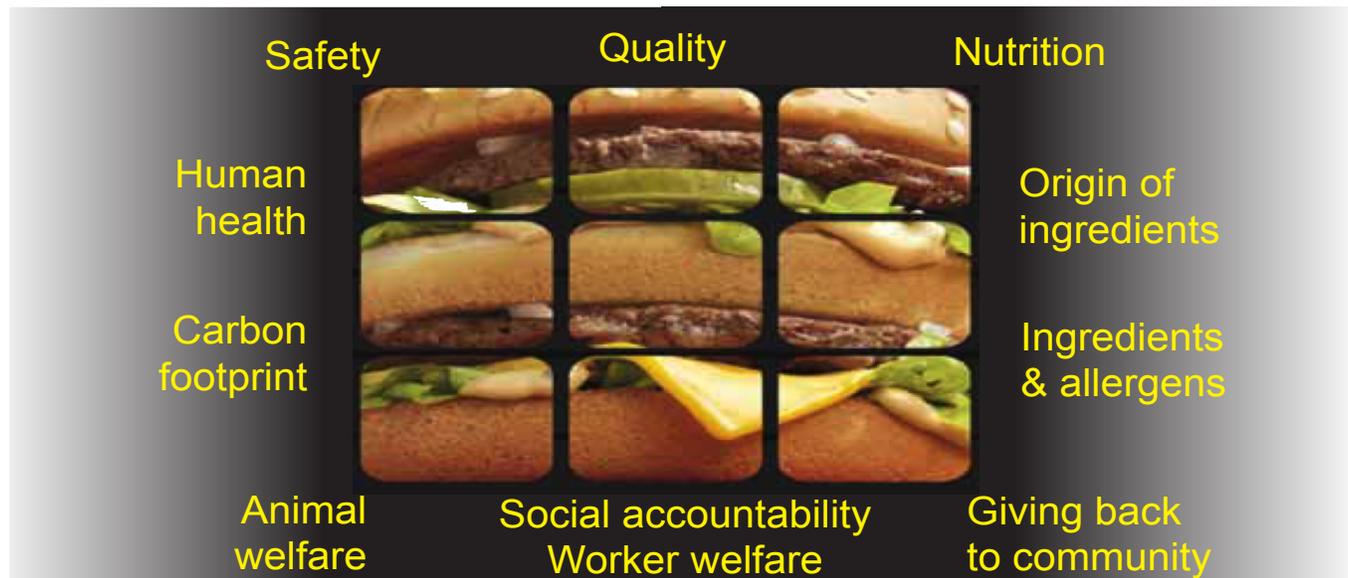
(A 3-ounce serving of beef provides approximately 17% of the highest adequate intake for choline (550mg). Dietary Reference Intakes, Institute of Medicine of the National Academies, National Academies Press, Washington, D.C., 2006. Guidance for Industry, A food Labelling Guide. US Department of Health and Human Services, Food and Drug Administration, Center for Food Safety and Applied Nutrition. April 2008. [www.cfsan.fda.gov/2lg-toc.html](http://www.cfsan.fda.gov/2lg-toc.html))

32. Refer to the Canadian Cattlemen’s Association website on BIXS for detailed background on the program; accessed June 2012: <http://bixs.cattle.ca/bixs-overview>.

33. While CAPI did not assess the following survey’s methodology or its results, the report is indicative of the sort of attention that this issue generates. The majority of survey respondents “were extremely or very concerned about issues related to the use of antibiotics in animal feed, including the potential creation of “superbugs” due to overuse of antibiotics, unsanitary and crowded conditions for livestock, human consumption of antibiotic residue, and environmental effects due to agricultural runoff containing antibiotics.” A further 24% of respondents said meat raised without antibiotics was not available at the supermarket where they usually shop. Of this group, 82% said they would buy it if it were available. (Consumer Reports, “Meat on Drugs: The overuse of antibiotics in food animals & what supermarkets and consumers can do to stop it.” June 2012. [http://notinmyfood.org/wp-content/uploads/2012/06/CR\\_Meat\\_On\\_Drugs\\_Report\\_06-12.pdf](http://notinmyfood.org/wp-content/uploads/2012/06/CR_Meat_On_Drugs_Report_06-12.pdf).)

information is needed for informed discussion so we do not lose access to modern productive technology.

Communicating with “the consumer” is challenging at the best of times. What is clear is that consumers are increasingly focusing on how their food is produced and supplied. Retailers are paying particular attention. (Figure 3-2 portrays the array of product attributes desired by consumers as tracked by one major restaurant chain.) The essential issue is about trust and confidence.



**Figure 3-2: The array of product attributes desired by consumers tracked by one major restaurant chain.**

We live in an era of increasing accountability and transparency. In the agri-food world, with ready-access to information, every facet of food production is under scrutiny. Issues can become instant crises – whether fact-based or not – given today’s pace of social media and traditional media coverage. Many agri-food players, from major companies to small-scale producers, are acutely aware of this, or should be. The recent adverse attention that was drawn to “Lean Finely Textured Beef (LFTB)” in the US is a case in point. Pejoratively referred to as “pink slime,” this unexpected issue rocketed to the top of the public opinion agenda in that country and without much attention given to the facts. Bloggers, advocates and a well-known celebrity chef, as well as the national US media, generated considerable attention to the use of LFTB, which resulted in major retailers and processors in that country pledging to drop the use of this lower-cost hamburger filler. For instance, one blogger, described as “a mom” in the media, launched her on-line petition to remove this material from beef served in the US National School Lunch Program.<sup>34</sup>

LFTB is a safe product approved by the USDA that treats beef with gaseous ammonium hydroxide to kill harmful *E. coli*, *Salmonella* and other bacteria. Nonetheless, the negative coverage had immediate, detrimental consequences for the industry and led to the closure of three US plants that had been producing beef products using this process.

34. Despite being considered “safe and wholesome,” the campaign against Lean Finely Textured Beef resulted in major media and significant consumer attention which prompted changes of practices. “Safeway Drops ‘Pink Slime,’ Walmart to Offer Consumers Choice,” by Helena BotteMiller, March 22, 2012; accessed June 2012: <http://www.foodsafetynews.com/2012/03/safeway-drops-pink-slime-walmart-to-offer-consumers-choice/>.

Understanding and being responsive to prevailing consumer attitudes falls to every segment of the beef supply chain. Otherwise, the consequences can be devastating. “Undercover farm animal cruelty footage,” as Farm and Food Care Ontario notes, “makes the headlines when it is released to the media or on the internet by activist groups.”<sup>35</sup> This organization, and its other provincial counterparts, encourages all farmers and agri-food players to be attentive to animal care. This has global implications, too. Recently, the Australian government banned live animal exports to Indonesia after a video was released showing conditions in an Indonesian abattoir.<sup>36</sup> This export ban, through no fault of the exporter, created economic hardship on cattle producers counting on these markets. While these exports have resumed, there are calls for traceability of animal welfare conditions on Australia’s cattle after they leave Australia through to their slaughter.

Media headlines grab attention, but the facts, which usually emerge later, often receive a lower profile. For example, a report recently suggested that an increase of one serving of unprocessed red meat a day increased the risk of dying prematurely by 13%. Given the source for this report was the Harvard School of Public Health, it generated headlines even though the report’s authors cautioned that direct attribution to red meat is difficult to quantify because of a broad range of other factors (such as how the meat was cooked or that red meat eaters may have other risk factors).<sup>37</sup> Moreover, this same commentary referenced other studies that reveal no connection between moderate unprocessed red meat consumption and premature death or disease.

It is clear that communication based on a “trust us” philosophy is shifting (has shifted) to a “show us” mindset.

Although the market sometimes demonstrates fickle behavior, consumer trends often reveal very real (and sometimes subtle) shifts. For example, the trend to buy local is really about the growing desire to “buy confidence,” advises one grocery association executive.<sup>38</sup>

Corporations are providing greater disclosure as part of a major effort to demonstrate their commitment to consumer values and to “corporate social responsibility.” (See box above on examples of corporate social responsibility.) These initiatives are creating supply chain-wide protocols that call for improved practices and behavior. They are creating metrics to change performance and improve productivity, such as improving the use of carbon and water and other indicators of environmental sustainability. Such

35. Farm and Food Care Ontario, along with other like-minded organizations, released the report “Get the Real Dirt on Farming II,” 2010; accessed June 2012: <http://www.farmfoodcare.org/pdfs/dirt/DirtEng2011.pdf>. The report notes that “animal cruelty is unacceptable and this footage is disturbing for anyone who cares for animals, including farmers” and also cautions that just because it is seen on television or on the internet does not mean it is typical or true (page 20).

36. Presentation “New Markets, Exports, Traceability, Integrated Solutions, Perspectives from Australia,” by Garry Edwards to the Alberta Beef Industry Conference, Red Deer, Feb. 16 2012.

37. Pan A, PhD, Sun Q, MD, ScD, Bernstein AM, MD, ScD, et al. “Red Meat Consumption and Mortality: Results From 2 Prospective Cohort Studies.” *Archives of Internal Medicine*, Vol 172, No. 7, (April 9, 2012): 555-563. <http://archinte.jamanetwork.com/article.aspx?articleid=1134845> See also: <http://www.health.harvard.edu/healthbeat/whats-the-beef-with-red-meat>. Another example is the “Meatless Monday” campaign ([www.meatlessmonday.com](http://www.meatlessmonday.com)) which started in the US and has grown into a powerful international movement. It was launched in 2003 in association with the Johns Hopkins School of Public Health and is now active in 21 countries. The concept is simply portrayed: going meatless once per week is a moderate measure in a person’s best interest to be healthy and environmentally friendly. The campaign claims to help limit cancer risk, reduce heart disease, fight diabetes and obesity, and prolong life. On the environmental front, claims include reducing a person’s carbon footprint, minimizing water usage and reducing fossil fuel dependence. Ultimately, the campaign claims, the best way to improve animal welfare is to not eat the animals.

38. John F. T. Scott, President & CEO, Canadian Federation of Independent Grocers, presentation to the Canadian Animal Health Institute Annual Meeting, Collingwood, ON, June 7, 2012.

## Examples of Corporate Social Responsibility Initiatives

### Cargill:

- Promoted sustainable agricultural practices in the supply chain through education and certification programs;
- Made training and certification mandatory for employees working in animal health facilities;
- Introduced third-party video auditing at all North American slaughter facilities.

### McDonald's:

- Partnered with WWF and established that the sustainability of beef production is of the highest priority;
- Conducted third-party audits of all beef, pork and poultry slaughter houses.
- Announced in May 2012, it will source all pork (for its US stores) from producers who phase out gestation stalls (by 2022) and it will work with animal welfare experts, producers and suppliers to help do so.
- Has moved from cage-free eggs in the UK and the EU and has committed to sourcing a portion of their US eggs from cage-free operations.

### Tyson:

- Producing bio-fuels from animal fat;
- Working with researchers and experts in animal welfare to develop employee-training programs, utilizing internal audits and video surveillance to measure compliance.

### Loblaw:

- Pledged to source 100% of all beef and pork from Canada by the end of 2012;
- Pledged to source all PC eggs from cage-free operations;
- Made significant reductions to waste-handling to reduce their environmental footprint.

### Kraft:

- Indicated that US suppliers must demonstrate adherence to specified welfare standards through third-party audits;
- Indicated they purchased 1 million eggs from cage-free facilities in 2010.

measurements are increasingly dependent on third party audits, ranging from international (and self-regulatory) standards bodies to partnerships with individual NGOs.<sup>39</sup>

The drive to be accountable reflects the “food system” philosophy: success requires collaboration with diverse players within and outside supply chains. Companies are looking to their supply chains to respond to consumer expectations and thus to create business opportunities and value. Individual companies (such as retailers) are moving away from proprietary and uncoordinated responses and are embracing

39. Such third-party organizations include the Global Food Safety Initiative, the Global Social Compliance Program, the Global Packaging Project, the Consumer Goods Forum and GSI standards. This is described as “radical collaboration” by David Smith, VP Sustainability, Sobeys Inc.: “Trust me doesn’t cut it anymore – A retailers/foodservice perspective on animal care assurance,” Agriwebinar, The Farm Management Council, March 30, 2012; accessed in June 2012: <http://www.agriwebinar.com/Search.aspx>.

systematic and collaborative responses.<sup>40</sup> Organizations representing important constituencies are weighing in on agricultural issues, such as in the medical world.<sup>41</sup> Consumers, advocates, the media, investors and others are looking for transparency and verification of actions across supply chains. For instance, environmental life cycle analyses include assessments of every stage of production and supply. The dialogue on strategy must consider how so-called non-traditional food players need to be part of the conversation.

Demonstrating trust is a supply chain responsibility.

## Innovation

Innovation takes many forms. It is vital for lowering costs, improving efficiencies, creating new products and, even, enhancing the image and reputation of the sector. This report recognizes that diverse research is being undertaken to improve the competitive and economic prospects of the Canadian beef sector.<sup>42</sup> However, our focus is about innovation contributing to an information advantage, such as the use of genetics. Genetic analysis, which can unlock the complex interactions between a species' genetic code, the environment in which an animal is raised, and observed traits, is among the more promising new technologies for the beef sector. It has already led to significant productivity gains in animal agriculture in the dairy and poultry sectors. From producers, who want more saleable meat per kilogram of feed consumed, to retailers, who want a consistent, high-quality supply offering to attract consumer traffic, each player wants to see an economic benefit from applied genetics.

Now that the genome for domestic cattle (*Bos taurus*) has been mapped, there is great potential for improving the productivity of the Canadian beef sector. For example, a 10% improvement in an animal's feeding efficiency can generate a 43% increase in profitability, due to a decrease in the number of days required to reach a target weight.<sup>43</sup>

Furthermore, genomics has the potential to significantly reduce the environmental impact of beef cattle production. As well, improvements in feed efficiency could reduce greenhouse gas emissions from cattle

40. David Smith, VP Sustainability, Sobeys Inc.: "Trust me doesn't cut it anymore – A retailers/foodservice perspective on animal care assurance," Agriwebinar, The Farm Management Council, March 30, 2012; accessed in June 2012: <http://www.agriwebinar.com/Search.aspx>.

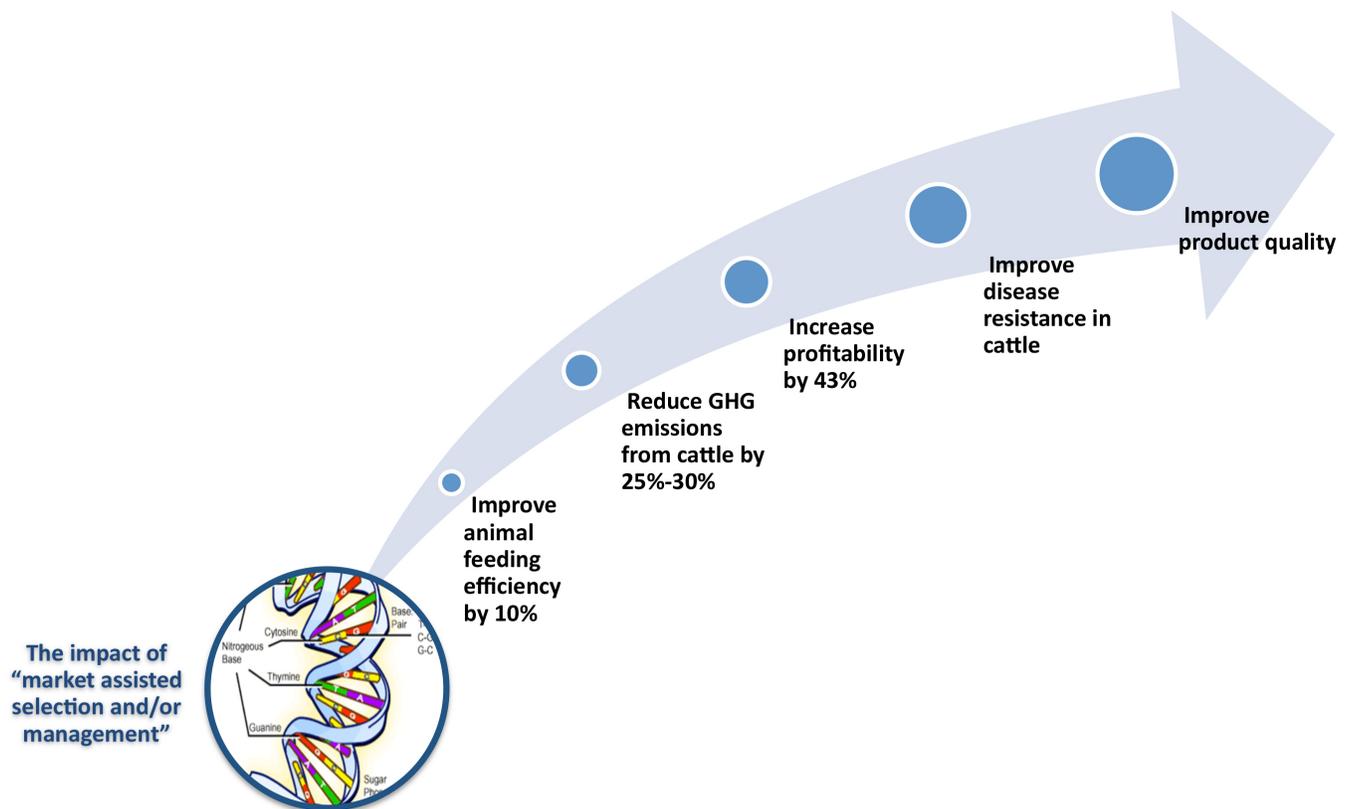
41. The *Journal of the Canadian Medical Association* published a paper on antibiotic uses in agricultural production. ("CMA urges prescription-only antibiotics for agricultural use", CMAJ website news; CMAJ September 20, 2011 vol. 183 no. 13; first published August 29, 2011, doi: 10.1503/cmaj.109-3989); on June 4, 2012, the CMAJ published the report: "Canada should ban off-label antibiotic use in agriculture"; <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.120561>; accessed June 2012.

42. Innovation examples include: the feedlot industry is utilizing by-products from grain-based ethanol production, such as distiller grains, which can lower the costs of gain. Some feedlots are experimenting with handling techniques for manure and feedlot waste in hopes of lowering both the overall cost structure as well as the environmental impact of large feedlots. Some of the more advanced operations will be able to link towns and feedlots to produce green energy through the use of bio-energy produced from manure. At the processing stage, researchers are studying hot-boning technology and new packaging strategies, which can lead to improved operational efficiencies, lower costs and increased safety assurance. Researchers at Agriculture Canada's Research Station in Lethbridge, which has a beef sector focus, in collaboration with others, are looking at the ecology of rumen bacteria to determine if there are ways that could potentially increase the efficiency of the cellulose-breakdown process, with increases in animal productivity on forages. Other scientists are conducting joint investigations on the complexities of soil processes in grasslands and farmlands. This research will lead to a better understanding of carbon cycling in both grassland and farmland soils, and which may have long-term implications for the sector. The Lethbridge Station also has a program in place that provides a long-term view of grassland health in the western provinces, which can increase the sustainability of higher cow-calf populations.

43. Genomic Application in the Beef Sector," Livestock Gentec, prepared for CAPI, 2012.

by 25-30%, while a 15-17% reduction could also be achieved in manure production.<sup>44</sup> (Refer to Figure 3-3 and see also Appendix A for additional background on innovation and genetic application.)

The importance of genetics is recognized in all major beef producing countries. The US, Europe, Brazil, and Australia, for example, all have significant government- and industry-backed genomics programs supporting their livestock industries.<sup>45</sup> The question is how the cow-calf sector can best utilize genomic information for herd improvement, a matter that is elaborated upon in the box “Information Flow Needs and Opportunities in the Cattle Industry.”



**Figure 3-3: Genomic potential: The prospect of improved production efficiency and impacts.**

Source: Livestock Gentec. (Chart prepared by Livestock Gentec for CAPI which also supplied the following supporting sources: Archer, J.A. et. al., (2004). Economic Evaluation of Beef Cattle Breeding Schemes Incorporating Performance Testing of Young Bulls for Feed Intake. Australian Journal of Experimental Agriculture. Lazenby, M.T. et, al., (1996). Cost Benefit Analysis of Feed Efficiency Testing in Bull Evaluation Programs in Ontario. Ontario Beef Research Update (Published by the University of Guelph). Kahi, K.A. et. al., (2003) Economic Evaluation of Hereford Catwonttle Breeding Schemes Incorporating Direct and Indirect Measures of Feed Intake. Australian Journal of Agricultural Research. Paterson, John and McDonald Ty, The Value of Residual Feed Intake to Bull Buyers at the Midland Bull Test. Prime Cuts (Published by Montana State University).

44. Ibid.

45. Background material prepared for CAPI by Livestock Gentec, 2012.

## Information Flow Needs and Opportunities in the Cattle Industry

The structure of the cattle industry, with several points of changed ownership, requires a ready flow of sophisticated information in both directions, connecting all stages of the production to consumption continuum (although not all of the information needs to flow the full length of the information channel).

The relaying of grade and yield information back through the system makes the point. The flow of such information in the past has been limited because of the lack of an individual animal identification and traceability system. Both of these deficiencies have been resolved sufficiently to permit such information flow from a grading service, or some agency such as the new Beef Information Exchange System (BIXS), to the cow-calf producer. In this regard, Canada has a considerable competitive advantage over its major competitors (particularly the US) and, having sunk considerable investment in this capacity, now needs to exploit this advantage.

Information flow of this sort is especially important in the cattle industry because of the changes in ownership during the life of the animal. This is distinct from, for example, the dairy industry, where the important traits being measured (e.g., milk yield and butterfat content) are made known to the herd owner directly, obviating the need for an information flow system. The last owner of the beef animal may, and frequently does, get grade and yield information, especially in the increasing instances where the cattle are sold on this basis. From the perspective of cow-calf producers, there is wide and strong support for this information. Many are unsure how to use this information; but as breeders of the next calf crop, they realize it is useful. Unless there has been some form of alliance or contract between the cow-calf producer and the cattle feeder, the flow of information about the grade and yield of the individual animal is disrupted and, indeed, some have argued that the information should be the property of the last owner. BIXS is one initiative that can bridge this gap but there are other obstacles to consider.

Some say that such information has little value to the original producers, since they won't likely know where the animal was fed or under what conditions. Others argue that the information is the property of the last owner and can only be shared through contractual or business arrangements. Issues such as this can be dealt with within the BIXS system, or any such system. Nevertheless, such information flow is critical to the advancement of the industry.

The marketplace is signalling the increasing need for better information-exchange, which can be mutually beneficial. For example, the feedlot operator will increasingly want to know the production and health and management protocols for the animals entering the feedlot. The feedlot operator may also want more information on the genetic background of the cattle. In return, the cow-calf producer might wish to know how the cattle were fed and managed in order to more properly interpret the grading results.

Variations in yield or carcass cut out are significant and have direct impact on the cut out value of individual carcasses. Those value differences represent a real opportunity to increase the competitiveness and efficiency of cattle production in Canada, but not unless the information is relayed to those who can use the information effectively. The reality is that the genetic potential of every animal is determined by the mating decisions made by the cow-calf producer. The person who makes those decisions needs the best information available on the economically important traits of the animals he or she provides to the system.

The first step in the improvement of cattle is the exchange of such information, much like the dairy industry experienced early in the last century when record of performance and butterfat testing commenced. One cannot improve what one cannot first measure. So the first step is getting the information and letting it flow throughout the system. Interested producers, and their advisors, will very quickly figure out how to use it in ways that have not yet been imagined. To illustrate this point, it is doubtful that the inventor of the telephone envisioned the cell phone much less the ability to text messages and photographs around the world. When new information and technology becomes available, people figure out ways to use and refine that technology to their advantage.

Cattlemen, like others in society, have been quick to adapt to the opportunities and challenges of the information age. The industry now needs to recognize the importance of the flow of the right information. The paradigm of closeted and protected information must be challenged and replaced by the realization that shared information strengthens the sector.

This concept goes well beyond the production stages and includes packers/processors, retailers, and consumers. Consumers are increasingly asking to know how and under what conditions the products they purchase were produced. These expectations can only be satisfied with a system of open and transparent information flow.

As well, another driver of innovation is how R&D priorities are assigned and acted upon to accelerate the implementation of innovation. From a “systems perspective,” this relates to how well the sector works with its stakeholders to fully utilize the latest in science and innovation in order to position the Canadian industry as a leader in knowledge development and information transfer. A recent report addressing this issue delved into these matters, which will not be replicated here. Importantly, however, this report noted the absence of common objectives to guide R&D. This echoes the feedback heard in our interviews about the lack of a strategic plan or alignment on objectives and vision.<sup>46</sup>

## Traceability

Canada's experience with BSE in 2003 demonstrated how foreign animal disease and food safety issues can have devastating economic repercussions for a sector.<sup>47</sup> In the beef sector, “traceability” was designed with animal disease management in mind and also for food safety purposes.<sup>48</sup> Traceability has far-reaching implications. In terms of future strategic positioning, a more robust traceability system deserves serious contemplation.

46. National Beef Research Strategy” published by the Beef Cattle Research Council, June 2012. This report outlined research ideas over the short- to long-term on a range of priorities, notably on beef quality, food safety, animal health and welfare, feed grains and feed efficiency and forage and grassland productivity.

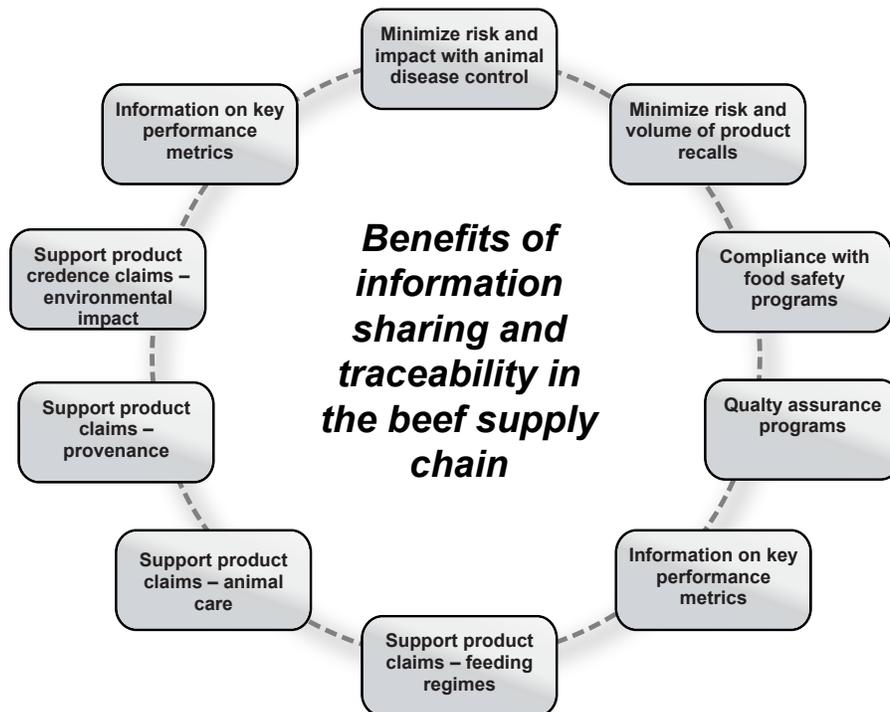
47. BSE was a significant event but food safety is an agriculture-wide concern. For example, an unprecedented *Escherichia coli* (*E. coli*) outbreak in Europe in 2011 sickened about 3,000 people and resulted in some 30 deaths. The event devastated the Spanish cucumber industry until it was confirmed that the problem arose with German bean sprouts. (*E.coli*: Germany admits that locally-grown bean sprouts are cause of outbreak, *The Telegraph*, June 10, 2011.)

48. Refer to the mandate of The World Organisation for Animal Health (“OIE”) which guides countries in implementing animal identification and traceability systems “in order to improve the effectiveness of their policies and activities relating to disease prevention and control, animal production food safety, and certification of exports”. (OIE website sourced May 4, 2012.)

Traceability is a key element of competitiveness. A report developed for the US Meat Export Federation concluded that export success will depend on being a leader in traceability. It noted that the US risks falling behind if it does not implement more comprehensive traceability systems. It goes on to indicate that, in terms of meeting Japanese requirements, Canada's current program has a comparative advantage now relative to the US.<sup>49</sup> What would happen to Canada's comparative advantage if the Americans enhance their traceability offering? If Canada wishes to broaden its exports beyond the US, the "traceability advantage" (vis-à-vis the Americans) deserves active attention.

The utility of traceability extends well beyond animal health and food safety issues. It demonstrates certainty of origin and process verification claims and can confirm responsible animal care, provenance, feeding regimes, sustainability and a wide range of food production practices. Traceability protocols are becoming productivity tools. They are compliance tools which, for producers, can satisfy requirements set by retailers and processors.

Traceability is being used as a competitive differentiator among exporters. For instance, the Australians are using their reputation for traceability to their advantage in export markets, such as Japan, where there are higher traceability requirements on domestically produced beef products.<sup>50</sup> In short, traceability demonstrates trust and supply chain players can and will derive value from its full implementation. This "value" is measured in terms of ensuring market access, maintaining consumer confidence, ensuring



**Figure 3-4: Drivers and benefits of information sharing and traceability.**

49. Brester, G., et al, Economic Assessment of Evolving Red Meat Export Market Access Requirements for Traceability of Livestock and Meat, Project Report Submitted to the US Meat Export Federation, March 2011, pages v and 30. The authors cite Canada's mandatory ID system and its available source and age verification program as more advantageous than current US practice.

50. Presentation "New Markets, Exports, Traceability, Integrated Solutions, Perspectives from Australia," by Garry Edwards to the Alberta Beef Industry Conference, Red Deer, Feb. 16 2012.

continued product demand and protecting reputation. The question for Canada is how to leverage traceability to its full potential within a practical and cost-effective system.<sup>51</sup> The answer is multi-faceted, which reflects the complexity of this issue. (The drivers and benefits of information sharing and traceability are provided in Figure 3-4.)

Traceability allows for tracking the downstream movement of products along the operation's supply chain, from primary producers through to the retailer and, possibly, the final consumer. As well, traceability can "trace" the product upstream back to its origin.

In terms of food safety, facilitating the trace back for product recalls and minimizing the volume of product that must be recalled are priorities. This limits the extent of damage and liability and serves to protect the brand. This, in turn, can be used to help create preventive practices to assure food safety and quality. As well, demonstrating an ability to trace and locate animals in the event of an animal disease issue is important. Traceability is a form of insurance. Providing information on animal and product movement is a tool that can limit liability.

As noted earlier, "trust" is becoming a key determinant of market success. Trust can be built and maintained at the local level when the beef consumer knows the beef supplier, such as at a local market through a farmers' market. However, when there is considerable geographic separation between the beef producer and the beef consumer, trust is built through a brand. A brand that positions itself as delivering on an attribute such as "Angus beef" must have the systems in place to assure the buyer that every unit of beef sold under the brand has the "Angus" attribute. This can only be accomplished through a program that can verify origin and process, and where required information is passed up through the supply chain on the product delivered, as well as down through the chain on the attributes required.

Traceability is also a productivity tool. The movement, control, and storage of products across supply chains results in significant costs for each segment. Reducing these costs can make the difference between business success and failure, especially in a relatively low margin industry such as food. Traceability is a means to document individual production inputs, processes, and outputs. (See an example of a UK beef supply chain, Blade Farming, that has worked to reduce costs in Appendix D.) Traceability is a means to facilitate supply chain collaboration through the improved use of information sharing among the players.

Individual countries approach traceability differently (i.e., with a mix of mandatory and voluntary systems). (See Table 3-1 for a representation of countries of interest to Canada, in terms of the beef trade). There are two aspects to most traceability models: practices or requirements from the farm to slaughter facility and then from that processing stage to retail or end-use consumer. The complete view is described as being from "farm to fork."

In Canada's case, there are mandatory requirements from farm to slaughter and voluntary requirements

51. The cost of traceability is a focus. Studies by AAFC and Alberta Beef Producers indicate that the cost of traceability incurred by producers could range from \$5/head to \$10/head, and potentially \$13/head in some situations. While it was not the purpose of this report to examine the actual costs of traceability, the operative issue is whether the benefits of traceability to producers (reduce risk of animal destruction, reduce potential costs to producers in case of a reported foreign animal disease, ability to access markets) exceeds the costs incurred. Sources: Agriculture and Agri-Food Canada, "Costs of Traceability in Canada: Developing a Measurement Model" (March 2007); Alberta Beef Producers, "Traceability Costs for Alberta's Cow-Calf Sector" (December 15, 2010); <http://www.albertabeef.org/res/regburden.pdf>.

Table 3-1: Status of Traceability (for Beef) In Selected Countries

(V) = voluntary; (M) = mandatory

	Farm to Slaughter Plant					Slaughter Plant to Retailer				
	Location ID	Producer ID	Animal ID	Movement ID	Data Monitoring & Linking <sup>c</sup>	Specific Product ID	Producing Party ID	Production Location ID	Movement ID	Data Monitoring & Linking <sup>3,4</sup>
Canada	(M) <sup>a</sup>	(M)	(M)	(M) <sup>b</sup>	(M)	(M) <sup>1</sup>	(V)	(V)	(M) <sup>2</sup>	(V)
United States	(V)	(V)	(V)	(V) <sup>b</sup>	(V)	(M) <sup>1</sup>	(V)	(V)	(M) <sup>2</sup>	(V)
Mexico	(V)	(V)	(V)	(M) <sup>b</sup>	(M)	(V)	(V)	(V)	(M) <sup>2</sup>	(V)
Japan	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(V) <sup>5</sup>
E.U.	(M)	(M)	(M)	(M)	(V)	(M)	(M)	(M)	(M)	(V) <sup>5</sup>
China	(V)	(V)	(V)	(?)	(V)	(V)	(V)	(V)	(M)	(V) <sup>5</sup>
New Zealand	(M)	(M)	(M)	(M)	(M)	(V)	(V)	(V)	(M)	(V)
Uruguay	(M)	(M)	(M)	(M)	(V)	(M)	(M)	(M)	(M)	(V)
Australia	(M)	(M)	(M)	(M)	(M)	(V)	(V)	(V)	(M)	(V)
Brazil	(M)	(M)	(M)	(M)	(V)	(V)	(V)	(V)	(M)	(V)
Argentina	(M)	(M)	(M)	(M)	(V)	(M)	(M)	(M)	(M)	(V)

Notes: a. Cdn. CCIA tags include mailing address of the producer, and the premise I.D. is usually the home address of the producer, not the exact physical location. b. While bills of lading are required of commercial carriers, if cattle are transported by producer-owned vehicles, there is no requirement. c. There is no formal requirement for how this is done; at company discretion. 1. While UPC codes are required on finished products, they only identify the brand owner and provide no other specific information to enable traceability. 2. While the transporter's bill of lading number identifying origin and destination of a specific load is required, this does not allow tracing of a product at retail to a specific load/transporter. 3. There is no formal requirement for how this is done. It may only be done by means of manual paper-based documentation or in-house systems. 4. Data linkage allowing for efficient traceability is totally at the company's discretion. It may be available only through a manual paper trail or company IT systems. A national database, e.g., make this more effective. 5. In Japan and the E.U. companies must record data and be able to link it to country data bases, but there is no required "standard" for how this is done.

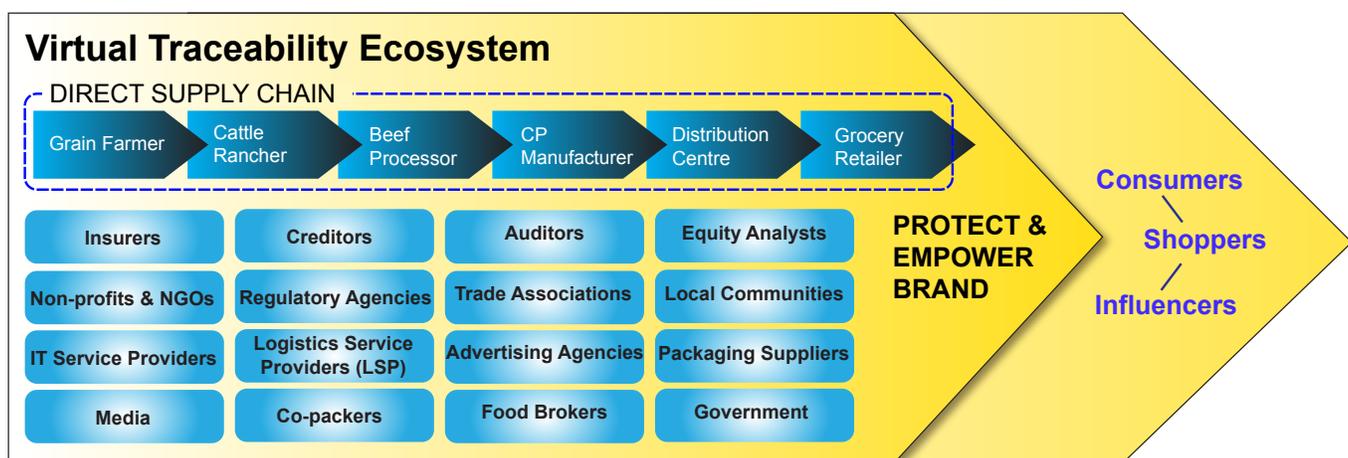
Table based on interviews with Mike Sadiwnyk, Sr. V.P. Global Relations & Chief Standards Officer and Forrest Parlee, Sr. Manager, Public Affairs, GSI Canada, Don Mills, ON; Brian Sterling, C.E.O. and Nick Albu, Technical Manager, OnTrace Agri-Food Traceability, Guelph, ON; and Dan Lutz, Director, Integrated Traceability, Agriculture & Agri-Food Canada, Edmonton, AB; and Schroeder, Ted C. and Glynn T. Tonsor, "International Cattle ID and Traceability: Competitive Implications for the US", Food Policy Journal, Volume 37 (2012); Souza-Monteiro, Diogo M. and Julie A. Caswell, The Economics of Implementing Traceability in Beef Supply Chains: Trends in Major Producing and Trading Countries, U. of Massachusetts Amherst, Department of Resource Economics, Working Paper 2004-6; Levin, Amelia, Bringing the Foodservice Supply Chain into the 21st Century, Dietary Manager, November-December 2011; and presentations by Wilkinson, Susan J., IBM Canada, Full Value Traceability & a Model for NAFTA, Canadian Food Summit, Conference Board of Canada, Toronto, ON, 7-8 February, 2012; New Markets – Exports – Traceability, Perspectives from Australia, presented at Alberta Beef Industry Conference, Red Deer, AB, 16 February 2012 (Garry Edwards).

from slaughter to retail. The Canadian beef sector does not yet have one integrated system that tracks and traces information from farm to fork (the farm or origin of the animal to the retail store shelf or food service outlet). It is important to note that Canada is not alone in this regard, as Table 3-1 reveals. (Appendix B elaborates upon Canada's traceability approach.)

Traceability ought to be considered as a “strategic” positioning issue. As an exporting nation, Canada needs to be aware of what other countries are doing, and for two distinct reasons. Changes to traceability requirements or practices elsewhere (a) could result in restricting access to Canadian beef exports among importing countries and/or (b) could prompt other exporting countries to promote their traceability systems as being superior to that of Canada’s. Canada needs to be vigilant about how its traceability program stacks up against other countries and competitors.

Traceability reveals “systems thinking” at work. To meet consumer needs and expectations, many diverse players are required to deliver on the promise of high-quality, safe food. Traceability is a tool or “enabler” to help do so, as represented in Figure 3-5.

In the end, the question for the beef sector is how to fully leverage traceability as part of an overall strategic approach for the sector.



Ecosystem Enablers: Common Data Standards, Distributed IT Infrastructure, Executive Sponsorship & Support

**Figure 3-5: A virtual “traceability ecosystem,” which reflects the diversity of interests, in order to realize the value of traceability. Figure adapted with permission of GSI and with input from IBM.**

## Ecosystem Management

The theme of this section has been to profile the uses of information-sharing to create strategic advantage. It is important to note that Canada’s beef sector has other advantages, especially the land base required to raise cattle. This also can contribute to Canada’s strategic positioning.

In fact, the beef ecosystem creates a “triple win.” The herd and grass is the foundation of the beef sector and is the starting point for beef production. With good management, grassland ecosystems supply invaluable services for the beef sector. Improvements in beef production can benefit the environment and society at large, such as reducing its carbon impact. As well, the manner in which Canada promotes its stewardship can also shape its brand within the marketplace. These “wins” are inter-connected and are explained below.

As noted, consumers are increasingly mindful of the origin and content of their food. This concern is evident from food imports and the reputation of supplying countries. For instance, fears about eating seafood from China and other Asian countries (due to the actual or perceived use of chemicals, antibiotics, unclean conditions, etc.) have drawn considerable attention. One major Canadian seafood company (High Liner) addresses this issue directly with its customers and declares that no Chinese fishermen or fishing vessels are used to supply its wild species of fish or shellfish.<sup>52</sup>

The key point here is that the environment in which food is grown or raised forms part of the national brand. Beneficial management practices are good for productivity, the environment and for the producer's reputation.

Productivity gains include improved feed conversion, fewer days on feed, and more beef output per acre of grasslands or per unit of grain. There has been progress in reducing the environmental footprint of beef production. Relying on US data, the carbon footprint of American beef production has decreased by 17% over the 30-year period ending in 2007, with 19% less feed, 33% less land, 12% less water and 9% less fossil fuel energy being required to produce a pound (or kilogram) of beef.<sup>53</sup> In Canada, the Alberta government has measured the carbon footprint (using life-cycle analysis) of its provincial beef sector. It has identified beneficial management practices that both reduce the carbon footprint and improve the overall economics of the beef supply chain.<sup>54</sup> Such environmental performance has potential far beyond landscape management. This information could be attractive to certain customer segments or to the overall beef brand.

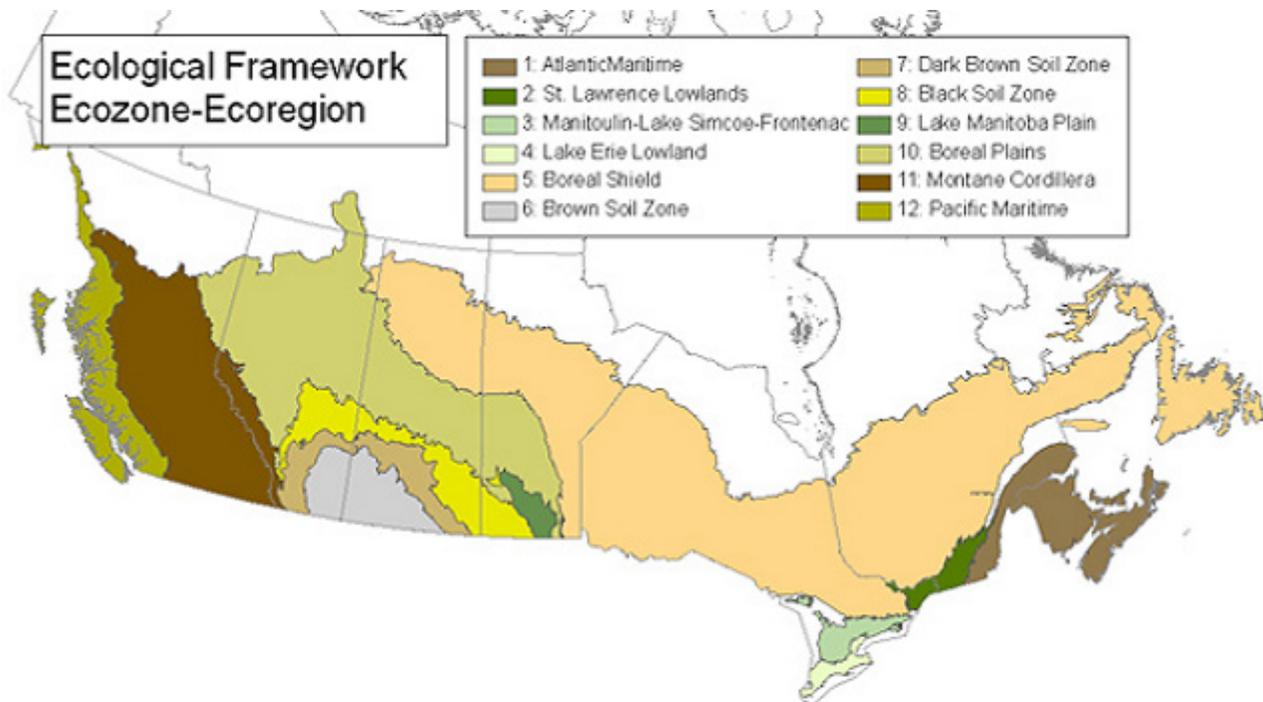
The land base is essential to support the cow herd, which is the foundation for the beef supply and the sector's ability to meet market demand. The opportunities to expand the herd depend on geography. (Figure 3-6 represents the ecological soil type foundation for the beef sector). Other factors influence the size of the cow herd. In some areas of ranching, operators are feeling pressured by "urban" environmental interests on several issues, from species at risk regulations to concerns over water use or proposed alternative uses for leased grazing lands. This simply reflects the pressures being placed on agriculture in general. As well, producers may prefer to raise crops rather than cattle, which is often a rational decision based on commodity prices and expected returns. Environmental considerations can also play a role in deciding between grain and cattle production.

Improvements have occurred in the use of water, both in the context of calf production and in the feed lot system. There is, however, one element of water use that the sector needs to consider. The centre of the feedlot business in Canada (feedlot alley) is located in southern Alberta in the Oldman River

52. "Where does High Liner fish come from?" Featured article on High Liner Seafood's website; accessed June 2012: <http://www.highliner.com/beta/eng/art0053.asp>.

53. J. L. Capper, "The environmental impact of beef production in the United States 1997 compared with 2007." *Journal of Animal Science*, (2011) Volume 89, p 4249-4261, as reported by National Cattlemen's Association and Cattlemen's Beef Board in the fact sheet "Beef's Shrinking Environmental Footprint"; Conestoga-Rovers & Associates, "Evaluating Environmental and Economic Impact for Beef Production in Alberta Using Life Cycle Analysis – Phase 2", Prepared for Alberta Agriculture and Rural Development (March 2011); Parks Canada, "Grazing the grasslands", available at <http://www.pc.gc.ca/nature/eep-sar/itm11/itm11k.aspx>; East Bay Regional Park District "Benefit of Grazing Animals" available at <http://www.ebparks.org/stewardship/grazing/benefits>.

54. Many new approaches have contributed to these improvements, including: the use of ionophores (antimicrobials) in roughage diets, swath-grazing in cow-calf operations, reducing the days on feed through high per day gains, the use of growth promotants, and selection for superior genetics (for feed conversion).



**Figure 3-6: Ecozones and ecoregions available for beef production.** Source: Agriculture and Agri-Food Canada. 2007. Farm Environmental Management Survey 2006: Summary Report on Grazing Livestock Management.

drainage basin. Feedlot operators and the farmers supplying barley and feed to the feedlots have adapted a wide range of new tools to improve the efficiency of their use of water. However, the entire system is located in a watershed that now has severe limitations in terms of providing water for communities, feedlot operations and irrigation agriculture. Ranchers and feedlot operators are part of a community-wide group that is grappling with water issues in this drainage basin. The sector is at some risk as the core of the feedlot business is located in an area that may experience future water shortages. This latter issue speaks to the importance of taking a “systems view.” The environment (and the use of natural capital) is the root of a productive and competitive beef (and agri-food) sector.

Overall, from a societal point of view, beef production on grasslands, particularly native grasslands, contributes positively to ecosystem biodiversity. Parkland managers and scientists would agree that some level of grazing on the native prairie is key to ecological integrity. They recognize that a landscape without grazing is not ideal for native prairie wildlife. Cattle have, in effect, replaced buffalo on prairie grasslands (see map in Figure 3-6 for reference), providing a mosaic of ungrazed and grazed areas across the landscape that serves as habitat for a variety of wildlife species. Grazing is a natural disturbance, and is essential to a healthy grasslands ecosystem. Properly managed livestock grazing helps reduce the risks of a fire hazard by controlling the amount and distribution of grasses, increases the diversity of the habitat available to wildlife, and controls the growth and invasion by non-native grasses and herbs while supporting viable native populations. By managing these grasslands, the beef industry effectively preserves this natural resource (capital) base for all Canadians.

As noted, the broader issue relates to how environmental practices are positioned. Most large retail chains in Canada, for instance, are declaring their commitment to source food from sustainable sources.<sup>55</sup> Such objectives require new ways of working. This can include forming partnerships with environmental groups or working with supply chain partners on action plans and develop new performance indicators to track sourcing practices.<sup>56</sup> Sustainability and ethical sourcing are shaping entire food supply systems.

Other sectors, too, are changing. For instance, Canada's forestry sector embarked on a major effort to conserve large areas of the country's boreal forest by working with environmental groups, communities, Aboriginal groups and lumber companies (see Appendix G). The forestry sector needed to address sustainability as part of a broader transformation of its sector.

How the beef sector defines its ecosystem management advantage needs to be part of a broader strategy about positioning itself for market success.

## Conclusion

What are the building blocks for achieving an information-based advantage?

There can be no doubt that good-quality information that flows freely and openly along the supply chain is critical to the success of any food system. The dialogue that should occur is not about whether such information should be available, but how to harness such information to create a competitive advantage.

55. Sourcing food from sustainable suppliers is specific to certain food groups, although most if not all large players are pledging to improve sustainability in general, such as with reduced packaging and lower energy use. For instance, Loblaw has committed to source 100% of its seafood from sustainable sources. A pledge of sustainable sourcing by others includes palm oil and coffee, among other commodities. ("Loblaw issues fourth annual corporate social responsibility report", News release, May 3, 2011; accessed, June 2012: <http://www.loblaw.ca/English/Media-Centre/news-releases/news-release-details/2011/LOBLAW-ISSUES-FOURTH-ANNUAL-CORPORATE-SOCIAL-RESPONSIBILITY-REPORT1125086/default.aspx>.) It would not be unreasonable to suggest that, over time, sustainable sourcing is applied to every food item sold at retail.

56. See the Sobeys 2011 Sustainability Review and its steps to work with suppliers and partners to implement its sustainability policy.

## CHAPTER 4: Strategy and Food System Thinking

CABI's task is to create an informed dialogue on the content of a strategy that leads to a more successful beef sector.

### Strategy and Stakeholder Feedback

Strategy is about understanding “where we are today,” “where we want to be,” and “how we get there.”

The previous chapters addressed the initial question (where we are today) and the pressures, threats and opportunities facing the sector. They explored the challenges facing the sector, and the increasing importance of information in the current age. In this chapter, CABI offers an approach to address the latter (how we get there). As for where we want to be, the choice of “destination” ultimately rests with stakeholders, themselves, and how they wish to act upon the challenges and opportunities.

While CABI's role is not to prescribe the strategy for the Canadian beef sector, it does embrace the need for a strategy and its desirable end points. Based on industry input, those endpoints include:<sup>57</sup>

1. Profitability for each segment in beef supply chains (which requires 2 and 3 below);
2. Success in meeting the consumers' beef requirements in the domestic market;
3. Strategically focusing on select export markets for expansion to maximize carcass values.

A common theme punctuated our outreach efforts for this report: with BSE largely behind us, what now is the plan for sustained success in the marketplace?

In our interviews and consultations, there were three recurring messages about how to better position the beef sector:

- **The need for a strategy:** The interviewees strongly suggested that change is required. Many noted the absence of an explicit strategy for the sector, and no long-term and shared strategic plan.
- **The need for alignment:** Many interviewees indicated that the sector suffers from minimal collaboration between the participants in the supply chain. To be successful, the sector needs to become more aligned. The participants along the supply chain – cow-calf producers, feedlot operators, beef packers, and retailers – need to become more aligned and more collaborative in their objectives and their vision for the sector.
- **The need for leadership:** A number of interviewees noted that there are too many voices speaking for the beef sector, coupled with an absence of shared or collaborative industry leadership. Leadership is needed to mobilize, align and motivate stakeholders in order to adapt to change.

57. These goals were based on views communicated with CABI in the fall of 2011 and shared with stakeholders at a series of consultations with the beef sector over the course of the winter, 2012, such as to the Beef Value Chain Roundtable in January. The “need to regain market position with a new approach” focused on the need to drive costs out of the beef system, improve productivity and focus on domestic and export markets. These goals are premised on how the sector effectively uses natural capital, reacts to changing consumer needs and expectations, creates opportunities from sustainable production practices, and achieves reliable access to world markets for Canadian beef and production levels capable of exploiting those export market opportunities.

Some interviewees commented that there was, indeed, “a strategy” in place, as demonstrated by the push to expand market access, implement new information systems, ensure food safety and promote the Canadian beef brand. These individual objectives are significant and each one demands that considerable requirements be met or implemented. However, these efforts, while worthwhile, need to be knit together in a more comprehensive strategy, one that will lead to greater success. They are, taken singly, just part of an overall effort to improve the ability of the sector to succeed. But what is the overall objective? What is the metric to demonstrate success and how are players in beef supply chains aligned to deliver upon them? The answer to these questions remains elusive.

The conversations we held echoed a need for clarity about the approach to be taken to compete in tomorrow’s marketplace.

Stakeholder feedback, supplemented by our research, revealed that the industry is confronting a choice: continue on the current path (which is largely about competing on the basis of price in a commodity market that is predominately US-focused) or choose an alternative route (which is mainly defined as working more collaboratively to differentiate products and markets while capturing greater synergies and efficiency through information). What is clear from our interviews and consultations is that many desire a new approach. This is the dialogue that needs to occur.

A number of factors need to come together to use strategy as a change agent. The following section outlines those requirements.

## Catalysts for Strategic Shifts

A strategy can be done well or fall short. This section is about looking at strategy to create transformational change. These examples provide observations about behavioural change, positioning and strategy. By virtue of sharing these examples, CAPI is not suggesting that Canada’s beef sector emulate the competitive model of any one jurisdiction or segment. Moreover, the approaches profiled here may not be perfectly applicable to today’s competitive environment. Rather, these examples are used to portray “principles in action” and how stakeholders can cope with change and align themselves to act upon a strategy.

- Blade Farming, one of the UK’s largest beef operations, successfully galvanized a supply chain response to improve profitability for all players (see also Appendix D).
- The State of South Australia attempted to create a beef strategy for its beef sector and, despite great effort, seemed to fall short on its execution because the strategy did not fully engage the players in fixing the objectives (Appendix E).
- The Canadian Angus Association’s strategy is rooted in using genetic data and information management to ensure breed characteristic specifications and position producers for a more quality-conscious marketplace.<sup>58</sup>

58. CAPI interview, Michael Latimer, General Manager, Canadian Angus Association, June 4, 2012.

- Sector strategies are possible, such as how the American dairy industry repositioned itself on environmental sustainability.<sup>59</sup> (See Appendix F.)
- Significant industry-wide strategic shifts are possible as demonstrated by Canada's forestry sector which underwent a competitiveness transformation over the last decade (Appendix G).
- Ontario Corn-Fed Beef Program reveals how a collaborative supply chain in Canada develops and implements a consumer-focused strategy with the objective of ensuring beef supply meets demand.<sup>60</sup>
- The Australians – at a national level – embraced strategic change through the actions of one agency, Meat and Livestock Australia (Appendix H).

I. CASE EXAMPLE: BLADE FARMING (UK)			
Problem	Action	Objective	Outcome
<b>Individual producer profitability; high feed costs.</b>	Blade Farming acts as supply chain champion.	Supply chain collaboration.	Reduced cost of production by \$180/head; producers get better prices.
<b>Inconsistent high-quality animals.</b>	Need for “conception to consumption” quality to reduce costs and maximize profits.	Maximize carcass value.	Better feed conversion rates; provide producers with services: veterinary, information on quality, production planning, etc.
<b>Rising retail customer quality requirements.</b>		Consistent quality (to meet Blade's protocols).	Performance assessment shared with every chain player, and rewards/penalties for assessment.
			Quality improvements mean that cattle are effectively “pre-sold” to retail customers (Tesco, McDonald's); consumer satisfaction.

59. Innovation Centre for US Dairy. US Dairy Sustainability Commitment Progress Report, December 2010. Also, see reference to this case in CAPI's report Canada's Agri-Food Destination: A New Strategic Approach, February 2011, page 67.

60. CAPI interview, Jim Clark, Executive Director, Ontario Cattle Feeders, June 26, 2012; and David Stewart, Executive Director, Ontario Cattlemen's Association, June 25, 2012.

## 2. CASE EXAMPLE: STATE OF SOUTH AUSTRALIA

Problem	Action	Objective	Outcome
<b>Producer profitability; high feed costs.</b>	Beef Industry Board (state-run) takes lead to develop strategy with supply chain representatives.	Grow the beef industry in South Australia.	In 2005, a 2005-2015 Beef Industry Strategy developed but falls short due to inadequate execution; too many objectives and alignment was challenging; beef stakeholders primarily focused on accessing diminishing government funds.
<b>Coordinating stakeholders on strategy among the beef supply chains and across government.</b>		Strategy to focus on improving carcass value and information-sharing across supply chain and seek efficiencies, and partnerships, etc.	Lack of industry “owner-ship” of strategy, and accountability hindered by jurisdictional issues between state and national responsibilities; and processors operate across country so a regional strategy has limitations.

## 3. CASE EXAMPLE: ANGUS PROGRAM

Problem	Action	Objective	Outcome
<b>Avoid acceptance of non-Angus cattle into Angus programs; and, ensure Red-Angus cattle access into Angus programs.</b>	The Canadian Angus Association establishes the “Canadian Angus Rancher Endorsed certification program” in 2009, a genetic ID program.	Shift from cattle selection based on hide colour to one based on genetic confirmation of Angus breed.	Registry use ensures increased standardization and accountability using DNA testing and the ear-tag traceability program in place.
<b>Retailers and packers want to identify Angus beef with greater accuracy to ensure beef quality, consistency, accurate labelling and branding with consumers (as consumers are increasingly demanding the assurance of knowing more about where their food comes from).</b>		Recognition of need for greater communication across supply chains so to reassure end-users of the source and quality of Angus-beef.	Modest initial objective of having a handful of branded Angus beef programs registered; the program grows from 4 to 17 programs, including a gourmet restaurant chain in Ontario (Hero Burgers).

	<p>Through the restriction of the type of cattle to qualify for branded Angus beef programs, and by increasing consumer demand through an increased confidence level in those Angus beef programs, the value of Angus cattle should increase, thereby creating further incentive for producers to choose Angus over other breeds or agricultural options.</p>	<p>Next step: applying metrics to better track the success of the Rancher Endorsed program (i.e., through tracking pounds or cattle sold per beef program and through the number of Angus CCIA tags sold). Data on carcass traits (e.g., marbling, rib-eye size) can better link retail/packer requirements and producers and generate Expected Progeny Differences (EPDs) that act as a selection tool for producers to improve beef and cattle quality.</p>
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4. CASE EXAMPLE: US DAIRY INDUSTRY			
Problem	Action	Objective	Outcome
<p><b>A major global retailer challenges all of its suppliers to commit to sustainability objectives, including the US dairy sector.</b></p>	<p>Fragmented dairy sector players have the “choice” of responding individually or as an organized industry response.</p>	<p>US dairy industry commitment to sustainability, vision, guiding principles and action plan.</p>	<p>500 stakeholders from some 300 organizations in the dairy sector and with other partners (incl. government, environmental, academic and research experts); signed partnership agreements with NGOs and government to facilitate change.</p>
<p><b>Dairy sector needs to ensure its access to the retail chain, as well as respond to increasing societal scrutiny on the impact of milk production on the environment.</b></p>	<p>The industry-led Innovation Center for US Dairy takes the lead to respond.</p>	<p>Sets target to reduce GHG emissions by 25% by 2020 while building business value across the supply chain.</p>	<p>Stakeholders advance R&amp;D projects to track and reduce emissions and create value at every level in the supply chain (e.g., from production of feed for cows to reducing energy costs at every stage).</p>
			<p>Progress report on outcomes. This presents the opportunity to profile the economic, social and health benefits of the dairy sector to the US economy and of milk to consumers.</p>

## 5. CASE EXAMPLE: CANADIAN FORESTRY SECTOR: 2001-2011

Problem	Action	Objective	Outcome
<b>Declining pulp consumption (newsprint demand); low-cost pulp suppliers grow share (e.g., Brazil).</b>	Mill closures; profitability and sector viability under threat; lost competitiveness.	Implement a transformational strategy to ensure the economic viability of the Canadian forestry sector.	Increased productivity; increased R&D in new value extraction; new hires (expected target 40,000 new jobs by 2020).
<b>US dependence: 80% of Canadian forestry exports to one country; US recession; the appreciation of Canadian dollar.</b>	Massive Canadian forestry sector layoffs (400,000 jobs); even the shutting down of entire rural forestry-based towns.	Improve mill productivity; export diversification; new harvesting practices; product innovation: new value from wood compounds.	Export diversification: Asian exports increase from 11% to 28%, value increase from \$32 million to \$1.5 billion.
<b>Rising environmental activism/criticism.</b>		Proactively engage environmentalists; NGOs become advocates for responsible forestry practices.	World-leading conservation practices to protect the Boreal Forest; leading agreement with environmentalists, such as with Greenpeace.
<b>Consumers shifting to “green” products.</b>		Gain consumer confidence in new forestry practices.	
<b>Lack of confidence across the sector to respond.</b>		The Forest Products Association of Canada rallied 28 forestry companies to respond as a sector.	Actions to date have demonstrated need for proactive response; now developing new vision (strategy) for 2020.

## 6. CASE EXAMPLE: ONTARIO CORN-FED BEEF PROGRAM

Problem	Action	Objective	Outcome
<p><b>Profitability among Ontario's beef producers.</b></p> <p><b>Growing beef imports from US.</b></p>	<p>The Ontario Cattle Feeders Association (OCFA) started the Ontario Corn-Fed Beef (OCFB) program in 2001.</p>	<p>OCFA assessed the provincial market and determined that consumers would desire an Ontario-branded beef based on attributes of consistency, premium and locally-raised.</p> <p>Strategy based on building demand for the brand first. Then seek premium for producers.</p>	<p>Some 50% of cattle finished in Ontario feedlots are part of the OCFB program.</p> <p>Today, over 4000 cattle/week are delivered through the program.</p> <p>Small premium per head for producers to offset paperwork costs.</p> <p>New premium product to be launched mid-2012.</p>
<p><b>Needs critical mass (reliable supply) and quality assurance to attract processors and retailers.</b></p>	<p>Initial target: deliver 2500 cattle/week through the program.</p>	<p>By 2006, the supply chain works together to provide an outlet for fed cattle, involving cow-calf operators, feedlots, mid-sized processors and retailers.</p> <p>Production-based quality-assurance protocols, including for feed and safety introduced – requiring traceability.</p>	<p>A major Canadian retail chain (Loblaw) offers OCFB, starting in May 2011.</p> <p>This attracted provincially- and federally-regulated packers to be part of the chain. Today, 400 retail outlets sell product.</p> <p>Producers identifying productivity benefits from traceability adoption.</p>

## 7. CASE EXAMPLE: MEAT AND LIVESTOCK AUSTRALIA

Problem	Action	Objective	Outcome
<p><b>In the 1990s, the cattle industry was faced with a declining herd and financial struggles resulting from disconnects with the market and a lack of focus on opportunities.</b></p>	<p>Creation of Meat and Livestock Australia to create a strategic plan and guide investment decisions.</p>	<p>To listen to consumers and make R&amp;D and marketing investments to increase the competitiveness and profitability of the cattle (and lamb) industry.</p> <p>Coordinated supply chain approach.</p>	<p>Developed the National Livestock Identification System (NLIS).</p> <p>Developed Meat Standards Australia (MSA).</p> <p>Net benefit of \$1.1 billion over 30 years.</p> <p>In 2010/11, project resulted in a \$0.15/kg carcass equivalent premium.</p> <p>Key part of 31 branded beef programs.</p>

Overall, these case examples reveal that strategic shifts work when certain elements are harnessed:

1. Change requires a catalyst event – some say a “burning platform” that must be responded to.
2. Action requires concerted leadership – a champion who seizes upon the opportunity and brings stakeholders together and ensures momentum.
3. A change agenda requires diverse stakeholders to be present (from across a sector or from individual supply chains and can include other support players). The latter group merits attention because tackling complex issues often requires engaging a broader set of players.
4. Response to change requires understanding how issues are connected and the consequences of action or inaction.
5. There must be alignment to clearly-defined objectives and yardsticks to assess progress.
6. The final piece is that strategic success requires buy-in; players will only sustain their participation if there is value in doing so (mutual self-interest). This is the incentive to align the players and deliver on the objectives.

These requirements for strategic shifts are abbreviated in the following flow diagram:



**Figure 4-1: Requirements for strategic shifts.**

## Food System Thinking

The observations in this section relate to how stakeholders in Canada’s beef sector can create value and take advantage of opportunities. These concepts underpin some key ideas about how food systems operate, a concept advanced by CAPI.<sup>61</sup> In the following section, CAPI describes in detail a Roadmap for Dialogue on Strategy.

In general, the success of individual agri-food players depends on how they work with others (both inside and beyond supply chains). As well, individual success is also linked to meeting the needs of consumers and managing natural capital (i.e., water, carbon). Given the competitiveness of the marketplace, these elements frame the beef sector’s potential for success. We operate within a system. (Figure I-1 in Chapter 1 portrays, at a high level, the many players involved in the broader beef food

61. In 2010, CAPI led a consultative process across the agri-food sector and with a diverse array of other food partners that resulted in the publication *Canada’s Agri-Food Destination: A New Strategic Approach*, February 2011. In that report, CAPI expressed the need for a food systems approach. Additional publications include an Update to that report (June 2011) and CAPI newsletters have been published to profile food systems thinking. All publications are available on CAPI’s website.

system). Value can be maximized through greater collaboration. Given that the issues are very complex and highly-integrated, resolution also demands greater collaboration. The Roadmap reflects these key ideas, as noted below.

1. **Consumers:** The consumer is at the centre of a food system; without consumer demand, there is no opportunity. All supply chain players understand the importance of the consumer. After all, every day, the beef sector ensures safe, high quality beef that consumers count on. Retailers (and processors) are especially aware of changing consumer needs as consumers “vote with their feet and wallet.” The issue is the degree to which each supply chain player is fully aligned to deliver on consumer requirements. Understanding consumer demand, preferences and shifting attitudes – and delivering upon the identified product attributes – is essential to deriving greater value for each segment in the chain.

This is becoming more challenging. Consumer and societal expectations about food is shifting. Expectations are evolving and vary among demographic segments and by market. Concerns about “how my food is produced,” “what’s in my food?” and “is it good for me?” are increasingly important to consumers and food stakeholders. The bar is being raised as consumers, and society at large, expect and demand more from industry. As noted earlier, many companies are shifting the way their supply chains are responding to these expectations (such as on animal care, environmental footprints, labour practices and the nutritional quality of food and inputs used to produce food).<sup>62</sup> The marketplace is changing and all players in beef supply chains need to understand how to position themselves to respond to the challenges and opportunities these consumer expectations create. This explains why “food system thinking” is about being “consumer-pull” oriented, not “supply push” focused. The Roadmap includes a number of components relating to the consumer (such as under “market requirements” and “product attributes”).

2. **Natural resource base:** In agriculture, the natural resource base includes the soil, water, atmosphere and the natural carbon cycle that is central to plant and animal life. This natural resource base, or the ecosystem, must be managed and preserved in a manner that is sustainable and that assures continued productivity. Producers are becoming increasingly aware of the need to preserve ecosystems and, at the same time, global and local retailers and processors are adopting sustainability requirements for their suppliers; they are reaching right back to producers to do so. Every supply chain operates between two fundamental realities: consumer demand at one pole and the productivity of the natural resource base at the other. How this natural resource base is managed is critical to sustainable productivity.

Food system thinking is about how each segment within a supply chain works together – or should work together – to understand or manage each end of the system (from the natural resource base to the end-consumer). The Roadmap includes references to environmental aspects in several places.

62. The changing relationship between business and society has also been addressed by Michael Porter who has advanced the issue of “creating shared value”; the idea being that economic gains and societal benefits can be mutually achieved. (Porter ME, Kramer MR. Creating shared value: How to reinvent capitalism – and unleash a wave on innovation and growth. Harvard Business Review. Jan-Feb 2011; 1;17.)

3. Collaboration: Every supply chain works together to some degree from basic fulfillment of supply contracts to operating as fully-integrated joint partnerships.<sup>63</sup> As noted earlier, food systems emphasize the need for being highly-collaborative within the supply chain.

Another aspect of food systems is about looking beyond the direct supply chain players. It must be acknowledged that supply chain players rely on many others for their success. (Alternatively, supply chains can be stymied by the actions of other sectors and stakeholders.) Collaboration with non-supply chain players is important, such as those involved in nutrition, financial services, environment, transportation, information/technology providers, NGOs, researchers, and governments. The interpretation of the Roadmap's components will vary based on the perspective of each stakeholder. This explains the importance of dialogue.

4. Alignment to objectives: Working better together requires having a shared understanding of the objective. Goals galvanize action; how the US dairy industry responded to the environmental sustainability challenge is a prime example. The Canola Council of Canada has embraced a strategy that includes bold production targets; in this case, the canola sector set a target of increasing canola production from 9.1 million to 15 million tonnes by 2015.<sup>64</sup> In short, strategy requires metrics. The Roadmap puts shared objectives at its core because alignment is essential to action.

In CAPI's view, system thinking is compelling because it reflects how to derive optimum competitive performance.

## The Roadmap for Dialogue on Strategy

CAPI's Roadmap for Dialogue on Strategy was inspired by what we heard in our interviews and consultations held in late 2011 and early 2012.<sup>65</sup> (See appendix J for a list of consultations).

Over the course of our interviews, many stakeholders emphasized the importance of information-sharing across supply chains. Understanding market requirements and the product attributes desired by consumers were seen as fundamental. As well, there was real interest in how stakeholders could come together to act on these insights. Finally, it was broadly acknowledged as obvious that no opportunity could be pursued fully without ensuring an adequate beef supply. Indeed, strategies that lack producer confidence are likely to fail; they tend not to maintain or increase output to service or satisfy emerging

63. See a paper (on CAPI's website) conducted for CAPI by the George Morris Centre on the different forms of collaborative value chains, *Characterizing the Determinants of Successful Value Chains*, March 2011.

64. The Canola Council of Canada's targets are established in the program "Growing Great 2015"; it has also set targets for oil content and export seed, among other targets. It has established these targets with supply chain and support players including growers, crushers, exporters and shippers, the biodiesel industry, feed companies, seed developers and crop input suppliers. Supporting this work has involved governments, researchers, and scientists, among many other non-supply chain players. This is referenced only to demonstrate how targets and metrics can be deployed by an organized sector.

65. CAPI shared a draft of this Roadmap with stakeholders at a CAPI-organized workshop on March 26, 2012, which involved participants representing the beef supply chain and a variety of support players; and, it was shared with the Beef Value Chain Roundtable at its March 27, 2012, meeting. The sessions were used not to seek endorsement of the Roadmap, per se, but to refine its structure and components and to receive feedback on its clarity and utility.

opportunities. (As noted earlier, our productive capacity is constricted by a breeding herd that has shrunk 20% in 5 years).

Overall, the feedback was used to develop the Roadmap and identify its four prerequisites, as outlined in Figure 4-2. The prerequisites are inter-connected, as portrayed in the diagram. Delivering on any one depends on addressing the others. Underpinning it all is the need for a leader or champion(s) to help drive alignment to objectives and to set metrics or performance indicators. The balance of this chapter defines each prerequisite and its associated components.

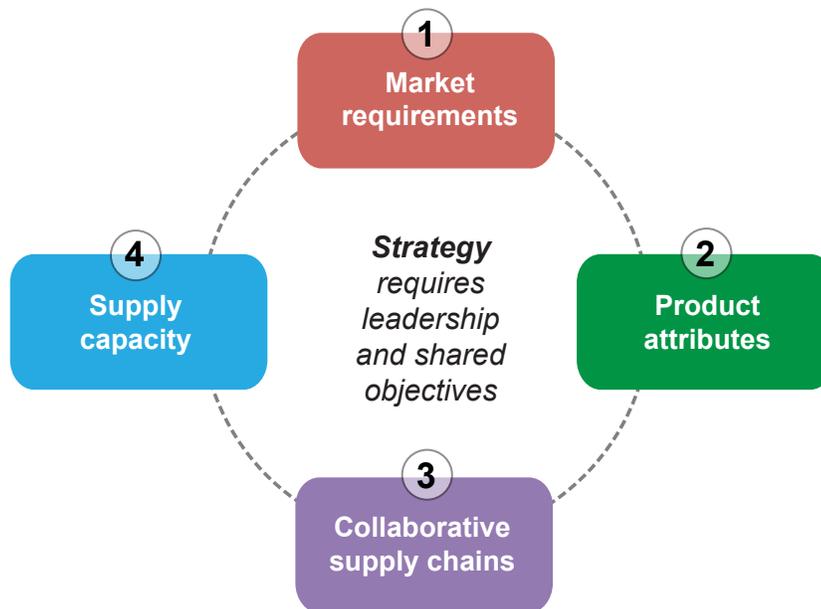


Figure 4-2: The Beef Food System Roadmap for Dialogue on Strategy: the four prerequisites.

## Using the Roadmap

As CAPI learned from its conversations with stakeholders, the Roadmap's utility is that it helps structure a dialogue on priorities and perspectives held by individuals. It's a means to get to strategy.

The following table (4-1) highlights the steps to use this tool. It may be easier to achieve some steps over others but each of the six steps is required to some degree. Miss one and it is unlikely that a thoughtful strategy could be developed and executed upon. In short, these steps are the "winning conditions" needed to design a strategy and achieve success.

There should be no illusions about the challenges of forging a strategy. As one strategist pointed out, getting executives aligned on the direction of a firm requires 70% consensus agreement and 100% buy-in.<sup>66</sup> At the end of the day, it is the conviction and confidence of key stakeholders to drive change that will ensure success.

66. Hax AC, *The Delta Model, Reinventing Your Business Strategy*. Springer Science and Business Media. 2010.

Table 4-1: Steps to use the Roadmap – The Winning Conditions to Effect Change.

Steps	Explanation
<b>The catalyst</b>	Some situations demand action: a market place development, a media story or action taken by a government (such as a trade action) creates “the issue.” It can be a crisis, or an overall prevailing view of the need to act. This is the basis to “define the issue.” The Roadmap works best when a specific issue is presented to focus the dialogue.
<b>The champion</b>	Seeing a compelling reason or opportunity to act, an individual(s) pulls together a group (i.e., from across a supply chain or sector) to respond. Depending on the issue, leadership can be from a supply chain or from a supporting organization, such as an association or from other groups that operate “horizontally” across supply chains. Working with others, the champion helps to sharpen the understanding of the core objective – to articulate the destination and what is needed to get there and what is holding back progress. Key data are needed to clarify the issue.
<b>Diverse stakeholders</b>	The right people have to be around the table with a stake in resolving the issue who are motivated to find solutions; this may include non-traditional players that can offer new/other perspectives (e.g., transportation specialists, scientists, information technology providers, etc.). There must be a mutual recognition that collaborating is the best way to advance the issue. Where competitors are at the table, discussion needs to be at the pre-competitive stage or part of a sector-wide initiative.
<b>Issue implications</b>	To address the question at hand, and much like a SWOT analysis, each of the Roadmap’s four prerequisites – and their multiple components – needs to be assessed for relevance and importance. With discussion, the Roadmap shows the linkages among related issues. Each case will reveal a different set of relevant components and connected issues. The Roadmap is designed to elicit perspectives and priorities from different stakeholders (as issues are often very complex). The analysis reveals what stands in the way of addressing the issue or what may be needed to facilitate resolving or advancing it. The dialogue identifies where there are common interests, or not.
<b>Objectives &amp; metrics</b>	Responsibility and accountability is key; what actions are needed to be taken by whom? Metrics and milestones need to be developed. Without identified actions, players will not come back to the table. The process identifies priorities and further work required; new players may need to be engaged. The destination is debated and defined, as are the actions and tactics.
<b>Mutual self-interest (buy-in)</b>	Is there motivation to move forward? This approach creates a foundation to build and execute upon a strategy provided the stakeholders are committed. The Roadmap structures the dialogue and is meant to build trust and openness among the players; players come to the table out of mutual self-interest but self-interest is “parked at the door” to enable the discussion on how to “grow the pie” or create a win-win.

## The Roadmap's Components

The following section elaborates upon each of the Roadmap's four prerequisites and their respective components: market requirements, product attributes, collaborative supply chains, and supply capacity. (See Figure 4-3, the Beef Food System Roadmap for Dialogue on Strategy.) Each component may invite commentary by stakeholders about its relevance, degree of impact and how a stated component may be linked to other matters noted in the Roadmap.

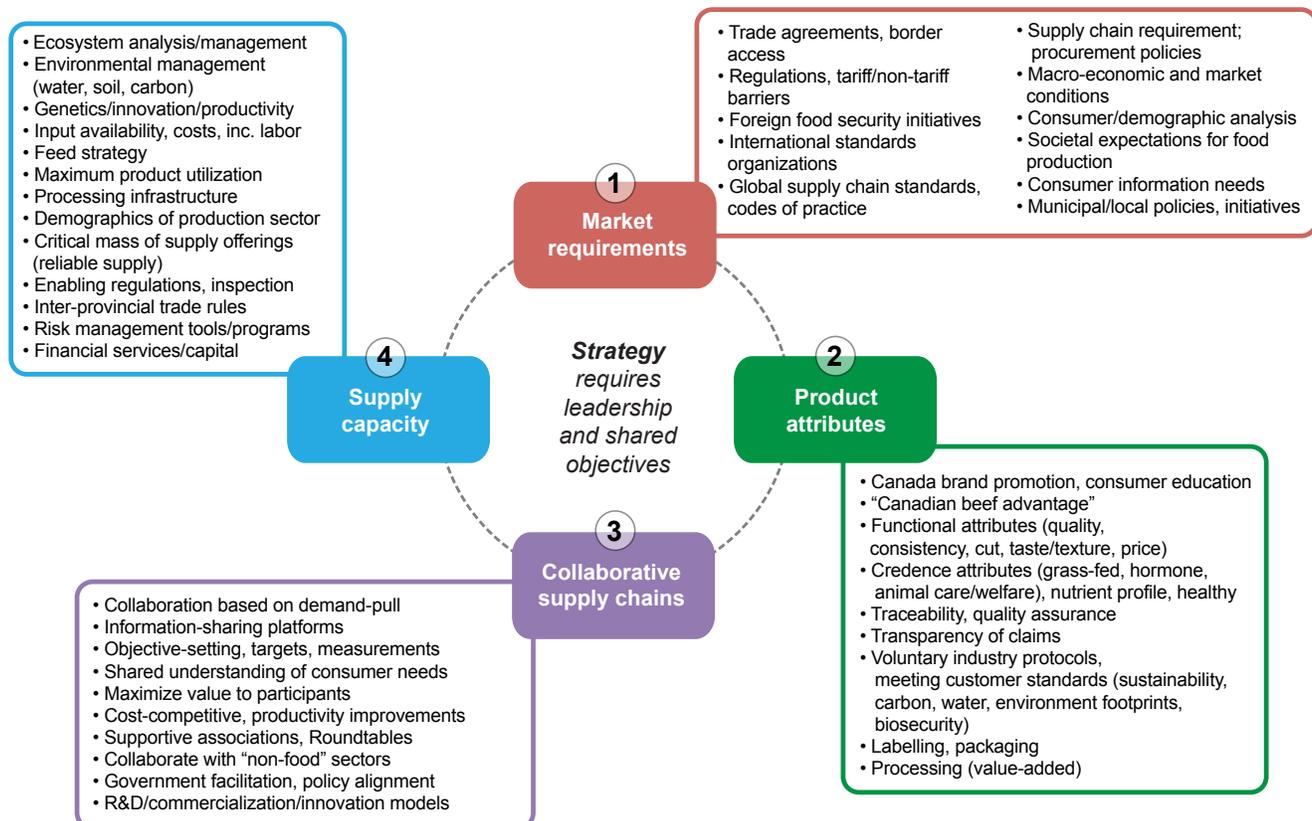


Figure 4-3: The Beef Food System Roadmap for Dialogue on Strategy: Components.

### “Market Requirements”

- Understanding market requirements relates to the issues that dictate or influence access, restrictions and opportunities for an identified market.
- Factors include: consumer attitudes, societal expectations, the regulatory and voluntary requirements governing each market and the other matters that affect the overall economic environment.

### “Product Attributes”

- With an understanding of the market, dialogue is required on targeting, promoting and demonstrating “product attributes” to consumers.

- This is about trust, brand and consumer satisfaction.
- Example: The supply chain focuses largely on tenderness, taste and texture in beef, as well as competitive pricing. Increasingly, supply chain players are responding to a growing interest among consumers in credence attributes, such as how the beef was raised and where it originated.

### “Collaborative Supply Chains”

- Collaborative supply chains are essential to efficiently deliver quality product to consumers every day.
- Collaboration depends on a common desire to work together and this can be facilitated in a number of ways, such as by sharing information from the consumer and retail level back through the supply chain to the primary producer as a basis to improve quality and value.
- The food system concept also involves industry increasingly collaborating with many diverse, non-traditional players who can influence the operating environment in which supply chains work, such as those in the health field, research and in the information technology sector.
- (While stakeholders are referenced under this specific prerequisite, how they work is connected to all components across the Roadmap.)

### “Supply Capacity”

- Supply capacity involves the steps to ensure reliable beef production and supply through to the retailer. Insufficient critical mass means the system cannot deliver on market requirements and opportunities.
- This starts with the natural resource base used to produce beef, especially the first stage of production (supplying a weaned calf) and environmentally sustainable practices increasingly influence every step of the food supply chain.
- Capacity also refers to the ability to remain a viable supplier, whether in terms of coping with production disruptions, having adequate human resources capacity, deploying R&D, achieving productivity improvements, and managing the availability and costs of inputs.

The following scenario table (4-2) highlights how the Roadmap can be applied to a specific issue (in this case, exporting beef to the EU). Every issue merits a unique response and the appendix contains two other scenarios to further bring the Roadmap to life – on exporting beef to Japan and in addressing the issue of antibiotic use in beef production. Plus, Appendix I also provides a generic description of each of the components of the Roadmap as guidance.

## Roadmap Scenario: the EU Export Market

Question: How can Canada effectively and profitably export beef to the EU given its restrictive quote?

The following scenario demonstrates how a mock analysis could help point to issues and opportunities, gaps and challenges. This analysis is not expected to be thorough but is used to portray the Roadmap’s utility.

Table 4-2: Applying the Roadmap to the EU export market

<b>1. MARKET REQUIREMENTS</b>	
<b>Trade agreements, border access</b>	<p>The duty free quota (see Regulations, below) that the EU Commission put in place is for beef produced without added hormones and produced with export protocols controlled by the Canadian Food Inspection Agency.</p> <p>The Canada EU Economic Trade Agreement (CETA) negotiations present an opportunity to give Canada greater access to the EU.</p>
<b>Regulations, tariff/non-tariff barriers</b>	<p>In 2010, the EU created a duty free quota of 20,000 tonnes as a concession with the United States to settle a WTO dispute over its ban of beef from cattle raised with hormones. This has resulted in a change in market conditions and preferable market access compared to the Hilton Quota and its 20% duty.</p> <p>EU labelling requirements relating to environmental and animal welfare standards or measures.</p>
<b>Foreign food security initiatives</b>	
<b>International standards organizations</b>	
<b>Global supply chain standards, codes of practice</b>	
<b>Supply chain requirements; procurement policies</b>	Are there private standards requirements by importers and retail that are preferred or required that will create a competitive advantage for Canada?
<b>Macro-economic &amp; market conditions</b>	Given recessions, approach may focus on target countries.
<b>Consumer/demographic analysis</b>	The supply of beef that the EU will consume will increasingly come from imported product. EU beef imports are expected to grow due to diminishing beef production in the EU.
<b>Societal expectations for how food is produced</b>	EU consumers have different meat and attribute preferences than Canadian consumers. This includes that the product be raised without hormones.
<b>Consumer information needs</b>	Consumers' desire for no-added hormone beef may already be well established.
<b>Municipal/local food policies, initiatives</b>	

## 2. PRODUCT ATTRIBUTES

<b>Canada Brand/promotion/ consumer education</b>	What supportive program would be required?
<b>“Canadian beef advantage”</b>	Understanding Canadian-supplied product benefits.
<b>Functional attributes (quality, consistency, cut, taste/texture, price)</b>	What unique selling positions are of most importance to the identified buyers?
<b>Credence attributes (grass-fed, hormones, animal-care/welfare, nutrient-profile, healthy)</b>	Obviously, this is about no-added hormones; but are there other credence attributes of interest?
<b>Traceability, quality assurance</b>	Required.
<b>Transparency of claims</b>	Web-based information to connect the EU consumer to the Canadian producer; “know your rancher”, backed by traceability protocols.
<b>Voluntary industry protocols, meeting customer standards (sustainability: carbon, water, environmental footprints; biosecurity)</b>	EU retailers may require sustainability/life-cycle assurance.
<b>Labelling, packaging</b>	EU requirements, noted above.
<b>Processing (value-added)</b>	

### 3. COLLABORATIVE SUPPLY CHAINS

<b>Collaboration based on demand-pull</b>	<p>What retailer and end-user partnerships can be created to access import quota and ensure import access conditions?</p> <p>What partners and supply chain participants are there to align with on an export program?</p>
<b>Information-sharing platforms</b>	Point-of-sale access to information on Canadian production practices, the rancher, etc.
<b>Objective-setting, targets, measurement</b>	<p>What is the short, medium, and long term potential?</p> <p>What is the initial export target?</p>
<b>Shared understanding of consumer needs</b>	What product cuts are best positioned to access this market and meet preferred needs?
<b>Maximize value to participants</b>	<p>What are margins on the product being shipped?</p> <p>What opportunities are there to increase revenue in the EU once business activity is occurring?</p>
<b>Cost-competitive, productivity improvements</b>	What transactions and regulatory requirements do the US and Australian supply chains need to follow to procure cattle for EU programs?
<b>Supportive associations, Roundtables, etc.</b>	Possible assistance on minimizing regulatory burden, on exports.
<b>Collaboration with other ('non-food') sectors</b>	As a basis to support promotion, partnerships with EU nutritionists on Canadian beef nutrition profile.
<b>Government facilitation, policy alignment</b>	Are Canada's EU export protocols competitive with business practices in the USA, Australia and other suppliers? What changes can and/or need to be made?
<b>R&amp;D/commercialization/innovation models</b>	

#### 4. SUPPLY CAPACITY

**Ecosystem analysis/ management** Possible EU marketplace expectation on sustainability performance.

**Environmental management (water, soil, carbon)**

**Genetics/innovation/animal productivity**

**Input availability, costs, including labour**

**Feed strategy**

**Maximum product utilization** What market opportunities are there for beef product and by-products for animals slaughtered to EU standards?

**Critical mass of supply offering (reliable supply)** What is the most practical and effective way to procure cattle for an EU program?

What is the availability of slaughter cattle for the program and what can be done to increase volumes?

**Processing infrastructure** What processing and packing capacity meets market access requirements and what available processor capacity is there?

**Demographics of production sector**

**Regulations, inspection** Addressed above.

**Inter-provincial trade rules**

**Risk management tools/ programs** What opportunities are there to reduce production and market risk?

**Financial services/capital**

## Strategy and Policy Implications

Federal and provincial governments support the beef sector in many ways. Government influences the business operating environment, such as by modernizing regulations and opening new markets through trade agreements. Government programs encourage collaborative behavior, such as through support for innovation (cluster) funding. Government helps producers cope with financial shocks. Government also shapes producer behavior, such as by reducing support for financial programs where the market does not show long-term viability. Government also must balance economic and societal objectives, such as protecting consumer health (food safety) and the environment. Government policy has many objectives.<sup>67</sup> Figure 4-4 illustrates the connection government has to strategy and the high level policy links and implications – in relation to this report – for governments.

67. For more information on government objectives, see the research paper prepared for CAPI: "Policy Context & Rationale for Intervention in the Agri-Food Sector" by J. Stephen Clark and Shelley Thompson, February 2011.

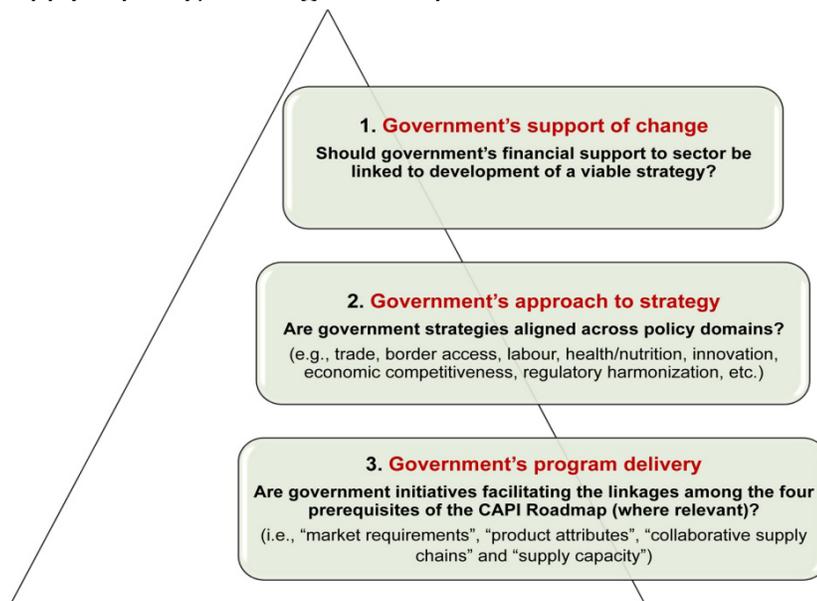
The ultimate policy question is: How should (can) governments encourage and support strategic change in the beef sector?

In CAPI's view, industry must lead change. But, in the interest of Canada's future competitiveness and sector profitability, government can be a catalyst. It can signal the need for, and support, change. One option is to call for an industry body to take the lead in creating the dialogue on strategy. Governments also have leverage. Governments financially-support the sector (as represented in box 1, Figure 4-4). Government should tie this support to the development of a robust industry strategy.

As industry moves toward a dialogue on strategy, government must also adapt and align its own policies and programs. The Roadmap may be helpful in prioritizing what might need to change. The direction taken here should influence how adjacent policies should be coordinated to support those objectives (box 2) and how the role of governments contributes to various components identified in the Roadmap (under each of the four noted prerequisites) as noted in box 3.

For its part, government needs to identify how its own objectives (and the associated performance benchmarks) can support a more collaborative beef sector.

Another implication for government is whether the ideas presented in this report can be applied to other agri-food sectors. The principles of food system thinking are universal: the need to be consumer-focused and manage natural capital, and the need for collaboration and alignment on objectives. Moreover, this Roadmap could be adapted for use for any agri-food sector. The four prerequisites should be directly applicable to others (such as how to align the players to understand market requirements, products attributes and supply capacity), although its components are now tailored with the beef sector in mind.



**Figure 4-4: The role of government in supporting strategy and policy.**

## Conclusion

This chapter outlined an approach to facilitate a new dialogue on strategy. It developed some instructive lessons from organizations here and abroad. This inspired some key principles for identifying “requirements for strategic shifts” to occur, the so-called winning conditions to design strategy. The chapter elaborated upon CAPI’s food system concept as a basis for framing a strategic dialogue. It introduced a tool (the Roadmap for Dialogue on Strategy) to give stakeholders a means to engage in a robust discussion on the inter-connected issues, opportunities and implications for policy development.

We are strongly of the view that future success depends on how individual agri-food players work with others in their respective supply chains and among other key players to meet the needs of consumers, address changing expectations for how food is produced, and enhance the productive capacity of the environment. The Roadmap connects these priorities.

CAPI cannot prepare the beef sector’s strategy, but this chapter responded to what many beef stakeholders desired: a platform to develop an explicit strategy for the sector and drive alignment to a long-term and shared strategic plan.

## CONCLUSION

Canada's beef industry makes a significant contribution to the Canadian economy. It generates over \$6 billion in farm-gate sales and represents 15% of the value of agricultural production. However, in recent years worrisome trends have developed. The sector's domestic and export competitiveness is weakening. Canada's beef trade balance is in decline, and the country is at risk of becoming a net importer of beef with the US. Meanwhile, consumers in Canada and abroad are increasingly concerned about where their food comes from and how it is produced, which makes it ever-more important for Canada's industry to be able to demonstrate the safety and quality of its products. The sector's future competitiveness depends on how it responds to these issues.

For this report, CAPI conducted over 80 interviews in the fall of 2011, and undertook extensive consultations in the winter and spring of 2012. Researchers interviewed representatives from each segment of the beef supply chain and many interests from outside the sector. Overall, the feedback pointed to a prevailing view that a course correction is required. Many stakeholders indicated that the sector is operating without a long-term strategy, and that there is minimal collaboration, no vision, no sense of common objectives and fragmented leadership.

The research stimulated some key questions on the future of the sector:

- Given that some 85% of our beef and cattle trade is with the US, is not important to diversify our markets by increasing exports to other countries?
- The value of our exports to other countries is higher than the value of our exports to the US. In this case, how does the sector decide what is the optimum export market mix and strategic path forward based on existing and potential strengths?
- Canada's cow herd has declined by 1 million head or 20% since 2005. How do we ensure a critical mass of cattle to meet future market opportunities?
- The trade balance of Canada's beef sector with the US is in decline. Is this not a strong signal of a loss of competitiveness?
- The value of US imports of beef to Canada is higher than that of our exports to the US. Are we missing a bigger economic opportunity to better serve our own domestic market?
- As Canada "backfills" product to the US, the Americans are realizing a greater advantage by expanding exports. Are we satisfied with the US growing its exports with the use of Canadian slaughter and feeder cattle augmenting its domestic supply?
- Beef consumption is in decline in Canada and the OECD. Consumers are increasingly concerned about the environmental footprint of the beef sector. Should the sector be concerned about how these perceptions are shaping consumption behaviour?

- Beef consumption is rising in developing countries. As other countries position themselves to serve these markets, what should the Canadian sector's objectives be in terms of targeting specific market segments?

This report, reflecting the views of many of those interviewed, proposes the development of a new strategy to build the beef brand and generate consumer trust in the Canadian product. To initiate a different approach, a new, robust dialogue is needed across the beef sector. Government involvement, in a supporting role, is also essential. Chapter 1 of this report describes what we heard in the interviews and consultations. The chapter contains feedback categorized in a “SWOT” fashion, dividing the perspectives of interviewees according to the Strengths, Weaknesses, Opportunities and Threats facing the sector. The chapter then proposes the adoption of “food system” thinking as a means to move toward a new strategy for the sector. The chapter lays out a “Roadmap for Dialogue on Strategy” that shows how the sector might position its approach to fostering a new direction.

In Chapter 2, the report describes the challenges the beef sector faces and describes four indicators of competitiveness that need to be addressed: the sector's trade balance, national cattle herd size, competition with other proteins, and the state of alignment among beef supply chains. Chapter 3 focuses on the increasing importance of information in the marketplace. It describes how information can contribute to the beef sector's competitive advantage. For example, as the origin, safety and other attributes of food capture the attention of more and more consumers, the issue of traceability becomes a greater concern and – for those countries able to demonstrate traceability – a greater potential source of competitiveness. In Chapter 4, the report proposes the adoption of a “food systems” perspective as a means to move toward a new strategy for the sector. The chapter lays out the prerequisites of a roadmap for getting there. The chapter includes several case studies from around the world of attempts to improve the performance of the agriculture sector in a given country or state (and one on the Canadian forestry sector), and sets out the steps that must be undertaken to generate the right conditions for change.

## The Call for Action

### The need for a strategy

The stakeholders consulted for this report noted the absence of an explicit strategy for Canada's beef sector, and no long-term and shared strategic plan. Change is required.

**Suggestion I:** The strategy must be about identifying how best to compete. As Jack Welch, former Chairman and C.E.O. of General Electric, often said, “If you don't have a competitive advantage, don't compete.” What is Canada's competitive advantage? The sophisticated use of “information” may provide such a competitive platform. It would seem that Canada's cattle and premises identification schemes, for instance, are close to being able to deliver information up and down the supply chain, benefiting producers, processors and consumers. Building on current practices, a potential strategy that leverages information could be the basis to create and sustain a competitive advantage.

## The need for alignment

Many interviewees indicated that the sector suffers from a minimal amount of collaboration. A long-term strategy could also address this issue.

**Suggestion 2:** Government can help motivate the sector to enhance its collaborative focus. Since government supports the sector financially, it could tie this support to the development of a robust industry strategy. Government can then align its own policies, initiatives, funding and regulations to enable the strategy.

## The need for leadership

A number of interviewees noted that there are too many voices speaking for the beef sector, coupled with an absence of shared or collaborative industry leadership. Leadership is needed to galvanize (and align) stakeholders, in order to help them adapt to change.

**Suggestion 3:** This report has emphasized that aligning stakeholders requires leaders to act. Leadership can come from many quarters. Each supply chain needs to act. In addition, the sector needs to consider whether there should be a national organization with a mandate and the financial means to articulate and support an overall domestic and international strategy. The merits of this idea, and its pros and cons, should form part of the dialogue. Put another way, without such a body, will the status quo be largely maintained?

This study points out in clear terms that the industry is not achieving its full potential. Many stakeholders across the sector recognize this. A “food systems approach”, as outlined in this report, offers a way to link the players, policies and resources in order to help the sector ensure its place, domestically and internationally, as a reliable supplier of high quality Canadian products. A food systems approach can propel the beef sector toward greater success in meeting, and exceeding, the most exacting expectations of consumers at home and abroad. To make it happen, concerted action is needed now.

## APPENDIX A: Innovation and Genetic Applications

Genetic improvement has enabled significant productivity gains in animal agriculture. One resulting advantage is selective breeding to improve the performance of successive generations along desired traits. Known as Marker Assisted Selection (MAS), it increases the accuracy of prediction (of desired traits in offspring) and also reduces the generation interval to achieve desired results compared with traditional breeding methods. A second major advantage is that it can better predict the optimal way of handling existing animals in order to maximize returns; this is referred to as Marker Assisted Management (MAM).

The Canadian beef sector has the potential to benefit from this new field of study. For example, Livestock Gentec has been advancing genetic analysis in the beef sector within Canada. With support from Alberta Innovates–Bio Solutions (AI-Bio) and the Alberta Livestock and Meat Agency (ALMA), and its partners, including Alberta Agriculture and Rural Development (AARD) and Agriculture and Agri-Food Canada (AAFC), Livestock Gentec has developed calibration and validation tools for the next wave of gene-based innovations.<sup>68</sup> This supporting infrastructure forms the basis of an opportunity to develop a world-leading beef industry in Canada. The next stage is to take these results and demonstrate their value. This will require close collaboration with industry.

Achieving the potential of molecular biology in the beef sector will require that several other conditions be met. First, to produce practical and affordable benefits to industry, testing needs to be applied on a sufficiently large number of animals using genetic markers responsible for traits such as meat quality, animal health, growth and environmental efficiency. These tests will further encourage the collaborations (national and international) vital to the discovery and adoption of gene-based technologies. Canada is well-positioned, based on the size of the beef herd, and requires databases linking beef cattle phenotypic and genotypic information. Second, the beef production sector must be willing to share necessary data on genetics and performance. Some smaller producers may not feel inclined to incur the costs and efforts to supply the necessary data, and some larger operators may not want to share their proprietary performance data. This willingness to share data can be overcome by highlighting benefits and pointing to the success observed in other industries such as pork and poultry. The BIXS database could prove useful with such technology. Third, the actual cost of gene testing needs to be low. A fourth obstacle is the actual technology-transfer mechanisms that need to be developed to implement the technology.

68. Genomic Application in the Beef Sector,” Livestock Gentec, prepared for CAPI, 2012.

## APPENDIX B: The Canadian Beef Traceability System

Ideally, traceability systems should enable the tracking and tracing of information on products from the store shelf or the end consumer all the way back to the farm operation where the beef originated. These systems include processors, slaughter and meat processing facilities, feedlots, cow/calf operations, and all transportation and storage locations along the chain.

Such a traceability system would consist of three basic information elements:

1. **Identification of the Product (and its components):** The party producing and/or marketing the product; and the location of all of the process stages impacting on the product. There is also the need for a movement/shipment identifier such as a carrier's bill of lading number and/or serial shipping container code to track movement of products.
2. **Recording of Information:** Standardized information should be recorded through each stage of production, processing and distribution. With the food sector becoming more global in nature, international inter-operability of traceability systems becomes more important.
3. **Linking of Information:** To ensure the continuity of traceability through the links in the supply chain, each partner must have the ability to securely pass on information about identified product to the next partner in the chain or to a central database or registry where it can be retrieved (this reinforces the need for international inter-operability).<sup>69</sup>

These last two points are made even more valuable if there is a system of registration for product codes, premises, and movement information that is accessible for purposes of tracing in order to speed up the process and improve accuracy.

The traceability system in place for the Canadian beef sector does not fully enable the tracking and tracing of information from the farm or origin of the animal to the retail store shelf or food service outlet. It is comprised of several systems that must link together.

The first piece on the live side is the Canadian Cattle Identification Agency (CCIA). The CCIA is an industry-led non-profit organization that maintains a cattle identification system from the producer to the packing plant and other off-farm sites in the beef sector for the purpose of animal disease control and food safety assurance. Its strength is that it is mandatory, with penalties for non-compliance. The system involves each animal having an ear tag attached to it at the point at which it leaves the herd of origin. Producers are using approved RFID ear tags. The tags are linked to the herd of origin through the mailing address of the producer. On a voluntary basis, the producer can submit the actual land location of the premise. This system meets product I.D. and party I.D. requirements. If a producer moves the animal from one location to another with his own vehicle, there is no automatic shipment I.D./movement

69. This, in turn, leads to the issue of what the best models are for traceability from the standpoint of efficiency, accuracy, and cost. There are two possible models. The first is the "one up/one down" model, where participants in the chain can link their internal information to their immediate suppliers and customers. The issue is that the weakest link in the chain can undermine accurate and speedy traceability. The other model is a "whole chain" model providing real-time visibility to the entire chain. One up/one down has some weaknesses as to speed and accuracy. The whole chain model may be more costly to implement, but results in a better overall system.

tracking. Beyond that, each province in Canada is implementing a provincial traceability system for many commodities that require a premise identifier. This premise identifier is provincial in nature, and each one is different and does not link easily, if at all, with the CCIA system.

The second component, Canadian Food Product Traceability, relates to processed foods. This Canadian approach came about as a result of the work of the Can-Trace Project involving the federal government, the food industry, standards organizations, and consumer groups in Canada. It is a voluntary system. The data are captured using barcodes and RFID tags and is readily shared among the parties in the supply chain. As a voluntary scheme, participation levels are not as high as under a mandatory scheme. Furthermore the identifiers used are up to the discretion of the company and therefore are not consistently “linkable.”

These two systems can allow for the tracking and tracing of information on a product/animal through the entire supply chain if all the parts happen to be in place. However, in many instances that is not the case. As a result, accurately and quickly tracing data from the receiving dock where an ingredient or meat product arrives to the shipping dock where the finished processed product leaves the plant will depend on the quality of the information systems used by the processor (or feedlot operator or retailer, etc.). A sophisticated company could link parts of an animal used in a processed product back to a specific carcass, if up-to-date information is recorded in its system. It is unlikely that all operators could do so.

## APPENDIX C: Herd and Grass — The Foundation of the Beef Sector

A dialogue on the future of Canada's beef sector should include a discussion on the optimal carrying capacity of the natural resource base. Table A-I provides a perspective on the natural pasture and tame pasture lands used for grazing by eco-zone, with the area in tame pasture being a measure of the lands that could be converted to annual crop production. This area is over 13 million acres in western Canada, while native pasture occupies 25 million acres.

Cow-calf operations that are located in areas where the land can be cultivated and used to produce grains and oilseeds have more options. At times beef production may not be the best and highest use of the land. Many cow-calf operations across Canada have cropping alternatives. These operations need to achieve profit levels comparable to cropping alternatives to remain in the beef business.

**Table A-I: Land Area and Livestock Grazing by Eco-Zone, 2006. Source: Computations based on Agriculture and Agri-Food Canada (2007) "Farm Environmental Management Survey 2006: Summary Report on Grazing Livestock Management."**

Regions	Farms with Grazing Livestock	Total Grazing Livestock	Natural Pasture	Tame Pasture	Acres/ Grazing Livestock	Natural
	#	#	acres	acres	acres/head	Acres /farm
1. Atlantic Maritime	4,655	363,772	121,030	176,890	0.82	26
2. St. Lawrence Lowlands	5,119	317,992	122,856	153,570	0.87	24
3. Manitoulin-Lake Simcoe	6,163	458,559	271,172	258,846	1.16	44
4. Lake Erie Lowland	1,571	103,134	15,710	43,988	0.58	10
5. Boreal Shield	2,705	290,001	311,075	189,350	1.73	115
6. Brown Soil Zone	5,225	1,670,298	8,297,300	3,056,625	6.80	1,588
7. Dark Brown Soil Zone	5,331	1,538,015	4,056,891	2,356,302	4.17	761
8. Black Soil Zone	12,473	2,810,056	3,692,008	3,866,630	2.69	296
9. Lake Manitoba Plain	1,642	362,432	952,360	197,040	3.17	580
10. Boreal Plains	10,848	2,517,000	4,794,816	3,362,880	3.24	442
11. Montane Cordillera	1,617	368,328	3,269,574	279,741	9.64	2,022
12. Pacific Maritime	514	30,146	19,018	17,476	1.21	37
<b>Regions 1 to 12</b>	<b>57,862</b>	<b>10,829,734</b>	<b>25,922,176</b>	<b>13,944,742</b>	<b>3.68</b>	<b>448</b>
Regions 6 to 12 (West)	37,650	9,296,275	25,081,967	13,136,694	4.11	666

The Black Soil Zone has the most grazing cattle at 2.8 million head. These are very good soils that can be used for crop production. The average operation of 606 acres requires 2.7 acres/head to support grazing with these lands a mixture of grass, forested land and farmland. Grazing operations in the black soil zone have on average 49% of pasture as tame hay, suggesting cropping potential.

The Boreal Plains Zone was originally spruce/pine/aspen forest and supports 2.5 million head based on requiring only 3.24 acres per grazing livestock unit. This region is not as dry as farther south and has poorer soils. Some 59% of the pasture is natural, with the remainder tame pasture. The cow herd has evolved into this area over the last 50 years, with extensive clearing and conversion to farmland in this zone. More cattle are raised in the north zone (boreal plains) than is generally recognized. Operations in this area may benefit from warming climate conditions. However, soil type, even with warmer conditions, will likely mitigate canola as a crop in this area, without the creation of new varieties. The beef herd could expand in this area.

The Brown Soil Zone supports 1.67 million head, has very dry conditions and was originally prairie grassland. The region is now a mix of native grassland, with extensive dry land farming in some areas, and irrigated farmland in others. These operations tend to be large with an average size of 2,160 acres, with 6.8 acres of land required to support each head. These ranch operations are effectively “grass farmers,” with limited options to shift to other uses for the majority of their lands.

The Dark Brown Soil Zone is the next largest area, with 1.5 million head. It is characterized by dry conditions, with fescue grasslands and some aspen (a mix of grassland and dry land farming). The growing conditions are better than the brown soil zone, with only 4.17 acres required per head. The average unit size is 1,202 acres, which is a combination of smaller units in the eastern portion and large units in the west (east slope and foothills of the Rockies). Units in the western portion are large grass operations; those in the east are a mix of grass and farmland and have options to shift from cattle to other crops.

The Manitoba Lake Plain supports 360,000 head. More than 82% of the pasture on livestock-grazing operations is considered natural. This area has moist conditions and is originally a mix of forest and grassland. Most cattle are in the Interlake area, where the topography and soils are of lower value for agriculture. Some operators have the option of shifting from cattle to other crops.

In the Montane Cordillera region, 92% of the grazing lands are natural pastures and have a small percentage of the cow herd. These ranch operations are larger than average, at 2,195 acres; however, these larger tracts exhibit lower per acre productivity. Almost 10 acres are required to support each grazing animal, which is why only 363,328 animals grazed these 3.5 million acres.

Some ranchers wean and grow out their calves on these grasslands and then have their feeder cattle forwarded to feedlots for finishing, while others use their acreage base only through to the weaned stage. Productivity improvements on these lands, such as land management and types of grasses grown, can increase the number of cows that can be supported by the fixed land base of a ranch.

## APPENDIX D: An Example of What is Possible from the UK (Blade Farming)

The following case study reveals how to profitably access a market and deploy systems concepts in a supply chain, notably relating to:

1. Leadership;
2. Understanding customer requirements;
3. Information sharing;
4. Demand pull system;
5. Supply chain coordination;
6. Mutual self-interest as participants pursue a common outcome.

Blade Farming has grown to become one of the UK's largest beef operations.<sup>70</sup> It is a subsidiary of ABP, an Irish processor. Cattle produced by the Blade Farming model are of such consistent quality that they are affectively pre-sold to retail customers (including Tesco's, one of the world's largest retailers) or food service customers (including McDonald's) prior to conception. To maximize the value of the carcass, the hindquarters are supplied to retailers, the forequarters are supplied to McDonald's, and the preferred primal cuts go to restaurants.

The initiative grew out of producers' need to remain profitable in the face of increasingly high feed prices in 2000. The collaborative value chain has reduced the cost of production by \$180/head. They also needed to access guaranteed volumes of consistently high-quality animals in order to satisfy increasingly discerning and sophisticated customers and consumers.

Blade Farming acts as a chain champion and manages virtually every aspect of the chain, thereby ensuring that processes and procedures lead to the production of the correct animals, at the correct place, at the correct time. Producers benefit by having access to better prices for feed and veterinary services than they would by making purchases individually. Basing the chain's protocols on scientifically tested processes leads to the production of beef with desired eating qualities. It also provides the chain with greater insights into which combination of feed and genetics result in the best feed conversion rates and beef that offer consumers a superior eating experience. Lower costs and increased revenue are the result. Blade Farming also helps primary producers manage the financial risks associated with cattle production. It offers a loans program, assesses the level and cause of animal mortality, facilitates contractual negotiations, supports information exchange and production planning, and buys feed and provides veterinary services on producers' behalf.

70. This section is based on a report prepared for CAPI by Martin Gooch and Nicole Marenick, Characterizing the Determinants of Successful Value Chains, Value Chain Management Centre in the George Morris Centre, (August 25, 2011).

The method by which the chain operates enables ABP to know what animals it will have in the system and the quality of the animals it will be receiving 18 months in advance. A second strategic enabler is the ability to minimize waste and maximize profits by producing high-quality products for which customers and consumers are willing to pay – a demand-pull approach. From conception to processing, all business decisions are based on the results of scientific research into factors impacting eating quality. Negotiations primarily revolve around margins and the performance required for each member of the chain to achieve target margins, not prices received.

Blade Farming has developed the ability to accurately translate the information that flows from monitoring production programs into continuous improvements to the entire system. Key performance indicators are well communicated throughout the chain. Calves and producers are also constantly assessed according to specific performance indicators, the results of which are shared at set times during the production period and the year. Every player in the chain knows what he/she will be doing and receiving in a coming year, how their performance will be evaluated, and the rewards/penalties to which they will be exposed if they do not perform as expected.

## APPENDIX E: Implementing a Beef Strategy in South Australia

In 2005, a beef industry strategy, 2005-2015 Beef Industry Strategy Directions for South Australia, was developed to provide direction to South Australia's beef industry. The strategy was developed for a state-level Beef Industry Board, one of many Industry Development boards supported by the state's Department of Primary Industries and Regions South Australia (PIRSA). The Beef Industry Board had nine members, including beef producers, a processor, retailers (butchers) and an academic. The strategy was to provide overall direction for the Board, and to enable the Board to help grow the beef industry in South Australia. The strategy was developed through extensive consultation with the beef industry.

Their work has some parallels to the Canadian beef sector. The Australians proposed specific strategies such as a focus on end-users, partnerships (or collaboration), information flow through the value chain to improve carcass value and decision making, efficiency of the supply chain, and responsible production systems. The strategy had a number of food system elements.

The issue was how the strategy was executed. The research indicates that the beef strategy was one of the less successful strategies supported by Industry Boards, in terms of obtaining desired results.

Communication appeared to have been ineffective beyond the Beef Industry Board (i.e., there was no effective broader communication between processors and producers). It seemed that the beef industry did not have any ownership of the strategy. This possibly reflects the fact that the industry has many stakeholders and getting buy-in and commitment from businesses not directly involved with strategy development can be a challenge, particularly when a state level strategy is addressing national issues.

The strategy also provided direction in the areas of "partnerships, people and image." The Industry Boards and the strategic plans were beneficial in providing useful insight into industry's requirements and thinking for PIRSA officials. This helped set priorities for any available government funding. It also helped them deal with policy issues and other government agencies (environment, water, and transport), when regulations and policies were being developed. However, the success of resulting relationships between industry and government was mixed. Furthermore, these industry boards are no longer operational.

State government representatives found that a number of beef industry stakeholders were primarily looking for government funds; when this funding was found to be scarce or unavailable, interest in the strategy diminished and industry was not prepared to step in. There may also have been a greater industry expectation regarding the amount of government funds that were actually available.

In retrospect, this well-intended strategy for a beef sector that is national in scope may have been better

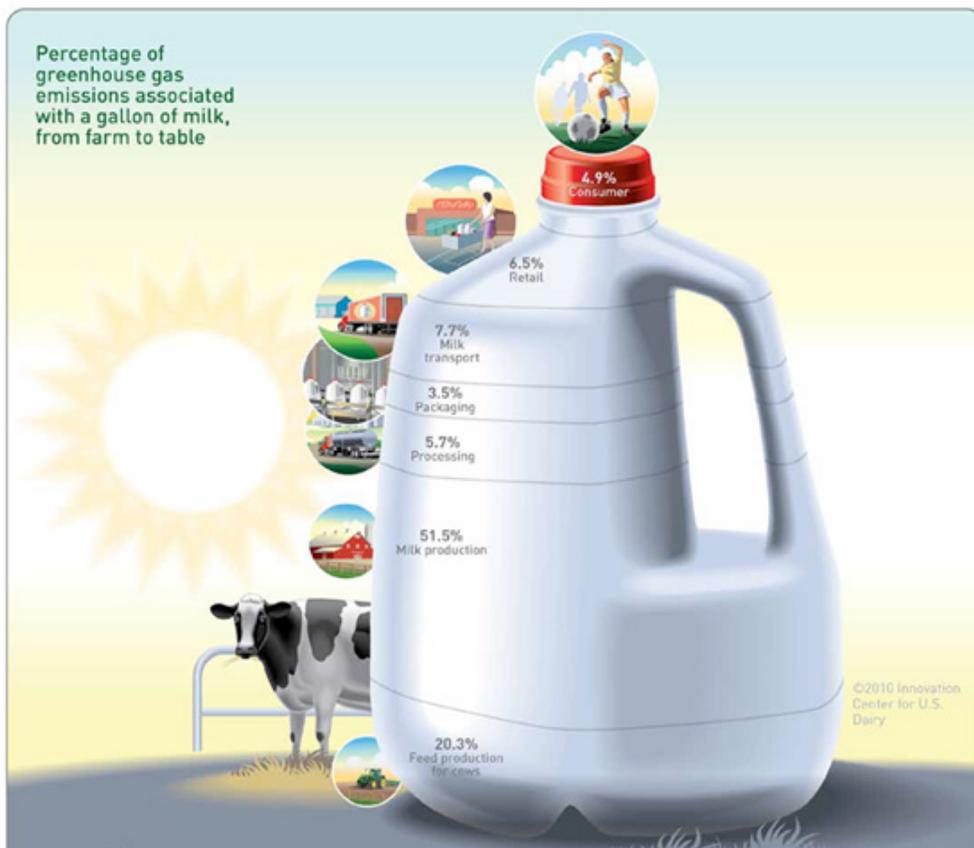
developed at the national level and by the industry, versus for the industry at a state level. A number of issues were national in scope, such as animal welfare and health. Marketing issues were the responsibility of the national Meat and Livestock Australia (MLA), and the fact that some processors had facilities across Australia may have limited their overall support for a regional strategy. Furthermore, a state entity such as PIRSA, with limited resources, was likely going to struggle to communicate (even within the state) or implement a strategic plan which had implications for the broader national beef industry, with its large number of stakeholders.

Some potential lessons from the South Australia beef strategy include:

- Do not have too many strategic initiatives, and focus only on those that have the highest probability of providing the largest return on dollars committed;
- The strategy needs to account for federal/state relationships and industry structure during development (and in the case of South Australia, it would likely have been better to focus on only those strategies that could be implemented at a state level);
- Commitments need to be made as to who is going to implement each strategic initiative;
- Expectations need to be managed at the outset in relation to the resources available for implementing the strategy;
- Consider the resources available for supporting strategy implementation;
- An industry strategy needs to address what drivers and/or incentives are necessary to ensure alignment on action, particularly for those many industry participants and businesses who were not involved with the process of developing the strategy;
- Strategies should be developed from within the industry with industry ownership, versus having a well-meaning third party offer a strategy for the beef sector; and,
- Supply chain participants need to be aligned on commonly-held objectives and on the methods suggested in the strategy on how the desired ends will be achieved.

## APPENDIX F: US Dairy Strategy on Environmental Sustainability

The US dairy industry (under the guidance of the Innovation Center for US Dairy) developed a comprehensive initiative to reduce emissions across the dairy supply chain. It examined emissions and responses by segment as a means to meet its industry-wide target of reducing emissions by 25% per gallon of milk by 2020. The accompanying illustration represents part of its work.<sup>71</sup>



71. US Dairy Sustainability Commitment Progress Report, December 2010, Innovation Centre for US Dairy, page 17.

## APPENDIX G: Strategic Change in the Canadian Forestry Sector<sup>72</sup>

Canada's forestry industry was standing on a burning platform. Ten years ago it faced declining pulp consumption due to falling newsprint demand and a US recession. Canada depended on the US for 80% of its exports and was losing share to low-cost newsprint suppliers from other countries, such as Brazil, while facing the appreciation of the Canadian dollar. Moreover, consumers were increasingly concerned about the environmental impacts of clear-cutting. Then, consumers started blaming themselves for environmental degradation and used their purchasing power to switch to "green" products. This prompted the large companies to shift their procurement decisions.

The net result was a sector under siege; mills were closed, layoffs occurred, and the sector had lost its competitiveness and its self-confidence. Over the course of this period, the direct and indirect workforce shed some 400,000 jobs from its peak of about 1,000,000 Canadians. The short story is that the sector transformed itself. A new economic model took hold, focused on mill productivity and product innovation. The sector adopted more efficient harvesting practices. It developed a parallel innovation stream that focused on extracting more value for wood compounds for use in bio-fuels, bio-composites (strong, light materials for use in cars and airplanes), and new compounds for use in everything from bio-pharmaceuticals to cosmetics. Its exports to Asia have since soared from about 11% to 28%, thus diversifying itself from the US. The value of those exports in 2011 went from \$32 million to \$1.5 billion in 2011. After years of retrenchment, the industry is now hiring again and looking to recruit at least 40,000 workers by 2020.

The sector also created a global first by working with environmental groups, aboriginal communities, all levels of government, and others to conserve great areas of Canada's boreal forest. To achieve this goal, it relied on a new partnership model, though one backed by certification standards for sustainable forestry practices. This was seen as the basis to ensure its "social license to operate." Protecting the environment meant regaining consumer confidence and ensuring future feedstock supply for the sector. Leadership for change was driven by the forestry companies. They have developed a 2020 vision to build the next phase of their strategic plan for the future.

72. Avrim Lazar, former president, Forest Products Association of Canada, based on a presentation to CAPI, April 11 2012.

## APPENDIX H: Meat and Livestock Australia

In the mid 1990s, Australia's cattle industry was faced with a declining herd and financial struggles due to industry disconnect with market requirements and a lack of focus on opportunities. In May 1996, a task team was created to develop options and recommendations on how to move the industry forward. In March 1997, a producer-owned company, Meat and Livestock Australia (MLA), was created and funded with levy contributions and matching government funds to provide services to livestock producers, processors, exporters, foodservice operators and retailers.

The core activities of MLA include research and development, food quality and safety, grading, maintenance of universal trading language, marketing services and promotion of beef and lamb domestically and internationally.

Meat and Livestock Australia has played an important role in increasing the innovativeness and market responsiveness of Australia's beef industry. It has done so by strategically pursuing opportunities to improve effectiveness based on understanding buyer requirements and directing research investments.

Governance is a priority. Independent performance reviews and strategic planning are undertaken, focusing the organization on areas that are of greatest benefit to industry.

Since its creation, Meat and Livestock Australia has carried out several key initiatives to focus the industry on meeting market expectations, notably how best to respond to consumer and market opportunities in order to create value:

- 1) National Livestock Identification System (NLIS) – livestock identification/traceability.
- 2) Meat Standards Australia (MSA) – beef and lamb eating quality program that labels the products with a guaranteed grade and recommended cooking method to identify eating quality according to consumer perceptions.
  - a) In 2010/11, MSA graded cattle attracted an average \$0.15/kg carcass weight and was a key part of 31 branded beef programs in Australia's domestic market.
  - b) MSA was a \$223 million investment that is projected to create a \$1.1 billion net benefit over 30 years.
- 3) Livestock Quality Systems – certification and verification systems to create confidence in on-farm food safety practices.
- 4) Supply chain management.

Over 70% of Australia's beef production is exported to more than 110 countries globally, valued at \$5 billion annually.

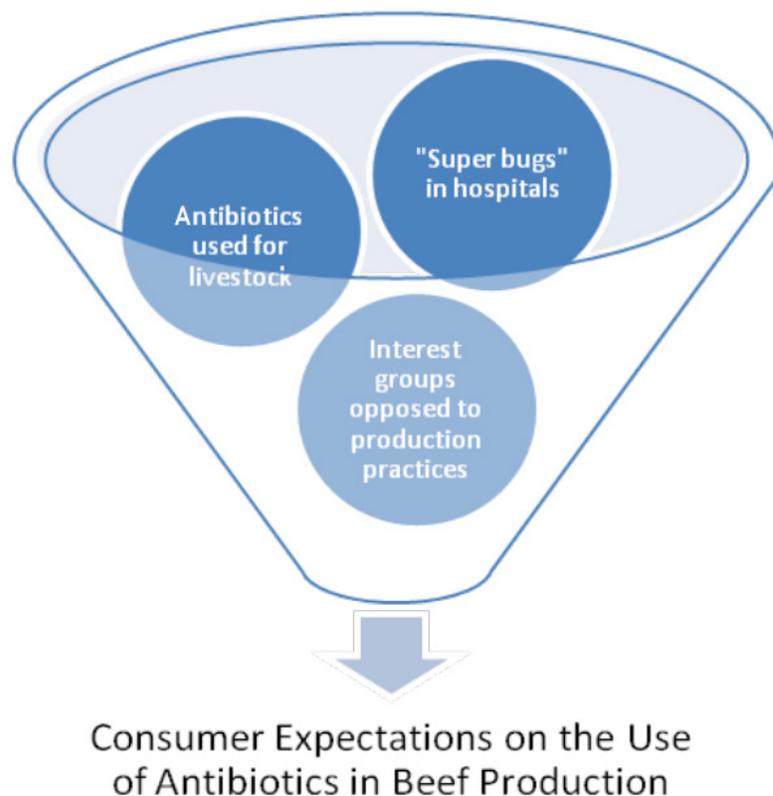
## APPENDIX I: Roadmap Scenarios

As noted in Chapter 4, the following examples further illustrate the use of food system thinking as a platform for engaging discussion and identifying the linkages along the supply chain.

### a. The Use of Antibiotics in Beef Production

**Question:** How can the beef sector manage changing consumer expectations of the use of antibiotics in beef production?

Antibiotics are important to the cattle industry due to their role in animal health and productivity. Recently, the media and society as a whole have been paying greater attention to antibiotics as it relates to human health and treatment but also as it relates to beef (and livestock) production. Due to the complexity and interconnection of the subject, food system thinking (and the Roadmap) can be applied to this issue. The case study is indicative only and does not represent a thorough review of this issue.



## The Use of Antibiotics in Beef Production

### 1. MARKET REQUIREMENTS

Trade agreements, border access

<b>Regulations, tariff/non-tariff barriers</b>	Are there regulatory restrictions being developed or imposed on antibiotic use in livestock?
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Foreign food security initiatives

<b>International standards organizations</b>	Do we have the right measures for the use of antibiotic use in livestock?
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Global supply chain standards, codes of practice

<b>Supply chain requirements; procurement policies</b>	Are key players in beef supply chains identifying antibiotic use as an issue or specifying beef supply without antibiotics?
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<b>Macro-economic &amp; market conditions</b>	How much beef produced without antibiotic is imported into Canada?
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<b>Consumer/demographic analysis</b>	Are there areas of research required to support or contribute to advancing the solution?
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<b>Societal expectations for how food is produced</b>	What is the market demand for beef produced without antibiotics?
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<b>Consumer information needs</b>	Are the right performance measures in place to demonstrate to the public the improvements that are being made and increase confidence of industry responsibility?
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<b>Municipal/local food policies, initiatives</b>	Are initiatives to source beef locally (such as at universities) becoming early indicators of this issue's profile?
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## 2. PRODUCT ATTRIBUTES

<b>Canada Brand/promotion/ consumer education</b>	Brand and trust: potential for the erosion of consumer trust in beef if media negatively portrays cattle production.
<b>“Canadian beef advantage”</b>	
<b>Functional attributes (quality, consistency, cut, taste/ texture, price)</b>	
<b>Credence attributes (grass-fed, hormones, animal-care/ welfare, nutrient-profile, healthy)</b>	How are retailers positioning this issue: is it never-ever antibiotics vs. 30 day withdrawal prior to slaughter?
<b>Traceability, quality assurance</b>	What facts are required or systems to be put in place to respond to this issue?
<b>Transparency of claims</b>	Is there a need to demonstrate trust among consumers that the beef industry is a steward of the use and application of antibiotics?
<b>Voluntary protocols, meeting customer standards (sustainability: carbon, water, environmental footprints; biosecurity)</b>	Is there an emerging pressure to establish industry-wide practices?
<b>Labelling, packaging</b>	How might action on antibiotics influence labelling of beef products?
<b>Processing (value-added)</b>	

### 3. COLLABORATIVE SUPPLY CHAINS

<b>Collaboration based on demand-pull</b>	How should producers, feedlots and veterinarians respond to this issue relating to the application of antibiotics and production of beef?
<b>Information-sharing platforms</b>	What actions are required to provide leadership on the subject and to ensure workable solutions while building consumer trust?
<b>Objective-setting, targets, measurement</b>	
<b>Shared understanding of consumer needs</b>	
<b>Maximize value to participants</b>	
<b>Cost competitive, productivity improvements</b>	Are there opportunities among packers, further processors, retailers on the production and marketing of beef products and options to market beef produced without antibiotics?
<b>Supportive associations, Roundtables, etc.</b>	Can industry-wide initiatives facilitate informed dialogue on this issue, including with non-supply chain stakeholders, such as those in the health field?
<b>Collaboration with other ('non-food') sectors</b>	<p>What is the role of health practitioners, advocates, and the media in shaping public, regulatory and societal opinion? (Note that the <i>Journal of the Canadian Medical Association</i> recently (June 4, 2012) issued a statement that "Canada should ban off-label use of antibiotics in farm animals because it contributes significantly to antibiotic resistance in humans".<sup>73</sup>)</p> <p>Many consumers, the medical community, departments of health and regulators (e.g., CFIA) are increasingly concerned about activities that potentially compromise the usefulness of products to treat disease and the development of antimicrobial resistance.</p>
<b>Government facilitation, policy alignment</b>	Is government contemplating regulatory action?
<b>R&amp;D/commercialization/innovation models</b>	Can new practices be deployed that can help minimize antibiotic used or improve their management and application?

73. CMAJ: "Canada should ban off-label antibiotic use in agriculture. <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.120561>; accessed June 2012

#### 4. SUPPLY CAPACITY

##### Ecosystem analysis/ management

##### Environmental management (water, soil, carbon)

**Genetics/innovation/animal productivity**      What is the impact on profitability of not using antibiotics or different regimes?

##### Input availability, costs, including labour

##### Feed strategy

##### Maximum product utilization

**Critical mass of supply offering (reliable supply)**      Are US suppliers more competitive producing beef without antibiotics?

Do Canadian producers have access to the same antibiotic products and costs as US producers?

##### Processing infrastructure

##### Demographics of production sector

**Regulations, inspection**      Tighter regulatory labelling: interest groups may influence the implementation of regulations and oversight that becomes increasingly burdensome to the livestock industry.

##### Inter-provincial trade rules

**Risk management tools/  
programs**      Risk factor: Potential for future linkage between cattle use of antibiotics and antibiotic resistance. What new measures are available to assess risk and threat performance to reassure consumers and help ensure the sector's productive capacity?

##### Financial services/capital

## b. Roadmap Scenario: The Japanese Export Market

Question: How can Canadian beef exporters that do not have product to supply Japanese buyers with Canadian beef year round adequately fill retail beef programs year round in that country?

Japan restricts beef imports from Canada to product from animals slaughtered less than 21 months of age or younger. Although age at slaughter systems exist, and are mandatory in Alberta, the U21M age requirement makes it challenging for beef exporters to source animals to provide year round supply of U21M beef due to the seasonality of calving by farmers and ranchers. The seasonal production pattern creates a three month window where there is very little Canadian beef eligible to be exported to Japan.

### 1. MARKET REQUIREMENTS

<b>Trade agreements, border access</b>	Japan maintains a high tariff on beef imports. The Canada Japan Economic Partnership Agreement is important in reducing the rate.
<b>Regulations, tariff/non-tariff barriers</b>	The Japanese market and consumers have placed significant restrictions in place to prevent the occurrence and risk of BSE infected product entering the food chain. This includes domestic testing of all animals for BSE, long list SRM Removal, an Enhanced Feed Ban and mandatory domestic traceability.
<b>Foreign food security initiatives</b>	Japan is heavily dependent on food imports. There is an opportunity to build a reliable and secure trading relationship with Japanese buyers willing to pay a premium for high-valued product.
<b>International standards organizations</b>	Japan's import controls are higher than OIE standards but provide Canada with an advantage that is also a high quality beef producer with high food safety standards, enhanced feed ban, traceability and age verification.
<b>Global supply chain standards, codes of practice</b>	
<b>Supply chain requirements; procurement policies</b>	Japan's domestic beef producers are mandated to implement traceability. Retailers and consumers are accustomed to having beef supplies that are traceable.
<b>Macro-economic &amp; market conditions</b>	High valued market with an aging population base.
<b>Consumer/demographic analysis</b>	Japanese buyers are looking for high quality, grain fed beef that enable them to fill year round retail programs. Japanese consumers have a preference for well-marbled beef products, specifically white fat from cattle fed barley and wheat and less so for beef with a tinge of yellow in the fat of cattle fed corn. Japanese consumers are also much more cautious and scrutinize their food products more than consumers in other parts of the world. They show concern for food quality and safety, and for environmental stewardship.

## 1. MARKET REQUIREMENTS

<b>Societal expectations for how food is produced</b>	Concerns about beef food supply and safety has prompted a series of regulatory actions (noted above).
<b>Consumer information needs</b>	Market research completed by AAFC on Japanese responsiveness to Canada and Brand Canada.
<b>Municipal/local food policies, initiatives</b>	

## 2. PRODUCT ATTRIBUTES

<b>Canada Brand/promotion/consumer education</b>	Canada Beef Inc. office and network in Japan available to support beef marketing and growth.
<b>“Canadian beef advantage”</b>	Japanese consumers recognize the Canadian Beef Advantage and differentiate Canadian beef as higher quality and safer than beef from other suppliers. (Source: CBEF, 2010 survey)
<b>Functional attributes (quality, consistency, cut, taste/texture, price)</b>	
<b>Credence attributes (grass-fed, hormones, animal-care/welfare, nutrient-profile, healthy)</b>	Environmental stewardship.
<b>Traceability , quality assurance</b>	Mandatory traceability of domestically-produced beef. The recent tsunami event increased consumer use and inquiry of origin to guide purchases.
<b>Transparency of claims</b>	
<b>Voluntary industry protocols, meeting customer standards (sustainability: carbon, water, environmental footprints; biosecurity)</b>	
<b>Labelling, packaging</b>	Sophisticated use of cell phones to scan QR (quick response) codes for further information on products.
<b>Processing (value-added)</b>	

<b>3. COLLABORATIVE SUPPLY CHAINS</b>	
<b>Collaboration based on demand-pull</b>	Partnership opportunities with Japanese food/beef firms to supply beef?
<b>Information-sharing platforms</b>	What economic analysis is provided to farmers and ranchers signaling the economics of alternative calving dates?
<b>Objective-setting, targets, measurement</b>	What opportunities would a year round supply of beef eligible for export to Japan create?
<b>Shared understanding of consumer needs</b>	Is there a program that a Japanese buyer would pursue that creates extra value for the Canadian beef industry and could be used to supply the feasibility of a year round supply program (e.g., environmental, Angus, enhanced feed protocol)?
<b>Maximize value to participants</b>	
<b>Cost competitive, productivity improvements</b>	What economic incentive would be required to get producers to shift calving periods and resulting slaughter dates and what are the alternative models to achieve change?
<b>Supportive associations, Roundtables, etc.</b>	
<b>Collaboration with other ('non-food') sectors</b>	
<b>Government facilitation, policy alignment</b>	
<b>R&amp;D/commercialization/innovation models</b>	

#### 4. SUPPLY CAPACITY

**Ecosystem analysis/  
management**

**Environmental management  
(water, soil, carbon)**

**Genetics/innovation/animal  
productivity**

**Input availability, costs,  
including labour**

**Feed strategy**

What actions, feeding regimes and/or animal sorting could be coordinated to achieve year round supply of U21M animals?

**Maximum product utilization**

**Critical mass of supply  
offering (reliable supply)**

How many animals would be needed from the different calving period to fulfill program opportunities?

How many calves are currently born in the desired calving period and is there an opportunity to get more of those animals slaughtered in the period of time where it has been identified there is a shortage of U21M?

**Processing infrastructure**

**Demographics of production  
sector**

**Regulations, inspection**

**Inter-provincial trade rules**

**Risk management tools/  
programs**

**Financial services/capital**

What is the opportunity to attract a Japanese firm to invest in the Canadian beef industry?

## c. Generic Description of the Roadmap Components

For background, the following tables elaborate upon the generic descriptions of the Roadmap components; these definitions are indicative and can be adapted with use.

### 1. MARKET REQUIREMENTS

<b>Trade agreements &amp; border access</b>	Bilateral and multilateral trade agreements, low tariff rates, and border arrangements establish basic import market requirements and allow for necessary access to export markets. The ability to negotiate access or implement an export strategy may also be affected by the interests and influence of other agricultural sectors and priorities.
<b>Regulations, tariff/non-tariff barriers</b>	Domestic and foreign regulations and non-tariff border provisions (e.g., phytosanitary provisions) indicate the necessary standards and protocols that must be met to supply a market. Canada does not always have preferential tariff treatment in some markets, and being competitively priced after payment of tariffs and duties is another requirement for success.
<b>Foreign food security initiatives</b>	While this may not be an opportunity for beef (but could be for other commodities), some countries have food security initiatives in place that can provide opportunities or restrictions for exporters. Some foreign countries negotiate supply contracts to address their food security needs. (Food security can also connote the affordability and access to food, a domestic and foreign market social issue.)
<b>Standards set by international standards organizations</b>	Standards organizations, including those that are voluntary (such as the OIE) are used as minimal standards by some countries that must then be adhered to in order to achieve access into export markets. Standards can be interpreted differently by some importing countries, affecting requirements.
<b>Global supply chain standards, codes of practice</b>	Voluntary codes of practices are requirements that determine whether a product is acceptable to a global supply chain or to buyers in import countries.
<b>Supply chain requirements &amp; procurement policies</b>	Each supply chain can have specific requirements, usually based on the preferences established by the final customer supplying products to consumers. This applies in domestic and export markets. Some retail and food service buyers have procurement policies (such as procuring “100% Canadian”) and requirements for third-party certifications. These requirements must be met in order to enter into supply contracts.
<b>Macro-economic and market conditions</b>	Marketplace requirements are affected by general macro-economic conditions in the market (country) as well as the value of the Canadian currency in relation to the importing country and competing supply sources.

## 1. MARKET REQUIREMENTS

### Consumer and demographic analysis

Market requirements and consumer wants are better understood through market research and analysis by market segments in domestic and targeted foreign markets. Government agencies and some NGOs can help ascertain export market requirements. This is necessary to understand where value can be created and captured to provide for more wealth back through the supply chain.

### Societal expectations for how food is produced

Especially in high-income countries with low food costs, society wants to know how food is produced along the five sustainability pillars (environment, animal care, human health, safe food, and economic impact). Consumers have an expectation of how their food is produced, and social media is evolving as one way consumers relay this issue, and further shape expectations. NGOs, educators, the mass media and other opinion leaders can influence such expectations, whether fact-based or not.

### Consumer information needs

Understanding the general information needs of consumers relating to the product in the market as a whole, such as relating to the need for healthy diets and product credence attributes (e.g., how the food was produced) can be vital to effectively succeed in a given market.

### Municipal & local food policies/initiatives

Some municipalities and public sector institutions (e.g., hospitals, universities) require their suppliers to offer them locally-produced foods. There should be a shared understanding of what “local” means.

## 2. PRODUCT ATTRIBUTES

### Canada Brand, promotion, consumer education

The “Canada Brand” is a brand promise with a number of attributes that are promoted in markets. This includes perceptions about Canada’s reputation in external markets and “Canadian beef” within the domestic market. Promotion and consumer education can enable a better linkage between what a market segment desires and what attributes “Canada” (and its beef sector generally) has to offer. Perceptions about the produce, supplier and production process can shape consumer attitudes and actions.

### “Canadian beef advantage”

The Canada Beef Advantage delves into the brand requirements. It positions on various attributes, such as high quality graded beef, global recognition for flavour, tenderness and juiciness, grain-fed beef from superior genetics, and food safety programs through the supply chain. These attributes are in demand in most beef markets. AAFC is developing “proof points” (i.e., quality, food safety, traceability, animal health, environmental sustainability, regulatory environment) to support Canadian food and agriculture products, including Canadian beef product positioning in export markets, generally.

## 2. PRODUCT ATTRIBUTES

<b>Functional attributes (quality, consistency, cut, taste/ texture, price)</b>	<p>Canadian beef has important functional attributes as noted above in the Canada beef advantage, such as high quality, superior taste, and texture. Consistency in supply and quality, competitive pricing and how the product is offered (such as the size of table cuts wanted by consumers) are also important.</p>
<b>Credence attributes (grass-fed, hormones, animal-care/welfare, nutrient-profile, healthy)</b>	<p>Credence attributes can be part of the supply offering, such as how animals were raised, what beef cattle were fed, the nutrition profile of various beef cuts, the positive linkage between beef consumption and health, and other sustainability attributes being demanded by consumer segments. Delivery on these attributes should be based on science-based evidence. “Local” beef and “Canadian” beef can be a credence attribute (which would require traceability to support such promoted attributes).</p>
<b>Traceability and quality assurance</b>	<p>By their nature, credence attributes cannot be observed. Consumers need to trust that a supplier and/or brand are delivering the attributes positioned. As a result, certifications of safety and quality assurance programs are attributes that can be offered to provide the necessary trust linkage between consumers and the beef supply chain. Traceability is required for certain markets (countries) to provide the assurance that animal diseases are contained and not transmitted. Traceability is often associated with food safety, and with providing the assurance that animal diseases do not enter the food supply chain. Traceability also extends to demonstrating a broad array of desired attributes. Traceability expectations and compliance requirements can vary by market and supply chain.</p>
<b>Transparency of claims</b>	<p>A number of consumers want to have instant access to supporting information on the product, how it was produced, its life cycle, and other attributes, such as having information accessible by scanning a product bar code or accessing a website. This transparency demonstrates accountability and affirms confidence.</p>
<b>Voluntary industry protocols and meeting customer standards</b>	<p>Industry relies on voluntary protocols and standards to deliver products to the market. These protocols can address sustainability and animal care, and can be part of an individual company’s overall corporate social responsibility program. These protocols can be company-specific or part of a global standard and are designed to meet specific consumer needs or more general societal expectations of how food is produced. The protocols are designed to improve productivity, ensure quality and safety, and ensure a broad array of performance requirements as a means to deliver attributes important to the market segment being served. Good performance here is part of nurturing (or protecting) the brand and can help to ensure industry’s “license to operate.” Voluntary standards can help to meet consumer “standards” for service, quality and safety.</p>

## 2. PRODUCT ATTRIBUTES

<b>Labelling, packaging</b>	How products are prepared, packaged and labelled is another aspect of responding to the needs of consumers. Effective practices here influence how consumers make protein choices (the demand-pull of beef) in certain market segments. The brand is communicated to consumers through labelling.
<b>Processing (value-added)</b>	Product form is critical. Some market segments require convenience, such as beef products that are “heat’n serve.” With consumers not as familiar with preparing certain meat dishes, value-added processing is an additional feature that is important to certain market segments. Processed foods (using beef) broaden the list of prospective stakeholders with a stake in the strategic dialogue.

## 3. COLLABORATIVE SUPPLY CHAIN

<b>Collaboration based on demand-pull</b>	Supply chains can operate in a fragmented manner with little communication, trust or understanding. The relationship focuses on delivering on the contracted price and product, but with little mutual understanding or desire to collaborate. “System thinking” is about being collaborative because it recognizes that many diverse players are, indeed, required to get product to market. Collaboration in the supply chains (from production through to retail) is organized around responding to the requirements of specific markets and having a shared understanding of the consumer (known as a “demand-pull” supply chain) for mutual benefit.
<b>Information-sharing platforms</b>	A collaborative supply chain is supported through information sharing platforms, which provide necessary information flows through the supply chain in support of its needs. Information technology (IT) infrastructure is the backbone of traceability systems.
<b>Objective-setting, targets, measurement</b>	Metrics are vital. A collaborative supply chain is aligned on objectives, with performance measurements intended to ensure the rewards generate desired outcomes. Metrics are also important for regulators, and others, whose activities can have important implications for the operational effectiveness of beef supply chain players.
<b>Shared understanding of consumer needs</b>	A collaborative supply chain must begin with a common understanding of the needs of the final consumer. This is influenced by how communication occurs and sharing information across the chain. Understanding the consumer is the basis for creating greater alignment on objectives and performance. The key ingredient is establishing a dialogue among the players to better understand how best to deliver what the consumer desires.
<b>Maximize value to participants</b>	Self-interest and collaboration are compatible but require a new mindset. There must be a shared belief that value can be maximized through greater collaboration. But each player in the supply chain must benefit.

### 3. COLLABORATIVE SUPPLY CHAIN

<p><b>Cost competitive &amp; continuous productivity improvements</b></p>	<p>Supply chains compete with other supply chains, whether domestic or foreign, or with alternative proteins. As a result, the overall supply chain must have a focus on productivity improvements that support cost competitiveness and value creation/capture. Investment strategies that focus on innovation are beneficial.</p>
<p><b>Supportive associations, Roundtables, etc.</b></p>	<p>Members of supply chains are often part of various supporting organizations such as industry associations, coalitions, and sector-wide organizations, notably the Beef Value Chain Roundtable. These groups can play critical roles in facilitating industry or sector-wide initiatives. As part of a broader food system, input suppliers and non-traditional stakeholders of interest also have their own representative organizations, such as processing and feed grain, equipment and machinery suppliers, financial services, and health practitioners. While significantly broadening the potential scope of activity (which can add complexity), these groups can have a relevant role in helping to advance certain commonly-held priorities or addressing issues as part of the strategic dialogue.</p>
<p><b>Collaboration with other food and non-food sectors</b></p>	<p>Collaborative supply chains require linkages with other sectors (within agriculture and non-food players), such as researchers at universities and in commercialization centres, bodies that represent landowners and associated stewards of natural resources, and organizations that speak on behalf of Canadian consumers and health-related organizations. A full range of input suppliers is also essential to the success of supply chains, such as those involved in transportation and logistics, equipment providers, and information services. These players are an important part of each food system and can have a relevant role in helping to address issues or take advantage of opportunities.</p>
<p><b>Government facilitation, and policy alignment</b></p>	<p>“System thinking” applies to government as well: government policies and regulations can be fragmented across departments and jurisdictions. Government policy and regulations are part of the operating environment that can positively or negatively affect the supply chain. Supply chains can operate more successfully when there is alignment on the intent of policy and regulation between government and industry. Government also facilitates change through measures such as negotiating market access, modernizing regulations, providing incentives for innovation, and promoting initiatives to improve diets.</p>
<p><b>R&amp;D/ commercialization/ innovation models</b></p>	<p>Innovation is critically important. Achieving the desired ends, improving productivity and creating more value in the supply chain requires applying R&amp;D, commercializing new ideas and finding innovative solutions to improve processes and products. Innovation can also be a priority among players that support the sector, such as within the pharmaceutical sector. Identifying common innovation priorities can bring diverse players together to create opportunities.</p>

#### 4. SUPPLY CAPACITY

<b>Ecosystem analysis, management</b>	The supply capacity of Canada's beef sector begins with the natural resource base used to produce beef, particularly the first stage of production (supplying a weaned calf). The capacity of the natural resource base should be well understood and managed for long term sustainability, and be consistent with societal expectations on stewardship. Environmental and agricultural policy and management practices dovetail.
<b>Environmental management</b> (water, soil, carbon)	Beef production can have a positive impact on the environment. But if not managed well, the impact can be negative, such as through pollutants in groundwater. The supply capacity is directly related to management practices affecting soil, water, carbon, and other by-products of beef cattle production and processing. Performance here (at every stage in the chain) can influence (positively or negatively) the beef brand.
<b>Genetics, innovation, animal productivity</b>	Advances in the supply capacity of beef can be gained through productivity gains throughout the supply chain. Improved genetics enables delivery of beef carcass attributes in demand throughout the supply chain and by consumers of beef. Improved productivity in areas of converting forages and grain into meat, as well as productivity per acre of land used, fosters a cost-competitive supply chain and a supply chain that creates value for the end consumer and enhances product value. "Information" flowing among the supply chain players links producers to users of beef product (e.g., processors) so that all partners understand how improvements bring mutual benefits.
<b>Input availability &amp; costs, including labour</b>	Beef production requires a variety of inputs in each stage of production. If inputs are not available, capacity is constrained, and if inputs are more costly in Canada than in competing supply jurisdictions then Canada must compete with a higher cost supply chain (which lowers overall rewards to participants). Higher wage rates can affect the competitiveness and supply of the overall supply chain, and availability of labour can also affect overall supply capacity.
<b>Feed strategy</b>	Feed (grain) is a major input in the finishing stage of beef production, with nearly 2 tonnes of feed required as a stocker transforms into a fed steer. Canada's supply offering of fed cattle is determined in part by the availability, quality and price of feed. An effective strategy can build Canada's beef supply capacity. A food system approach recognizes links to other agriculture sectors.
<b>Maximum product utilization</b>	Maximizing utilization of the product, such as the beef carcass, in its highest value areas (including by-products), creates maximum product value opportunities. This requires, in part, having access to appropriate markets. This can also extend to how by-products may be used for bio-processing.
<b>Processing infrastructure</b>	Canada's supply capacity of beef is linked to processing sector capacity and infrastructure. The economics of the overall beef supply chain is interwoven with processing infrastructure and its cost competitiveness and market reach.
<b>Demographics of production sector</b>	Demographics affect long-term supply capacity and investments made to build supply capacity. A sector with many older operators, such as in cow-calf operations, may not invest as much as a sector with different operator demographics. This also involves continuous learning, sharing best practices, and succession planning.

#### 4. SUPPLY CAPACITY

<b>Critical mass of supply offering by market (reliable supply)</b>	Effectively delivering beef to consumer markets requires sufficient critical mass to continuously supply market needs. A supply chain must deliver the necessary volumes to retail and food service customers to allow for featuring without fear of not having enough supply. This critical mass applies also to capturing sufficient value for by-products to enable maximization of beef carcass values for the benefit of the supply chain. Horizontal alliances – a collaborative pursuit – are one way to create the necessary critical mass.
<b>Enabling regulations and inspection</b>	Regulations can have a significant impact on supply capacity and the ability to compete. Regulations that codify voluntary industry standards ensure a consistent supply offering that is understood by all buyers. Slower regulatory approval of inputs can result in a competitive disadvantage on supply chain costs. Regulatory impacts can be identified in the context of the net impact on the supply chain as a whole. While each segment of the supply chain can face unique regulatory issues, the repercussions can affect the prospects of others across the supply chain.
<b>Inter-provincial rules</b>	Smaller provincially-inspected processing operations that are able to access markets in other provinces can generate necessary scale for profitably serving specialty niche market opportunities. National standards and labour mobility can help build or affect necessary supply capacity.
<b>Risk management tools/programs</b>	Each stage of the supply chain faces unique risks, with some common risks being faced by the whole supply chain. Access to risk management and mitigation tools and innovative risk management programs lowers overall supply chain costs and helps maintain supply capacity. A number of components in this Roadmap relate to risk; e.g., adherence to industry protocols (e.g., food safety, animal care and environmental stewardship) can lower risks facing the sector.
<b>Financial services/capital</b>	Capital is a supply-chain-wide consideration. With respect to beef production (with its lengthy production cycle), whether as an operating line of credit as beef is produced, or as longer term debt associated with reinvestment and capacity building, capital is a necessary input. Supply capacity can be severely constrained with limited access to capital and/or the high cost of capital.

## APPENDIX J: Organizations Consulted

In the process of preparing this report, the following organizations were interviewed, mainly in the fall of 2011.

Note: Multiple interviews conducted with some organizations; names of some organizations withheld for purposes of confidentiality.

Agriculture and Agri-Food Canada	Canadian Obesity Network
Alberta Agriculture and Rural Development	First Nations Agricultural Lending Association
Alberta Cattle Feeders' Association	Genome Prairie
Alberta Food Processing Development Center	GSI Canada
Alberta Innovates Bio Solutions	Manitoba Agriculture, Food and Rural Initiatives
Alberta Livestock and Meat Agency	National Cattle Feeders' Association
Atlantic Beef Products Inc.	Ontario Cattlemen's Association
Atlantic Stockyards	Ontario Corn Fed Beef
Beeflink	Prince Edward Island Agriculture and Forestry
British Columbia Cattlemen's Association	Retail Council of Canada
Canada Beef Inc.	University of Alberta
Canadian Animal Health Institute	University of Guelph
Canadian Angus Association	University of Saskatchewan
Canada Beef Advantage	Plus 4 other beef producers
Canadian Cattlemen's Association	Plus 5 other beef processors
Canadian Federation of Independent Grocers	Plus 6 other retailers
Canadian Food Inspection Agency	Plus 3 food services providers
Canadian Livestock Genetics Association	Plus 4 other stakeholders
Canadian Meat Council	

As well, CAPI and its consultants made presentations on its unfolding work to many key stakeholders in 2011 and between January and March of 2012.

### **Presentations made to Beef Value Chain Roundtable**

(Presentations were made to the following participants of the Beef Value Chain Roundtable at meetings in September 2011, January 2012, and March 2012).

Agriculture and Agri-Food Canada  
Alberta Agriculture and Rural Development  
Alberta Beef Producers  
Alberta Forage Industry Network  
Alberta Livestock and Meat Agency  
Beef Improvement Ontario  
Canada Beef Inc.  
Canadian Beef Breeds Council  
Canadian Cattle Identification Agency  
Canadian Cattlemen's Association  
Canadian Food Inspection Agency  
Canadian Livestock Genetics Association  
Canadian Meat Council  
Canadian Renderers Association  
Canadian Veal Association  
Cargill Canada  
Cattlemen's Young Leaders  
Colbex-Levinoff

Dairy Farmers of Canada  
Department of Foreign Affairs and International Trade  
Fédérations des producteurs de bovins du Québec  
Manitoba Beef Producers  
Manitoba Agriculture, Food and Rural Initiatives  
National Cattle Feeders' Association  
Ontario Cattlemen's Association  
Ontario Ministry of Agriculture, Food and Rural Affairs  
Retail Ready Foods  
Saskatchewan Ministry of Agriculture  
Saskatchewan Cattle Feeders  
Sobeys  
University of Alberta  
XL Foods

## Additional Presentations and Consultations (December 2011 – March 2012)

(Consultations may have included multiple people as part of board of directors and association committees (often with representative members from across industry or the sector))

Agriculture and Agri-Food Canada	Local Food Plus
Alberta Agriculture and Rural Development	Maple Leaf Bio-Concepts
Alberta Beef Producers	McGill University
Alberta Innovates Bio Solutions	National Cattle Feeders' Association
Alberta Livestock and Meat Agency	Ontario Cattlemen's Association
Bennett Jones	Ontario Ministry of Agriculture, Food and Rural Affairs
BC Cattlemen's Association	Public Health Agency of Canada
BC Department of Agriculture	Retail Council of Canada
BC Food Processors Association	Saskatchewan Cattlemen's Association
Bioniche LifeSciences	Saskatchewan Ministry of Agriculture
BIOTECanada	The Canadian Coalition for Green Health Care
Canada Beef Inc.	Union des producteurs agricoles
Canadian Angus Association	University of Saskatchewan
Canadian Federation of Agriculture	University of Toronto
Canadian Food Inspection Agency	University of Victoria
Canadian Food Safety Alliance	Vancouver Food Policy Council
Canadian Meat Council	
Canadian Restaurant and Foodservices Association	Financial institutions: 2
Food and Consumer Products of Canada	Processors: 4
Granite Strategic	Restaurants & food service providers: 3
GSI Canada	Retailers (grocery): 3
Livestock Gentec	Technology services: 1

CAP1 appreciated the opportunity to share its evolving work with producer association executives, boards of directors or committees and representatives of their members, other representative associations, companies, government departments and a diverse array of other stakeholders and organizations, including the Beef Value Chain Roundtable on three separate occasions. The dialogue and feedback was invaluable.

## APPENDIX K: Acknowledgements

The following members of the Beef Case Study Steering Committee provided guidance on this project:

Rory Francis, Executive Director, PEI BioAlliance; CAPI Board of Directors

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