Local Food Supply Chains in Alberta: Case Studies from the Saskatoon, Potato and Lamb Sectors

FINAL REPORT

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Growing Forward
A federal-provincial-territorial initiative

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EXECUTIVE SUMMARY

Demand for locally produced food is increasing in Alberta. Consumers wish to support their local farmers and local communities while obtaining fresh and healthy products. Little is known about the constraints and challenges local producers face in providing this for the province. Alberta Agriculture and Rural Development (ARD) commissioned this study to provide a broad picture of the market potential in various local food supply chains within the province.

This exploratory study examines various aspects of local food supply chains in Alberta, as exemplified by saskatoons, potatoes and lamb. For each product we considered mainstream supply chains that sell to major retail outlets, intermediated supply chains that involve intermediaries such as buying clubs, bakeries, restaurants or other businesses that sell to consumers, and direct supply chains where the producer sells directly to the consumer.

Table 1[a]. Description of case studies by product and supply chain

Product	Direct	Intermediated	Mainstream
Saskatoons	Zanders Berry Farm U-pick, farm gate and farmers' market sales	Reed Farm Stellar Saskatoons Winery/meadery, bakeries and restaurant sales	Searle Family Farm Sales to mainstream processors outside the province
Table potatoes	Kitt Family Farm Farmers' markets, and farm gate sales	Miller's Market Garden Consumer buying club, and restaurant sales	Wiley Potatoes Sales through an aggregator to wholesaler to mainstream grocery shelves
Lamb	Pederson Family Farm Sales directly to consumer	Rolling Hills Family Farm Sales to restaurants	Albers Family Farm Sales through a feedlot to processor who sells to mainstream grocery stores

Interviews of producers and their supply chains, as well as secondary data from the sectors, describe the movement of food from farms to consumers in nine supply chains. Case studies highlight differences in the producer share, the food miles and the fuel efficiency of various supply chains, as well as the challenges and benefits to producers and the benefits to the local communities they support. The report provides valuable

[a] This table repeats as Table 2 in the Introduction

insights into the drivers, structure, relationships, economic impact, and overall functioning of mainstream, intermediated and direct supply chains in the province.

Findings

Saskatoons

Many believe the saskatoon industry has great potential, despite its relatively underdeveloped state at the moment. The fruit has marked nutritional benefits; consumption is slowly rising. Alberta is the largest producer of saskatoons in Canada. Most saskatoon farms sell directly to consumers through U-picks, farm gate sales or farmers' markets. Significant processing facilities are not available in Alberta; commercial processing is done in Saskatchewan or British Columbia.

The saskatoon producers in this case study that sell into mainstream processing markets receive a lower price, both in absolute terms and in terms of percentage of the wholesale price, than do intermediated producers. Producers selling direct to customers and those selling to an intermediate business receive similar prices.

Food miles were least for the direct supply chain, and greatest for the mainstream supply chain. Similarly, fuel use per unit of product was highest in the mainstream and lowest in the direct supply chain. Profitability was a concern for all saskatoon producers, though they maintained that there was market potential in the fruit. Saskatoon growers in Alberta are fiercely independent, which does not contribute to building shared sector infrastructure.

Table potatoes

Although potato consumption has been declining in Canada there are suggestions that trends may be changing, with an increase in consumption in 2009. Table potatoes represent a small portion of the potato acres in Alberta, with most potatoes grown for seed or processing. Most potato producers who market directly to consumers sell a variety of vegetables. Table potatoes are sold on the open market; there is no central marketing agency in the province.

The producer selling through the intermediated supply chain received the highest price per pound and the highest percentage of the consumer's dollar. Both the direct and intermediated producer mentioned that the profit was low to negative on potatoes.

Food miles were highest in the mainstream and least in the intermediated supply chain. The direct supply chain used more food miles than the intermediated supply chain, but also delivered far more product. The direct supply chain was the most fuel efficient, followed by the mainstream supply chain; both were moving large volumes of product. Compared to processing potatoes, table potatoes are the least profitable type to grow, partly because of the varieties used, partly due to the grading standard, and partly due to strong competition from outside the region. For the direct and intermediated supply

chains, potatoes were seen as a necessary crop, whether profitable or not, because of the expectation of consumers to be able to buy potatoes where they buy other vegetables.

Lamb

Demand for lamb is growing in Alberta, due to increased immigration, and increasingly diverse palates. Alberta is the third largest producer of lamb in Canada, but only meets 40 to 50 percent of its demand. Lamb is an easy animal to manage. Most lamb producers maintain a breeding flock of ewes, and raise lambs on pasture until fall. Most lambs are sold at auction, to a major feedlot or to a processor. There is only one federally approved processor for sheep in the province. A smaller number of producers finish their animals, have them processed at provincially approved abattoirs and sell them directly to consumers or restaurants.

The prices paid to lamb producers in the direct and intermediated supply chains were similar. In the mainstream supply chain that amount was split between the primary producer and the feedlot operator. Mark up was significant in the supply chain that involved restaurants; these were highly value added products by the time of sale to the consumer.

The intermediated and mainstream supply chains had similar fuel efficiencies, having both captured economies of scale. The direct producer had markedly poorer fuel efficiency, due to long distances and low volume.

Major lamb production challenges include coyote predation and limited grazing due to drought. Market challenges included the cost of fuel, shortage of qualified labour, and the down turn in markets due to the economic recession. Profitability was not mentioned by any of the lamb producers as a major concern, though the mainstream producer did explain how he negotiated with his buyers to assure he met his financial needs.

Cross Product Comparisons

All producers contributed to the local rural economy across all the products and supply chains. The producers source products, share labour and acquire services in their regions. Direct and intermediated supply chains sell primarily within their region.

Producers in direct market chains carry out a variety of activities besides production including post harvest handling and storage, marketing and distribution. All our direct marketers used more than a single market to diversify market risks and maximize return. Producers have strong linkages with consumers, and with their local communities.

Intermediated supply chains were also diverse, with producers perhaps even more closely connected with their customers. In all the businesses, sales grew by word of

mouth marketing. Reputation for quality product and quality service was crucial. For both the cases of saskatoons and potatoes, the intermediated supply chain provided the greatest producer share of the consumer price. Of the lamb supply chains, the intermediated producer received the highest price per lamb animal. For the saskatoon and lamb supply chains, the intermediated was a supply chain for more value added product. These findings may suggest that intermediated supply chains are often formed for value added products, which provide the greatest value for supply chains and / or for producers.

The mainstream producers engage in fewer supply chain functions than in other market supply chains. Operations tend to be larger and diversified. Mainstream supply chains are most highly influenced by national and even international commodity markets. Sales volumes are generally high. Food miles were highest in mainstream supply chains, but economies of scale frequently resulted in higher fuel efficiency.

Key Findings

- ✓ The potential for saskatoons is high, especially for value-added products; however, processing infrastructure is outside the province.
- ✓ Table potato is a keystone product, but not a reliable money maker.
- ✓ Demand exceeds supply for lamb; scale up requires both more volume and consistent high quality.
- ✓ Direct supply chains provide entrepreneurial opportunities, and allow for more control over operations. Food miles are low, but fuel efficiency may not be high.
- ✓ Intermediated supply chains can be highly dependent on relationships and a high quality differentiated product.
- ✓ Mainstream supply chains provide high volume, and in most circumstances delivered the lowest consumer pricing. Producers have little control over their gross receipts.
- ✓ Profitability is situational. In most cases, success was dependent on a good economic situation and sometimes a differentiated product or service.
- ✓ Local businesses bring benefit to the community in a variety of economic and social functions.
- ✓ Economies of scale improved the fuel efficiency when large volumes of product were transported.
- ✓ No one supply chain provided a clear advantage. Producers were likely to use different supply chains at different stages of their operation, and to use multiple supply chains at a time. The success of a supply chain was dependent on location, opportunity, commitment and potential increase in net return.
- ✓ Supply chains developed into value chains when participants were highly committed to the relationship (for definitions see page 11 or 81).

INTRODUCTION

Demand for locally produced food in Alberta is undoubtedly rising. Consumers are flocking to farmers' markets; local food items are increasingly popular on restaurant menus; and people are increasingly interested in the story behind their food: where it was grown, who grew it, and the values behind it. As this demand grows, it provides pull in the marketplace, which results in the development of a local market and the infrastructure to supply it. Both farmer and consumer do well when the infrastructure and the demand grow in concert.

Development of local market infrastructure often lags behind public demand. Not enough producers are willing to market locally; when they do, they lack the ability to consistently produce and store adequate volume and quality. Distribution can be difficult as production increases to meet a dispersed demand.

Alberta Agriculture and Rural Development (ARD) is working to encourage the development of infrastructure to help producers service local markets. The first step is in understanding what is already in place. Under the *Explore Local* initiative, ARD commissioned a pilot project (Lipton and Spyce, 2011) to examine existing supply chains in differentiated beef. In the pilot project, Becky Lipton and Tera Spyce (2011) provided a significant snap shot of the existing supply chains for this product. ARD commissioned the current study to provide a broader picture of the potentials in the supply chains for three different commodities. With these products, we are able to examine cross product trends as well as trends within each sector. These Alberta studies parallel a landmark study conducted in five American cities, on five different commodities (King et al., 2010).

For each of the products examined in this study, we focus on three metrics relevant to the local food movement: the producer share of the consumer price, food miles, and economic benefits to the regional area.

A case study methodology was chosen in keeping with previous studies, because it allows an in depth, multi-perspective approach that best extracts meaningful new insights. The interview subjects provided a wealth of information, highlighting their motivations, challenges and relationships within their communities.

Research Parameters

For the purpose of this report, we will define the term 'local' as within Alberta. We consider a product to be part of a local food chain if it **is grown or raised in Alberta and consumed by Albertans**. In some instances, portions of the food chain may exist outside of the province. For instance, because no provincial processor exists for saskatoons in Alberta, berries may be grown in Alberta, processed in Saskatchewan with Saskatchewan product and then sold in Alberta retail outlets. Similarly, sheep from

Alberta, Saskatchewan, British Columbia and Manitoba may all end up together in an Alberta feedlot, destined eventually for grocery stores in Alberta and elsewhere. In these cases, we have considered the products to be local because significant portions of the supply chains exist in Alberta; they are both produced and consumed by Albertans.

Product Choice

We wanted our research to cover a diversity of products that included fruit, vegetable and meat categories. We chose saskatoons, table potatoes, and lamb because they showcase the options available to Alberta producers for each supply chain.

Saskatoon berries represent a fruit market that generally avoids direct competition from cheaper, earlier fruit products from the United States and British Columbia. The saskatoon market is still developing, with relatively few producers working on a comparatively small scale.

Table potatoes represent a year-round vegetable market. Currently, the majority of potatoes produced in Alberta are sold through the seed and processing markets. However, our preliminary scan suggested that market growth is possible for fresh table varieties.

Lamb was chosen as a growing livestock market that does not have the added complexity of supply management. Our initial scan of animal markets suggested that lamb represented a relatively accessible industry with current strong market demand.

Product Supply Chains

A supply chain includes all the players in a food chain that work to bring product to market. This may include the producer, processor, warehouse facility, distributor, retailer, etc. A researcher tracing a product from its origin on the farm to its destination on the consumer's plate examines all the links on the supply chain. In this project, we followed part of the supply chain, from production until the product left the producers' control. In some cases we were able to follow the product to the consumer.

A value chain is a type of supply chain where businesses in the chain work together to add value to a product and improve the benefits to each player. Often this value is in the form of improved communication, providing each link on the value chain with information that facilitates the passage of the product through the chain while developing higher value at each level.

In this study we use the terms direct, intermediated and mainstream to differentiate local food supply chains in Alberta.

Direct supply chains are characterized as those where the producer sells directly to the end consumer. Intermediated supply chains are those where the producer sells to an intermediary, such as a buying club, aggregator, restaurant, bakery, institution or other

businesses that sells to the consumer. Mainstream supply chains are those that involve major retail outlets where most people buy their groceries.

Saskatoons

Direct market supply chains for saskatoons in Alberta include producers who sell their product directly to consumers through U-pick operations, farm gate sales and/or farmers' markets. Larger saskatoon berry producers may supplement their farm direct sales by selling fresh or frozen berries into intermediated channels such as wineries, bakeries and restaurants. There is great interest in saskatoon berries from local chefs developing regional cuisine and experimenting with unique local food products. There are also market opportunities for larger-scale growers who can freeze their berries on farm and market the berries through mainstream supply channels to processors in British Columbia or Saskatchewan. Processors are generally turning berries into jams, jellies and syrups, but also into ice cream and other specialty products. Fresh saskatoons are not typically sold at retail, due to the extremely short shelf life of the fragile fruits.

Table Potatoes

The direct market chains for table potatoes in Alberta involve direct sales to customers at farmers ' markets, Community Shared Agriculture (CSA) programs or farm gate. Table potatoes moving through intermediated supply chains are marketed to consumers through food buying clubs, box schemes or to restaurants and the food service industry. Often, potatoes destined for the food service industry are pre-peeled, vacuum-sealed and chilled for immediate use. Potatoes sold through mainstream supply chains are marketed through potato packing facilities (aggregators), where they are washed, graded, packed into retail units and delivered to wholesale or retail customers and end up on mainstream grocery shelves. Some farms wash and pre-grade their product before delivering to aggregators.

Lamb

The direct marketing supply chains for lamb include small flock producers who sell freezer lamb directly to consumers or at farmers' markets. Producers in the intermediated supply chains sell to restaurants that feature local cuisine, butchers or specialty meat shops. Direct and intermediated supply chain producers often finish their lamb on farm and then have their lambs slaughtered and packed at a provincially inspected meat packing facility. In the mainstream supply chains small and large flock producers sell lambs to feedlots, either directly or through auction markets. The lambs are slaughtered at a federally inspected plant, and destined for mainstream retailers.

Table 2. Description of case studies by product and supply chain

Product	Direct	Intermediated	Mainstream
Saskatoons	Zanders Berry Farm U-pick, farm gate and farmers' market sales	Reed Farm Stellar Saskatoons Winery/meadery, bakeries and restaurant sales	Searle Family Farm Sales to mainstream processors outside the province
Table potatoes	Kitt Family Farm Farmers' markets, and farm gate sales	Miller's Market Garden Consumer buying club, and restaurant sales	Wiley Potatoes Sales through an aggregator to wholesaler to mainstream grocery shelves
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Research Questions

Several research questions were selected for this study. The questions are based on those used in the United States Department of Agriculture (USDA) study, and then later in this study's pilot project (Lipton and Spyce, 2011), but have been adapted to meet the particular focus of this project. The questions explored in this research are:

- ✓ What structures and business connections/relationships exist in local food supply chains and how do they compare between the chains (direct, intermediated and mainstream)?
- ✓ How do local food supply chains interact with and benefit the regional economy?
- ✓ What are the environmental impacts related to fuel use and food miles of local food supply chains, and how do they compare amongst each other?
- ✓ What is the producer share for each supply chain and the share of each component of each supply chain (producer, processor, distributor, retailer)?
- ✓ What are the constraints that impact profitability and how do market advantages specific to local supply chains affect the development and profitability of the chain?

METHODOLOGY

The study was comprised of three phases.

Phase 1: Industry Review and FOIP

The first phase consisted of a general investigation of the possible product types and supply chains that could be chosen for the study. We researched websites, interviewed ARD staff with responsibility for different products and talked to industry leaders in those sectors. We proposed specific products and received tentative approval from the steering committee for the products.

During the early weeks of the project we reviewed the interview questions used by the pilot project and updated them to meet our needs in the different sectors. We developed informed consent forms and interview guides, which were approved by both the Freedom of Information and Protection of Privacy (FOIP) office and by the Assistant Deputy Minister for Alberta Agriculture and Rural Development, Jason Krips (Appendix A to Appendix D).

Phase 2: Interviews

Interviews were conducted in phase two. Interviews lasting one to three hours were completed with producers in each supply chain. Most interviews were conducted over the phone; one was done in person. Short, informal interviews were also conducted with industry representatives, processors, aggregators and retailers in the various supply chains for each product.

Interview subjects provided information to us in confidence. We have used pseudonyms and have generalized identifying attributes, such as locations, to provide anonymity to participants and their supply chains. In instances where the sector was sufficiently small or underdeveloped, or where very few individuals played major roles, some participants felt that their identity could not be well hidden. In this situation, we discussed the possibility of non-anonymity with the producer and only proceeded with the interview with their approval. For all studies, producers approved the presentation of all of the information that related specifically to them.

In phase two we continued secondary research, examining websites and articles relevant to the study, as well as observing each of the three products in their retail locations (i.e. farmers' markets, restaurants and grocery stores) in order to determine their availability and prices.

Phase 3: Analyses and Reporting

In phase three we conducted in-depth numerical and qualitative analyses of the three supply chains and wrote this final report. The data were analyzed based on the following parameters: cross comparison between the three supply chains (direct, intermediated,

mainstream) for each of the three products; economic share within the supply chain with a focus on producer share; food miles and fuel consumption; local economic impact; and impact of supply chains on business including growth and profitability, constraints and challenges.

An earlier draft was submitted to Alberta Agriculture and Rural Development, and was reviewed by Mimi Lee, Karen Goad and Eileen Kotowich.

ANALYSIS OF ECONOMIC AND ENVIRONMENTAL IMPACT

Economic Impact of Local Food

At a time of drastically reduced farm income both in the province and nationwide, local food systems look to be an economically viable alternative to generate much-needed income for producers (Irshad, 2011). More direct economic information about the impact of local food and locally directed consumer spending in Alberta is needed. When consumers purchase non-local food the result is economic leakage, where the majority of that money leaves the community. Conversely, when consumers purchase locally produced food, more of those dollars are retained by local producers, input providers, processors, distributors, and retailers; that money then circulates within the local economy, creating a local multiplier effect (Sonntag, 2000). For example, a study in the Waterloo Region of Ontario found that every job in the agriculture sector creates two to four jobs, and every dollar of farm income generates an additional $2.40 to $3.00 in the region (Harry Cummings and Associates, 2003; Sonntag, 2000). For this reason, even a 20 per cent increase in spending at farmers' markets, could be worth millions of dollars to a local economy (Lipton and Spyce, 2011). Economic development programs often focus on service and infrastructure investments in urban centres; supporting rural agricultural communities can give rise to even greater, more sustainable economic benefits (Harry Cummings and Associates, 2003).

During the first three years of the Dine Alberta program an estimated $3 million was injected into the Alberta economy and local producers and processors realized almost $1 million in sales of local ingredients as a result (Dine Alberta, 2007). Farmers' markets are the number one tourist attraction in the province and farm or ranch activities had an estimated market value of $62 million in 2008 (Infact Research, 2008). In 2008 the total value of the province's alternative agricultural markets (farmers' markets (excluding crafts), farm retail and farm activities) was $623 million (Infact Research, 2008).

Locally directed spending is also seen to strengthen the linkages in a community; it fosters cooperation and information sharing, which leads to a more sustainable, adaptable and resilient local economy. Local food systems foster relationships and linkages between a community's resources and needs in ways that are unique to that system. Furthermore, it reflects an ideological shift in the goals, strategies and practices of conducting food business (Sonntag, 2000). For example, farmers' markets and CSAs create unique spaces for community interaction. It has been shown that such spaces are more social than supermarkets and consumers often shop at these spaces intentionally in order to interact more freely with other shoppers and vendors. Direct marketing builds personal relationships between consumers and producers such that each cares about the interests of the other (McGrath et al., 1993; Sommer et al., 1981). In fact, it has been shown that producers and consumers view their direct relationship as one of the main reasons why they chose to participate in local food systems (Irshad, 2011).

Above all, local food sourcing strengthens food security. Proponents of food security initiatives have recognized that protecting and preserving critical farmland and the knowledge base necessary for the sustainable production of food is key to achieving long term food security. By fostering a stronger connection between consumers and the origin of their food, local sourcing places control of, and responsibility for, environmental stewardship in the hands of the nearby community.

Food Miles and Fuel Usage

One of the defining characteristics of local food is what is termed "food miles", or the distance food travels from production to final purchase (Pirog, 2001). Generally, it is believed that the food miles for local food supply chains are lower than that of other food systems because they involve less travel from producers to consumers; for example, the conventional food trade often imports many of the same foods it in fact exports, creating redundancies in many areas (Irshad, 2011).

Food miles are often used as a tool for understanding the environmental impact of a product; however, to read it as a calculation of a food's carbon footprint is an oversimplification. This is true because firstly, transportation is only one part of a product's life cycle that makes up its total environmental impact. Production, packaging and marketing also contribute substantially to a food's energy consumption (Hayashi et al., 2005). It has been shown that in North America, transportation emissions may be responsible for only 11 per cent of total food-related greenhouse gas emissions (Weber & Matthews, 2008; Hendrickson, 1997). Food production systems themselves can have a larger effect on a food product's overall carbon footprint than transportation distance (Edward-Jones et al., 2008; Canals et al., 2007; Weber & Matthews, 2008). For example, crops grown under organic production systems have generally been shown to be more energy efficient than conventional crops, primarily because they do not bear the energy cost of synthetic fertilizers (Lynch et al. 2010). Dietary choices/crops grown also have a great environmental impact, as livestock production is far more environmentally intensive than fruit and vegetable production (Irshad, 2011).

To determine a more accurate measure of the carbon footprint of the foods in our supply chains during transportation we have also included an analysis of the fuel economy of each kilogram of product transported, rather than just examining food miles alone. We have chosen this approach because the quantity of product shipped and the fuel efficiency of the vehicle used play an additionally important role in the carbon footprint of a food during transportation. We have calculated the food miles of the three supply chains by determining the total amount of fuel used to travel the distance from point A to point B, and then divided this by the total kilograms of product shipped over that distance.

UNDERSTANDING THE ALBERTA CONTEXT

Local Food Production & Demand

The Alberta local food situation was reviewed by Lipton and Spyce (2011) in their pilot project. Very little has changed between the writing of that document and this. The following section draws heavily on the information provided by that report.

The demand for local food in Alberta is widespread and continuing to grow. A survey conducted by ARD (Infact Research, 2008) showed that 90 per cent of Alberta households purchased local food (defined as food grown/produced in Alberta) in 2008 and about one-third of the households said they intend to increase their local food consumption in the future. The study found that when households were asked where they had purchased local food in the past 12 months, their primary source was at supermarkets (56% of respondents). They also purchased local food from farmers' markets (45%), farm retail channels (15%), small grocery stores, (11%), CSA and food box programs.

The ARD (Infact Research, 2008) study determined that consumers in Alberta are choosing local food because they feel that it is healthier, fresher and better tasting. Local food is thought to have less environmental impact; consumers believe this food has been produced using less herbicide, pesticides, and other chemicals and travels fewer miles than non-local food. Albertans are also consciously making local food purchases as a means of supporting the regional economy and/or local farmers. In addition, many consumers believe that knowing the origin of their food, and the farmer who produced it, helps build trust and provides added assurance of safety and quality.

The growing interest in local food and local food producers can be seen in the popularity of farmers' markets and other local food related initiatives. There are more than 125 Alberta approved farmers' markets with more than 3,000 vendors, 1,500 that are agriculture and food vendors (E. Kotowich personal communication, March 27, 2012). The value of farmers' markets rose 63 per cent between 2004 and 2008, to an estimated $380 million and with a further $181 million resulting from farm gate or farm retail (Infact Research, 2008). The Alberta Farm Fresh Producers Association's (2011) *Come to Our Farms* 2011 guide lists close to 140 producers and markets that offer local food, activities, and U-pick opportunities. Other consumer driven websites and online networks such as Edmonton's Live Local (2011) service, the international Eat Well Guide (2011) and the Alberta 100 Mile Diet (2011) are portals connecting producers with consumers and encouraging people to eat, shop and buy local. There is increased development of infrastructure for food delivery box programs such as Eat Local First: Good Food Box (2011) and The Organic Box (2011) in Edmonton and the popular SPUDS (2011) in Calgary. The number of Community Supported Agriculture initiatives has also increased and there are now programs in Edmonton, Calgary, Red Deer, and numerous smaller locations across Alberta (Community Supported Agriculture in Alberta, 2011).

With the support of programs such as ARD's Dine Alberta, more than 100 restaurants, cooking schools, caterers and bistros are now offering local food on their menus year round (ARD, 2010a).

The business models found in local food distribution have become more complex, with an increase in sophistication and number of supply chain partners and larger in scale. An example of this is the shift that is occurring in the CSA model. In the traditional CSA model one farmer contracts with consumers to share production risks and the harvest. Although these traditional CSAs still exist, new models where farmers are working together or where a coordinator is brought in to manage the project are popping up. These new CSAs often offer more value added and diverse goods. Some also give the option for people to pay on a weekly basis and select the products and quantities they want. These models allow for greater flexibility and convenience for the customer. They also allow the distribution capacity of local food to grow. The impact on the farmer is both positive and negative. The farmer gains the ability to move more products while losing the risk sharing with the consumer that existed in the traditional format.

Consumer Constraints & Challenges

Although there is increased demand for local food, consumers in the ARD (Infact Research, 2008) survey identified a number of issues related to access, availability and affordability of local food in Alberta. In supermarkets where the majority of all food purchases are made, local food is often not available, is difficult to find and/or lacks distinctive local labelling indicating who produced it and where. Some consumers found that making a special trip to a farmers' market to buy local food inconvenient and cited location, parking, scheduling and traffic as major barriers. The seasonality of locally produced food and lack of year round variety limits purchases. Most consumers no longer buy products in bulk while they are abundant and preserve them for the winter. Nor are they willing to switch to a diet where produce consists solely of storage fruits and vegetables over the winter. They now expect fresh produce of all kinds all year long. For budget conscious shoppers, the perceived higher cost of local food is an additional deterrent.

Producer Constraints & Challenges

Little is known about the specific constraints and challenges facing local food producers in the province. Research in other regions has identified several factors that are limiting producers in the various supply chains. Martinez et al. (2010) found that the majority of farmers involved in farm direct sales have small to mid-size operations and have limited production capacity, post harvest infrastructure and access to mainstream markets. In order to sell their products, farmers selling direct assume the marketing, processing, packaging and distribution responsibilities that are typically handled by intermediaries in the mainstream system. This strategy can generate higher returns per kilogram and an opportunity to develop important social relationships with their customers but the effort involved reduces the amount of time and labour that can be dedicated to

production. This is especially true for many farmers who must also work off-farm to supplement their incomes.

For farmers with small and mid-sized operations, who attempt to sell their local products to restaurants, institutional procurement programs and mainstream grocery outlets, there are additional barriers. Major food retailers are streamlining their supply chains and making it more difficult for small producers to gain market access (Conference Board of Canada, 2010). Local producers are often unable to meet the volume, packaging and delivery requirements of these markets and there is a lack of aggregation, processing and distribution centres that would enable a group of such producers to pool their products to consistently supply larger outlets. Different small producers may have different related products (e.g. varieties, sizes, qualities), making pooling difficult. In addition, food safety and regulatory requirements may be prohibitive to many of these small independent producers (Carter-Whitney, 2009).

These findings are confirmed by a recent pilot project for Local Food Best Practices in central Alberta. This project (Faye, 2011) determined that overall, producers felt the marketing and branding aspects of their operation to be overwhelming, and that they would benefit from resources to assist them. Such resources could allow producers to focus more of their time back into the production end of their operations. Additionally, producers in this study felt that support in the forms of information transfer, education, mentoring and simplification of policy or regulatory hurdles would help them to build networks and collaborations that, in turn, could help them improve their bottom line, through gained efficiencies or greater market access.

Another challenge to producers in Alberta is growth management (Faye, 2011). For example, the pilot project to this study (Lipton and Spyce, 2011) found that differentiated beef producers found it difficult to be flexible and adjust their herd sizes to the changing production capacity of the land, while also managing costs, planning for the future and preparing for the unexpected. Nonetheless, they felt that it was vital to be flexible and ready to adjust their approach in order to compensate for changing conditions and to take advantage of opportunities. Similarly, most horticulture crop operations need major infrastructure upgrades to manage expansion. They may need additional markets and infrastructure (storage and processing) for culled crop and for crops when contracts fall through. The cost effectiveness of building infrastructure, plus the increased demand for labour tend to stifle growth.

Constraints & Challenges for Intermediaries and Buyers

The Local Food Best Practices pilot project (Faye, 2011) also provides insight into the perceptions of and challenges to local food among Alberta stakeholders involved in distributing food from producers to consumers. These stakeholders include commercial buyers, aggregators and logistical support workers (transportation and storage).

While restaurants were motivated to buy local food because of the products' perceived high quality and uniqueness, ethical benefit to local economies and strong consumer demand, they faced a number of buying challenges. Purchasing local food was found to be confusing and time consuming because of the effort necessary to coordinate a number of small deliveries. They also found purchasing local food expensive due to the rebates offered by large food service companies selling multiple products in bulk. Additionally, there was a lack of awareness about what products were available and where to source them. Lastly, buyers held concerns about inconsistency in food quality or safety as well as accompanying services such as delivery.

Logistics companies such as transportation carriers and storage facilities also cited small distribution quantities and a lack of coordination as challenges to moving local foods from producers to buyers. Ultimately, this study found that Alberta's current distribution system is not conducive to the movement of multiple units of small products. They determined that greater collaboration, networking and information sharing is needed within and amongst each of the stakeholder groups (i.e., buyers, logistics companies and producers) in order for local food systems to grow.

OVERVIEW OF SASKATOON BERRY MARKETS

General trends across Canada

Saskatoon berries are deeply rooted in the history of western Canada, playing a traditional role in the food gathering of Plains Aboriginals and later, prairie settlers. Historically, saskatoons were picked wild and added to other foods to make products like pemmican and bannock, or crushed into preserves, jams and wines. A significant prairie tradition still revolves around saskatoon berry picking. As settlers established their farms, they also began to cultivate berries in orchards. The prairie provinces produce the majority of the saskatoon berries in Canada. Alberta and Saskatchewan hold the largest acreage of the fruit in the country, together representing 80 per cent of its production (Manitoba Fruit Industry Development Program, 2008). Presently, saskatoons are gaining recognition as a 'superfruit' containing high levels of antioxidants and therefore numerous positive benefits for health (Neeser, 2010).

Despite its celebrated history, the saskatoon industry remains relatively underdeveloped; saskatoon berries are relatively unknown outside of Canada's prairie provinces and the industry is populated by small acreage, hobbyist and retirement growers and possesses few packers or processors. There are about 900 saskatoon berry producers in Canada who generate approximately $8.5 million annually (Saskatoon Berry Council of Canada, 2010).

Nonetheless, many believe that the industry holds great potential. The potential for success in saskatoons is often compared to that of blueberries. Saskatoons are used in similar food products (such as baking, toppings and juices) and share similar nutritional benefits. Berry consumption has been increasing over the past 10 years and is projected to continue to grow in the future (Serecon, 2005). These trends are driven by an increasingly health conscious public and by demand from processors in the bakery and dairy sectors. Continued positive publicity and berry industry promotions that highlight the health benefits of these fruits are anticipated to strengthen sales in the future (Manitoba Fruit Industry Development Program, 2008). The recently formed Saskatoon Berry Council of Canada is actively working towards this end by developing an industry strategy to market saskatoon berries outside western Canada. They intend to generate enthusiasm and interest in the product by marketing its health benefits across the country (Saskatoon Berry Council of Canada, 2010). The Council recently produced a landmark report (not yet publicly available) assessing the state of the industry and recommending strategies for moving it forward.

Overview of Saskatoon Berry Markets in Alberta

Commercial saskatoon orchards have been operating in Alberta since the early 1970s (Faye, 2001; Manitoba Fruit Industry Development Program, 2008). In 1981 the Crop Diversification Centre South adapted an over-the-row blueberry harvester to

saskatoons, and lent it and bush fruit cleaning equipment for saskatoons to producers. This was instrumental in developing the commercial saskatoon industry in the province (ARD, 2008a). Today, saskatoon berries represent the greatest acreage of small fruit crops produced in Alberta (Manitoba Fruit Industry Development Program, 2008). Common saskatoon varieties include Smokey, Northline, Thiessen and Honeywood (ARD, 2008b).

Alberta is the largest producer of saskatoons in Canada, growing approximately 44 per cent of the country's production. In 2009, there were approximately 1,650 acres of cultivated saskatoon bushes in the province, of which 1,300 acres were in production (Spencer, 2011). The average yield for saskatoon crops under good conditions is 2,000 to 4,000 pounds per acre. Alberta markets at least 345,000 pounds of berries each year (ARD, 2008b).

Saskatoons begin to produce fruit four to six years after planting and are considered to be in peak production during the seventh to tenth growing seasons. A 2008 report by ARD (Faye, 2008) estimated that due to this extended juvenile stage of saskatoon growth, profitability is first achieved approximately six years after planting. Nonetheless, saskatoon berry operations are a viable opportunity for producers looking for farm and crop diversification, particularly when they are used in conjunction with other business ventures, which can absorb their initial startup costs. Other common challenges include pests and diseases (particularly *Entomosporium* leaf and berry spot), poor weather conditions, finding farm labour and high costs for specialized harvest equipment.

The post harvest handling and storage of saskatoons can also be a challenge because berries have a high sensitivity to damage and decay from handling. The following factors have been found to decrease the shelf life of saskatoon berries: 1) excessive use of nitrogen fertilizer; 2) an excess of water; 3) fruit damage resulting in cracks and abrasion allowing access by disease-causing organisms; 4) fruit picked prior to optimal maturity; and 5) long delays between harvesting and storage. Producers can maintain the quality of their fruit by appropriately timing their harvest, minimizing bruising and handling, harvesting early in the day to minimize field heat, cooling the fruit as quickly as possible and transporting the harvested crop to market as quickly as possible (St-Pierre, 2006).

A 2001 ARD survey of saskatoon producers in the province (Faye, 2001) determined that growth of the saskatoon industry in the province would depend on managing increasing volumes of fruit and developing infrastructures for storage, handling and processing, while still ensuring a high quality product. The issues brought up by this study are very much applicable today, and directly address the challenges facing commercial growers. The report recommends that commercial marketing strategies be developed to promote awareness of the product and to direct communication and networking between growers, associations, governments, and researchers. A more formalized marketing strategy is also necessary to strengthen growers' market power and attract larger buyers. Such a system would help ensure a more constant supply of berries, build buyer

confidence in the industry, keep it competitive and stabilize prices. This could include establishing provincial processing facilities, grower cooperatives and/or a "check off" system. This system requires verification of operations to sector standards in the areas of chemical use, cleaning, freezing and storage to ensure a consistent high quality product.

The Case Studies – Frozen Saskatoon Berries

For the purposes of the study, we have chosen to focus solely on frozen saskatoon berries since only frozen berries are sold through all three of the supply chains – direct, intermediated and mainstream. Fresh berries have a very short shelf life and are not normally sold in mainstream retail outlets in Alberta.

We were not able to follow frozen saskatoon berries from Alberta into mainstream processing markets. Producers typically sold frozen saskatoons into the mainstream processing market as ingredients for processed products such as fruit spreads, fruit toppings and syrups. These are sold by mainstream retailers in Alberta and throughout Canada. Alberta grown frozen saskatoon berries destined for mainstream markets are shipped to federally inspected processing plants located in Saskatchewan and British Columbia.

One processor in Alberta currently produces saskatoon berry juice sold in specialty stores. One retail chain in the prairie provinces sells frozen saskatoons packaged in 300 gram containers; these berries are reportedly sourced from Saskatchewan.

Zanders Berry Farm - Direct Supply Chain

Rob and Donna Zanders have been growing and selling saskatoon berries at their U-pick and farm kiosk to vacationers and local residents since 2004. Saskatoons are the main offering from their small but diversified market garden. The Zanders purchased their 20 acre farm in central Alberta as an early retirement project in 1997 and planted seven acres of saskatoons, two acres of other berries, and one acre of mixed vegetables. The remaining 10 acres of their land is untouched native bush − home to wildlife, insects and wildflowers, which are enjoyed by their farm's visitors. The Zanders Berry Farm is located 60 kilometres from a major centre, in an area frequented by summer vacationers.

The Zanders sell 70 per cent of their berries as fresh, 25 per cent as frozen and 5 per cent as value-added products in the form of fruit spreads, syrups, pies and other desserts made in their licensed on-farm kitchen. Thirty per cent of their fresh berry sales are from their U-pick operation, 30 per cent from their on-farm kiosk, and 40 per cent from two farmers' markets which they joined in 2008. They sell the 25 per cent of frozen berries at the on-farm kiosk and the remainder from their farm during the winter

months; they do not sell frozen berries at the farmers' markets. They typically run out of frozen berries by February.

The Zanders planted three varieties of saskatoons in distinct areas of the farm with the intent of extending their berry harvest season from the usual two to three weeks to five to six weeks (starting in mid-July to the end of August). They have since achieved a staggered harvest which allows them to manage their labour more efficiently and spread their sales of fresh berries over a longer period on the farm and at the farmers' markets. They purchased the original planting stock from a local nursery and now propagate their own to replace plants damaged by wildlife.

Rob and Donna currently run a low tech operation. They pick their berries by hand in 15 pound plastic U-pick pails with the help of seasonal workers. They take care to pick only premium quality berries, ready for eating. Once picked, the berry pails are placed in the pickup truck and are quickly brought to the berry building where they are manually sorted and cleaned, then split into 2.5 pound bags and five pound pails, which are placed in upright double door coolers to remove field heat. Once cooled, a portion of the berries are frozen in 5 pound and 15 pound pails in the chest freezers. The quantities of each pack size are based on expected sales and available freezer space. They try to sell as many fresh berries as possible.

Zanders Berry Farm has a loyal clientele for their fresh markets. Vacationers return year after year to purchase their products and to enjoy the farm experience. The Zanders take care of their U-pickers and visitors by providing grassy areas in the orchard, portable washing stations, washrooms and picnic tables. They will even drive the less mobile folks through the orchard in a golf cart.

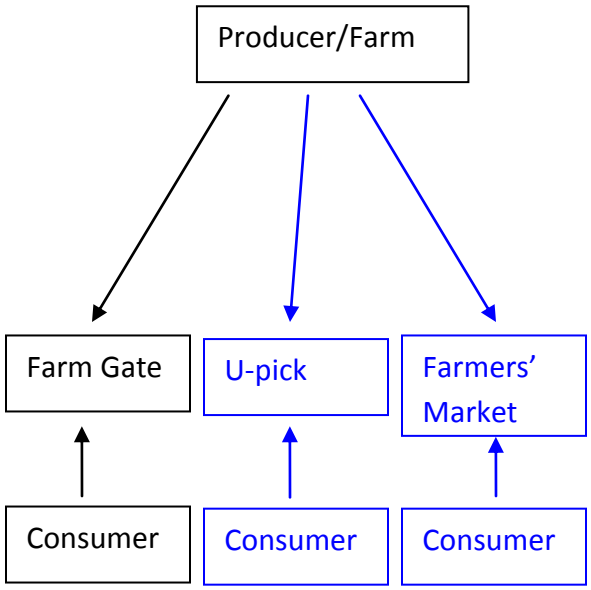
The Zanders promote their saskatoon business through their website and web listing in the Alberta Farm Fresh directory, by advertising in the local papers and by placing attractive signage on the roadside, at the on-farm kiosk and at farmers' markets. They don't label their pails and bags; only their value-added products bear a label. Donna also runs a recipe exchange at the farm and farmers' markets, which the locals and vacationers enjoy. The Zanders seek customer feedback via their website and through verbal discussions at the farm and farmers' markets. Rob and Donna do not collaborate with other saskatoon berry farmers in sales and marketing; however, if they run short of product, they will promote their neighbours' businesses.

The Zanders are challenged with finding and maintaining dependable labour during harvest time. Even though they pay by the piece, a diligent picker can make more than $15 per hour, $5 more than current minimum wage. Lack of dependable labour has meant that in recent years, up to half of the crop is not picked, greatly reducing their potential revenues. As a result, the Zanders have decided to invest in a used mechanical harvester which they will bring on board for the 2012 season. They are anticipating that mechanically harvested berries will not be graded to their fresh berry specifications, nor

be as clean (free from twigs and leaves) as when picked by hand so they are also planning to set up a berry sorting and cleaning line in the berry building for the coming season.

While the Zanders are not planning to expand their current saskatoon acreage, they are looking forward to maximizing their potential volumes and profits by mechanizing their operation. They believe that they will quickly pay off the new machinery by saving labour costs and regaining lost sales.

Figure 1. Direct Supply Chain for Saskatoons
Direct to Customer: The Zanders sell their frozen berries directly to consumers at their farm gate (shown in black). The Zanders sell fresh berries through the U-pick operation, at their farm gate or at local farmers' markets (shown in blue),



Reed Farm Stellar Saskatoons – Intermediated Supply Chain

The Reed family runs a diversified saskatoon berry operation on their farm in central Alberta. Being located only 30 kilometres from a major centre has its advantages, in that the Reeds can cater to many different types of local customers and supply chains such as direct to consumer through U-pick, farm gate and farmers' markets sales; in addition to intermediated sales to foodservice operations, wineries/meaderies, and other berry farms in need of supply. The Reeds sell fresh and frozen berries through all of these supply chains, plus they are experimenting with value-added products such as pies, fruit spreads and syrups for the farmers' market and farm gate sales.

Amanda and Daniel Reed purchased their 100 acre farm in 1998 and continued commuting to their off-farm jobs in the city. Hay and grain grown on the farm was crop-shared with a local farmer − a relationship that continues to this day. The neighbour uses his farm equipment to work the Reeds' land and they share in the proceeds from the sale of the crops. In 2002, the Reeds planted their first 15 acres of saskatoons, and by 2007 they were producing two varieties of saskatoons at a commercial level on 35 acres. Their goal was to create a viable farm business so that at least one of them could leave the city job, raise the family and run the business.

In 2006, the Reeds purchased a mechanical harvester and retrofitted one of their farm buildings to house a cleaning/sorting line, a walk-in freezer and cooler. By 2007, the Reeds were selling fresh and frozen berries to consumers at the farm gate and to local businesses (intermediated sales). In 2008, they started a U-pick business, and in 2010 they began selling at local farmers' markets. In total, their sales of saskatoon berries are 55 per cent frozen and 45 per cent fresh; currently, less than one per cent are value-added – a percentage that they plan to increase in the future particularly for farm direct sales.

The Reeds manage risk on their farm by completing an Environmental Farm Plan and implementing various components, seeking On-Farm Food Safety certification (in process) and taking various courses in horticulture and food production.

While the Reeds have only been in the saskatoon berry business for four years, their sales are growing rapidly, increasing by 30 per cent in the past year. Amanda no longer works off-farm and is able to focus her full attention on the saskatoon operation. They attribute their success to product quality, customer service and to their overall entrepreneurial spirit and creativity. Fifty per cent of their business is intermediated sales to local restaurants, cafes, bakeries, caterers, resorts, wineries/meaderies, and to other berry farms. The other 50 per cent of sales are direct to consumer. Twenty per cent of the intermediated sales are of fresh pre-picked berries; 80 per cent are frozen berries sold throughout the winter months or until supplies run out – usually by March/April.

The Reeds custom pack their berries based on their customers' specifications regarding grade and quantity. They run a mechanized sorting line that allows them to grade the berries from premium quality for farmers' market and foodservice customers, to softer fruit for the wineries/meaderies. Field heat is removed from the berries immediately after harvest in the high velocity cooler. The berries are then cleaned and sorted. Based on sales projections of fresh versus frozen, the berries are placed either in the cooler to be sold as fresh within one to two days, or go directly into the freezer. The berries are stored in clean polyurethane food grade totes and are stacked to allow for maximum air flow in the cooler and freezer.

The Reeds do not have contracts with their intermediated customers. Orders are discussed prior to harvest in May, June and July via telephone and email, and are finalized when the berries are harvested. A few intermediated customers have standing orders on a bi-weekly or monthly basis that continue as long as inventory is available. Intermediated customers often come to the farm to pick up the product; however, the Reeds do deliver product to a customer hub in town (Daniel's workplace) on a weekly basis and to the wineries/meaderies five times per year. The foodservice customers in town pick up product from Daniel's workplace.

The Reeds have built their customer base over the past four years through word of mouth, advertising and their website which they update on a regular basis. They are also listed in the Alberta Farm Fresh directory. Daniel and Amanda use social media to reach out to and update their customers about the farm during blossoming, fruit set and harvest. They also ask for feedback about their customer service and products on their website and through verbal interactions.

Marketing and branding are critical factors for the Reeds, especially since they are focused on growth and diversification. They market and brand their farm and saskatoon products through roadside signage, print and radio advertising in local media, print materials (flyers, pamphlets, recipe cards, etc.), website and e-newsletter, promotional clothing (aprons, t-shirts, etc.) and on their packaging (bags, boxes, value-added products) with distinctive labels.

The Reeds strive to maintain their brand throughout the supply chains in which they operate and collaborate with their intermediated customers to promote their brand. For example, the bakeries and restaurants promote on their in-store signage and menus/fresh sheets the fact that their products (desserts, sauces, etc.) contain *Reed Farm Stellar Saskatoons,* as do the wineries and meaderies. By the same token, the Reeds promote their intermediated customers on signage at their U-pick and farmers' markets stalls.

> *"We support local businesses, just as they support us. It goes both ways," says Amanda. "Plus, branding keeps our business and products top of mind for consumers and our customers, even after the saskatoon season is over. They keep coming back, with friends – and our business continues to grow as a result."*

However, the Reeds don't collaborate with other saskatoon berry farmers for sales or marketing.

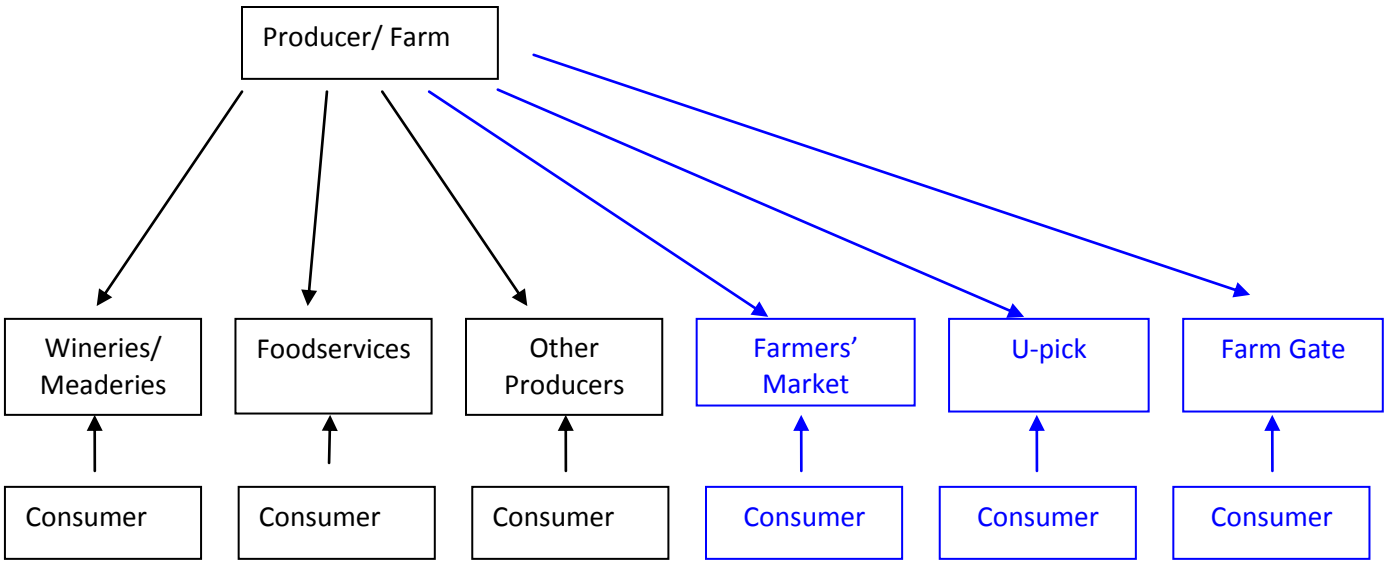
> "*Everyone is friendly but watchful. We work hard to maintain and grow our piece of the pie. Not everyone puts in that kind of effort,"* explains Daniel.

Other local saskatoon farms purchase fresh and frozen berries from the Reeds when they are in short supply due to crop failure. The Reeds sell a small amount to other

producers but are careful to maintain enough inventory for their other intermediated customers with whom they have standing orders, especially those that promote their brand. The Reeds have not developed relationships with distributors, preferring not to work through a middleman to reach their customers, which will decrease their profits.

The Reeds are very excited about their growth in sales and future potential, but are concerned that they are "bursting at the seams." They are rapidly running out of freezer space and are seeking off-site storage at one of the local large cold storage facilities. They are also investigating individually quick frozen (IQF) opportunities for the future. They want to expand sales to intermediated customers but realize that they will have to invest in a delivery vehicle with refrigeration to properly service this category – a step which is two to three years away.

Figure 2: Intermediated Supply Chain for Saskatoons
The intermediated supply chain accounts for 50 per cent of the Reed's saskatoon business; the other 50 per cent is in farm direct sales. Within the intermediated chain, the Reeds sell 60 per cent to foodservice, such as restaurants, bakeries, cafes, caterers and resorts; 35 per cent to wineries/meaderies; and 5 per cent to other saskatoon berry farms. These supply chains are shown in black. Direct supply chains, not the subject of the current study, are shown in blue.



Searle Family Farm - Mainstream Supply Chain
The Searle family operates a 320 acre farm in central Alberta. Twenty acres are dedicated to saskatoon berries, two acres to a mixture of other berries and nut-bearing trees and 290 acres are in grain production. The farm has been in the Searle family for

three generations and is managed by Darren and Susan, with assistance from their adult children who all live off-farm. Darren and his adult children have off-farm employment so the farm is not their sole source of income.

The Searles sell fresh and frozen saskatoon berries; 80 per cent are destined for processors in Saskatchewan and British Columbia, with the remaining 20 per cent sold direct to consumers at the farm gate and through their U-pick operation. The Searles work hard to ensure consistent berry quality year after year and their efforts result in repeat customers. The Searles claim that the keys to their success lie in harvesting berries at optimal quality and removing field heat from berries immediately. Their berries are placed in cold storage within 20 minutes of harvest, thereby minimizing deterioration and maximizing shelf-life.

The Searles planted four varieties of Saskatoons in 2000 and installed drip irrigation one year later. By 2004, the orchard was in full production. Planting stock was purchased from a local nursery, as are replacement plants.

The Searles mechanically harvest 18 acres using a European black currant harvester. The remaining two acres are set-aside for the U-pick operation. The Searles do not have a stand alone sorting or cleaning line. According to Darren, the mechanical harvester does a 'clean harvest' (does not accumulate leaves and twigs) and berries are harvested at their prime, so little handling is required to meet the needs of their customers beyond a visual scan and manual removal of a few rogue materials. The Searles do not grade their berries but state that they provide the high quality required by their processing customers.

The Searles begin mechanically harvesting the berries at the end of July, and complete the harvest within three days. The harvested berries go directly into polyurethane food-grade totes placed on pallets that are set up on the pull-along harvester. Once full, the pallets are immediately fork lifted into a 53 foot reefer unit that is parked in the field. The temperature of the reefer unit is set to remove field heat from the berries immediately. The trays and pallets are stacked in the unit to allow for maximum airflow and cooling. Thermal curtains are used to help maintain cold temperatures in the unit during loading.

Once harvest is complete, the temperature of the reefer unit is set according to the requirements of the processing customer (fresh or frozen). The berries destined for the processing customers (80% of production) remain in the plastic trays on the pallets. The rest of the berries are removed for sale as fresh pre-picked berries (8%) or frozen in 10 pound packs (6%) for direct sale at the farm gate. The remainder of the berries are U-picked (6%). The processing berries are transported in the reefer unit as soon as possible to processing customer(s) located outside of the province.

Once the berries are harvested for the processing market, the U-pick and farm gate sales of fresh and frozen berries are available to the public for the next two to four days. Within one week, the Searle's main saskatoon business is basically done for the season. They strive to have all of their berries sold as soon as possible. However, they do keep a few hundred pounds of berries in their chest freezers, stored in 10 pound frozen packs, for local consumers and their own consumption. They were sold out of frozen 10 pounders by September of 2011.

The Searles have always used a reefer unit to cool and store harvested berries. In the early years, they rented a unit and in 2007 they purchased a 53 foot unit. Up to four years ago, they sold only fresh berries to the processing market. Their current customers tend to prefer frozen berries but the Searles are prepared to do both. The Searles try to sell the entire processing crop (or reefer load) to one customer but have split the berries between two or three customers in some years. They will run their truck and reefer unit directly from the farm to the customers' facilities – wherever they are located.

The Searle's do not have contracts with processing customers. Darren begins the selling process in the spring by calling the processors to determine their supply needs. He continues the discussions with processors throughout the growing season. By fruit set, Darren is finalizing price and quantity arrangements with processing customers. Since the Searles have developed a reputation for quality and timely delivery, Darren has good relationships with past customers and is generally able to negotiate a good price. He structures his price according to what the market can bear. He admits that it is getting more challenging every year to get a good price for processing berries. Supply tends to fluctuate in the relatively small market, destabilizing prices, especially when some producers are willing to sell at cost just to move product.

The Searles' marketing program is no frills and low tech. They do not have a website but promote their U-pick and direct farm sales through roadside signage and advertisements in the local papers. They are also listed in the Alberta Farm Fresh directory. The 10 pound freezer bags are labelled with their farm name and address. There is no labelling on the berries destined for the processing customers. Branding is less important for the sales to processors than it is for their farm direct sales.

> "*Our sales to processors are based on relationships that we have developed over the years through one-on-one marketing. Advertising in local papers may heighten our farm profile for the U-pick business but it doesn't really impact our out-of-province processor relationships,"* explains Darren.

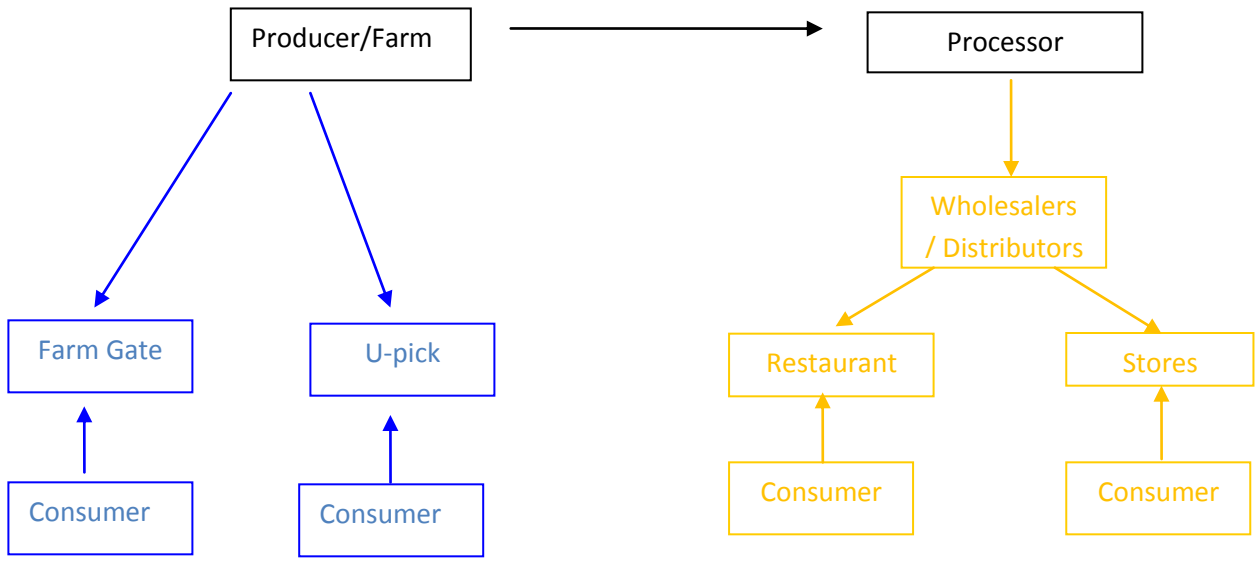
To date, their relationships with processing customers have been developed through telephone conversations and face-to-face meetings when the product is delivered. They ensure their customers have a positive experience through their customer service and product quality.

The Searles plan to maintain their orchard size and current 80/20 mainstream to farm direct sales ratio primarily because they are not located close enough to a major centre to draw more direct sales customers, but also because the mainstream processor business is relatively successful for them. They have not considered collaborating with other growers to sell berries to processors because, from Darren's experience, the risk is too great to jeopardize their reputation for quality. He is not keen to have another grower benefit from his hard-earned relationships with customers. If mainstream processor prices drop too low, Darren is willing to consider selling at farmers' markets and might join forces with a neighbour who sells strawberries in the local markets. Darren and Susan are also expecting their adult children to help move the business forward in the future.

Darren's advice to growers is not to get into the saskatoon berry business without having a sales plan. *"Growing is easy; marketing and selling at a profit is not."*

Figure 3: Mainstream (Processor) Supply Chain for Saskatoons

The Searles sell 80 per cent of their berry production to out-of-province processors who manufacture value-added products for sale in mainstream stores in Alberta and throughout Canada. These products include fruit spreads, syrups, fruit toppings, etc. In the diagram below, the Seale's featured mainstream processing supply chain is in black; their direct to consumer supply chain is noted in blue. The extension of the mainstream supply chain not addressed in the case study is marked in yellow.



Supply Chain Analysis

The majority of saskatoon berry farms in the province market their product directly to consumers through U-picks, farm gate sales and/or at farmers' markets. Farm direct sales allow producers greater control over the production and marketing of their products through the supply chain and are relatively easy for small operators to start up and maintain. Saskatoons are a relatively competitively priced crop in Alberta's farm direct market. According to an ARD (2011a) survey of 2010/2011 berry prices, the average price for U-picked and pre-picked saskatoon berries was $2.50 and $3.60/lb respectively. This compares to $3.10 and $4.60/lb for strawberries, $3.20 and $5.20/lb for raspberries and is only slightly higher than black current prices ($2.40 and $3.05/lb).

In a report commissioned by the Manitoba Fruit Industry Development Program (2008), the researchers noted that significant processing services would need to be developed for the saskatoon market to expand. Alberta is a key location for this to occur, as there is no larger scale saskatoon berry processor in the province. Currently, most berries marketed for commercial processing are shipped to Saskatchewan or British Columbia (Faye, 2001). Specialty juice manufacturing has started up in Alberta but this is a relatively new enterprise with an uncertain future. Nonetheless, there are also barriers for producers to sell at this level: processors generally pay less for berries than U-pick customers, and they require a stable berry supply and often, supplementary food safety certifications.

Producer Share

The producer share for the sale of frozen saskatoon berries varied across each of the supply chains. The dollar amount per pound and percentage for the producer share is the result of subtracting the processing (cleaning, on-farm freezing, bagging), marketing and transportation costs from the price paid to the producer by the end user in each of the supply chains studied. The producer share covers all production costs, including labour, inputs and equipment costs associated with producing, harvesting and post-harvest handling of fresh berries, plus profit. Marketing costs include labour, advertising, signage, materials and packaging associated with sales of frozen berries. It does not include marketing costs associated specifically with farmers' markets since none of the operators sell frozen berries at farmers' markets.

In the case of the mainstream supply chain, the end-user is the out-of-province processor that manufactures saskatoon berry products for sale in mainstream stores in Alberta and other provinces. The saskatoon producer receives a wholesale price per pound from the processor in the mainstream supply chain. Of this wholesale price, the producer receives approximately 73 per cent or $1.10 per pound. The additional 27 per cent is taken up in the producer's processing, transportation and marketing. Although it is not possible to determine the exact provenance of the end products, due to confidentiality surrounding private label ingredient sourcing, we can use a hypothetical

example to determine the producer share of retail. If the saskatoons were sold as private label frozen berries, in 300 gram containers for $4.99 at a western Canadian retailer, the price paid to the producer would be only 15 per cent of the final consumer price. The mainstream producer stated that their average wholesale price to processors for frozen saskatoons was $1.50 per pound; their average retail price to customers at the farm gate, retail, was $2.50 per pound – 67 per cent higher than their wholesale price.

For the intermediated supply chain, the end-user represents local foodservice operators, wineries/meaderies, etc. that purchase 500 pounds or more of frozen saskatoons. The producers are paid a wholesale price of $3.50 per pound by the end-users in the intermediated supply chain. The producers also direct market through their U-pick, farm gate sales and the farmers' market. The direct market price is $4 per pound, retail – 14 per cent higher than their wholesale price. They provide a discount of 12 per cent to their intermediated customers for orders more than 500 pounds, wholesale. They negotiate deeper discounts for orders of 1,000 pounds or more.

The intermediate supply chain producer reported retaining 75 per cent of the wholesale price while 16 per cent went to marketing costs, 3 per cent more than the marketing costs for the mainstream operator and 9 per cent less than for the direct-to-consumer producer. While the Reeds invested heavily into marketing, as compared to the other supply chain producers, their marketing costs per pound and percentage were lower than that of the direct market supply chain (25 %) because the Reeds are achieving better economies of scale due to the greater volumes of fresh and frozen berries produced and marketed from their farm.

Upon further investigation of the intermediated supply chain, the producer share of the retail price for products such as saskatoon berry pies and wines manufactured by the producer's wholesale customers is estimated at 26 per cent. This estimate is based upon the following assumptions and extrapolations: one and a half pounds of frozen saskatoon berries are used to produce a 9 to 10 inch pie that sells for $15 at bakeries and restaurants; two pounds of frozen saskatoons are used to produce a 375 ml bottle of saskatoon berry dessert wine that sells for $20 at wineries.

For the direct supply chain, the end-user is the consumer that buys frozen saskatoon berries directly from the farm. The producer receives a retail price per pound from the consumer in the direct supply chain.

The producer retained only 68 per cent of the sale price in the direct supply chain, lower than the producers in the other supply chains. The direct market producer received a greater per cent of the price when retail estimates are compared (68% direct, 26% intermediated, 15% mainstream).

Although the direct market producer did not have the transportation costs of the other supply chain producers, they had much higher marketing costs (25%). However, the direct marketer obtained a greater overall price per pound for saskatoon compared to the producers in the other supply chains.

Table 3. Percentage of price and price per pound for saskatoon supply chains

Segment	Direct		Intermediated		Mainstream	
	$/lb	% of total	$/lb	% of total	$/lb	% of total
Producer	$2.72	68%	$2.64	75%	$1.10	73%
Producer marketing costs	$1.00	25%	$0.56	16%	$0.20	13%
On Farm Processing (freezing)	$0.28	7%	$0.16	5%	$0.10	7%
Transportation costs	na	na	$0.14	4%	$0.10	7%
Total wholesale price			**$3.50/lb**	**100%**	**$1.50/lb**	**100%**
Total retail price	**$4.00/lb**	**100%**				
Total across all functions completed by primary producer		**100%**		**100%**		**100%**

Economic Impact

There were many similarities in terms of the impact of primary producers of saskatoon berries on the local economy across all three supply chains. All of the producers contribute to the local rural economy by using local resources, services and products. Most are sourced within a 50 kilometre radius, or at most 100 kilometres – except for specialized harvesting and sorting equipment which are sourced primarily from the blueberry industry in British Columbia or from Europe through local brokers.

The direct market family farm is managed by the two owners who do all of the field preparation in the spring, maintain the grounds throughout the summer (mowing, weeding, etc.) and, with the help of three to five hired pickers, harvest and sort the berries. The owners manage the U-pick, on-farm sales, and farmers' markets on their own as well as freezing the berries and manufacturing value-added products.

To maintain the family run intermediated operation, one of the owners works all year round with part-time assistance from the other owner. When not in the field, the full-time operator focuses on marketing and value-added manufacturing to help diversify the operation. During harvest and the heavy U-pick and farmers' market season that runs from August until the first week in September, six people are engaged in the operation – the two adults, their two teenage children and two contract workers.

The mainstream (processing) farm is managed entirely by the five members of the family, on a part-time basis. When the saskatoons are ready for harvest, the entire family works together to get the fruit ready for the processing market, and to deal with the direct farm sales. One of the adult sons delivers the berries in the 53 foot reefer unit to the processing customers wherever they are located. The Searles have mechanized and streamlined their operations as much as possible, realizing early on that it is very difficult to hire good farm labour for $10 per hour, so they manage the farm as a contained unit.

All three farms purchase outside services and product locally including:

- ✓ Fertilizers and pesticides
- ✓ Soil and water tests
- ✓ Equipment[b], including repairs and maintenance
- ✓ Fuel
- ✓ Replacement planting stock

Food miles and fuel usage

The greatest average distance that frozen saskatoons traveled per trip was in the mainstream supply chain at 1,200 kilometres which ended at out-of-province processors, followed by the intermediated supply chain. In the direct supply chains, frozen saskatoons were always picked up at the farms by customers (consumers). For the intermediated supply chain, the producer had a weekly drop off at a hub (husband's workplace), where the foodservice customers would pick up the product.

The reefer truck used by the mainstream supply chain had a larger environmental impact than the vehicle used by the intermediated operator (Dodge Ram diesel 4x4). The 53 foot reefer used considerably more fuel per 100 kilometres (150 litres), carried only a partial load, and travelled 2.5 times as many kilometres per production cycle. The Dodge Ram used less fuel (12.8 litres per 100 kilometres) and carried a full load over fewer kilometres.

[b] Specialized berry harvesting and sorting equipment are sourced from British Columbia or from overseas through local brokers.

Table 4: Food kilometres and fuel use per kilogram of saskatoons transported over one production cycle

	Distance per Trip (km)[1]	Fuel Use per Trip (L)	Fuel Use per kg Shipped (L/kg)
Mainstream	**Average per Trip**		
Saskatoons to Out-of-Province Processors [1]	1200	1800	0.132
Intermediated	**Average per Trip**		
Farm to Foodservice	10	1.3	0.128
Farm to Wineries/Meaderies	35	4.5	0.007
Direct	**Average per Trip**		
Farm to Consumer	0	0	0
	Total over all Trips		
Mainstream	1200	1500	0.110
Intermediated	495	63	0.019
Direct market	0	0	0

[1] based on one annual out-of-province trip with two drop off points for a 53 foot reefer filled with 30,000 pounds (13,600 kilograms) of frozen saskatoons

Other Business Considerations

The profitability of saskatoon berries was a concern for all operators. They stated that it was more a "labour of love for saskatoons" than a truly profitable enterprise. However, they maintained that saskatoon berries have strong market potential in Alberta and throughout western Canada. One of the obstacles to growth is the general lack of consumer knowledge about the benefits of saskatoons – both as a flavourful berry for meals and desserts and as a superfruit loaded with antioxidants. They felt that government had a role in educating consumers about this "*very Alberta berry,*" as did trade associations such as the Alberta Farm Fresh Producers Association and the Saskatoon Berry Council of Canada.

Weather, wildlife damage and/or *Entomosporium* leaf and berry spot have caused total or partial crop failures – a situation that most berry producers have experienced at least once or twice in their berry careers. Hail damage has devastated production in some parts of Alberta that even careful planning and best practices cannot mitigate. Saskatoons are not eligible for coverage through crop insurance, which increases their production risk. Labour costs and shortage of good labour are motivating serious producers to mechanize their operations, which increases their overhead and places them at greater risk financially should they suffer from crop failure.

Growers are greatly appreciative of the annual Alberta Farm Fresh Producers Local Food Short Course sponsored by the Alberta Farm Fresh Producers Association and ARD. Here they learn about the latest market information and best production practices but they are concerned that new growers are not taking advantage of this learning opportunity. New growers often enthusiastically plant saskatoons without a marketing or sales plan, and once they are in production, flood the market with underpriced and poor quality berries, destabilizing prices for all growers and negatively impacting consumer expectations of Alberta grown saskatoon berries.

There are no government sanctioned grading standards for saskatoons. A few of the larger growers attempted to create grading standards seven to eight years ago, but did not obtain sufficient industry support to complete the initiative. Consequently, growers are not grading berries to the same standards, which creates inconsistencies in the market place.

While the Alberta saskatoon berry sector grows more acreage of saskatoons than does Saskatchewan, it also has more small lot producers. These are fiercely independent people who would rather compete with one another than consolidate their marketing and production efforts to reach a critical mass that could service the mainstream market – for processing and retail. In addition, there are very few federally inspected processing facilities for saskatoons in Alberta, which limits the growth of the sector and its ability to service mainstream markets. Saskatchewan continues to be the leader in Canada for infrastructure development and market innovation of saskatoon berry products.

Key Lessons

The potential for saskatoons seems high; they are a traditional, highly nutritious superfruit. Alberta and Saskatchewan grow a large majority of the fruit in Canada. The market for this fresh fruit is limited by its short shelf life and very short growing season. The industry in Alberta lacks its own infrastructure, with larger scale processing being exported to Saskatchewan. Current producers are concerned with the profitability of saskatoon operations, but feel there is opportunity for those who incorporate saskatoons into a larger operation, or who can move into processing. Commercially oriented producers are also concerned about new inexperienced producers flooding the market with poor quality berries, negatively impacting consumers' quality expectations and forcing prices downwards. Consumer and producer education are key components of a successful marketing program for Alberta grown saskatoons.

OVERVIEW OF TABLE POTATO MARKETS

General Trends across Canada

In 2007, the potato industry in Canada accounted for 35 per cent of cash farm receipts, and, at present produces more than $1.1 billion annually (Agriculture and Agri-Food Canada, 2007; Statistics Canada, 2012). In 2007, Canada's potato production and processing industries were valued at $6.5 billion in both direct and in-direct contributions to the economy, and provided employment for 33,000 people, largely in rural parts of the country. The potato industry is divided into three sectors: table (including new potatoes, field fresh and storage potatoes), processing (potatoes made into processed products such as French fries or chips), and seed (used for growing potatoes). In this report we examine the fresh and storage potatoes within the table potato category.

While global consumption (particularly that in developing countries) is on the rise, potato consumption among Canadians has been declining in recent years, falling from 75.09 kilograms per person in 1996 to 64.22 kilograms in 2009 (Statistics Canada, 2009). Declining total potato consumption has occurred largely because Canadians are cooking fewer table potatoes. Table potato consumption fell by 27 per cent between 1996 and 2005. Processed potato consumption is also decreasing, albeit at a much slower rate. There are indications that this trend may be shifting as the amount of potatoes in Canadians' diets rose by 1.4 per cent in 2009, the first increase since 2001 (Statistics Canada, 2009).

These trends in demand are also echoed in supply. The number of potato farms in Canada has decreased 28 per cent from 1,691 in 2001 to 1,225 in 2011 (Agriculture and Agri-food Canada, 2011; Potato Growers of Alberta, 2012). Production areas have also been declining, 17 per cent from 2001 (418,700 acres) to 2010 (348,200 acres). Again, there has been a slight increase (1%) in 2011. The average size of a Canadian potato farm is on the rise as growers attempt to improve economies of scale. The potato acreage is also shifting. More acres in the west are focusing on processing potatoes, at the expense of table potatoes acres, while processing acres decline slightly in the east (United Potato Growers of Canada, 2011). As is common in the agriculture sector in general, the average age of potato farmers is increasing, with few younger growers entering the industry (Agriculture and Agri-Food Canada, 2007; Statistics Canada, 2012).

Declines in table potato consumption are a result of changing consumer lifestyles and negative publicity about the nutritional value of potatoes. As consumers increase their pace of life, they feel they have limited time for a traditional family meal of meat and potatoes. Additionally, consumers lack knowledge about how to prepare potatoes and potato consumption has been negatively influenced by a growing trend to low

carbohydrate diets. Today, consumers are looking for healthy food choices that they can prepare quickly and easily (Agriculture and Agri-Food Canada, 2007; Friedman, 2010).

According to the Agriculture and Agri-Food Canada (2007) report, the Canadian potato industry will need to combat competition from alternative products such as pasta and rice. They recommend product developments and innovative marketing campaigns that promote potatoes as tasty, readily available, easy-to-prepare, healthy products. They recommend concerted positive promotion for potatoes along with new cooking and packaging ideas. They recommend further development of niche markets offering specialty potatoes by variety (they specifically note the success of the Little Potato Company - ARD, 2011b; George Morris Centre, 2009). Packaging should provide information about potatoes' variety, nutrition, usage and/or provenance.

Importantly, the potato industry must focus on keeping supply closely aligned to demand to ensure the highest return possible to all members of the value chain. Both the United Potato Growers of Canada and the United Potato Growers of American have organized and convinced their members to reduce planted acreage in an attempt to return profitability to the industry (Agriculture and Agri-Food Canada, 2007).

While adjusting to these new demands producers will confront challenges in rising production and input costs, changing climate conditions and calls for greater environmental responsibility. Nonetheless, Agriculture and Agri-Food Canada (2007) believes that the use of technology is and will continue to be a valuable tool for strengthening the industry, developing a 'healthy potato' and new potato products.

Overview of Table Potato Markets in Alberta

Alberta is currently the third largest potato producer in Canada, producing approximately 15 per cent of Canadian potatoes (Statistics Canada, 2012). The most significant potato growing areas of the province include irrigated lands in the Lethbridge, Taber, Vauxhall and Bassano-Brooks areas (Potato Growers of Alberta, 2011). Alberta Agriculture and Rural Development (2009; 2010b) estimates that there are 49,512 acres of potato production in the province, generating approximately $445 to $475 million in annual revenues (this number does not account for producers growing less than five acres of potatoes). Alberta's climate is favourable for growing potatoes because of its high altitude, long summer days, cool nights and relatively abundant water.

Alberta is an established world leader in seed potato production and is home to a large and expanding processing industry; table potatoes currently represent a very small segment of Alberta's potato industry. According to a 2009-2010 potato market information review prepared by Agriculture and Agri-Food Canada (2011), table potatoes represented only four per cent of Alberta's potato production (with 78% going to processing and 18% going to seed). Table potatoes generate a reported $5 to $6

million in annual revenues (with processing potatoes at $100 to $120 million, seed potatoes at $40 to $50 million and the processing of potatoes in general at $300 million) (ARD, 2009). There are currently 2,606 acres of table potato production in Alberta, down from more than 5,000 acres 13 years ago (ARD, 2010b).

Currently, Alberta is growing 194 different varieties of potatoes; however, these varieties fit into four or five general categories that are fairly standard across North America: Russets (commonly referred to as bakers), Reds, Smooth Skinned Whites, Yellow Flesh and Exotics (Purples or Fingerlings) (Potato Growers of Alberta, 2010b). Norland (red), Sangre (red), Russet Norkotah, Yukon Gold (yellow) and Bintje (yellow) are a few popular table varieties grown in Alberta. New varieties are also constantly being evaluated for Alberta's soil and weather conditions (ARD, 2011c).

The price of table potatoes in the province is heavily influenced by prices in Manitoba and Saskatchewan and the price of potatoes moving into Alberta from these two provinces. The Potato Growers of Alberta signs ministerial orders allowing wholesalers or aggregators to import potatoes into Alberta when needed, and this activity impacts overall pricing. Having oversight over the flow of potatoes into the province not only helps stabilize Alberta grown potato pricing, but assures year round supply of potatoes to consumers.

An Alberta Commercial Vegetable Industry Synopsis conducted by ARD in 2009 estimated that only 6 to 10 per cent of vegetable products sold by distributors in Alberta are Alberta grown. They state that in 2004, Alberta imported 160,000 tonnes of fresh or chilled vegetables at a value of $192.5 million. This is true within the potato industry as well. The Potato Growers of Alberta (2010a) estimate that Alberta growers supply less than half of the province's demand. There is significant potential for the replacement of imports with local products. However, consistency of both the quality and quantity of supply is important to buyers, and seasonality in Alberta is a principal barrier to gaining market access.

Farmers' apprehension about producing potatoes for the fresh market stems from the sector's low profitability and high risk when compared to seed or processing potatoes. Strict demands for consistent quality and supply have resulted in high cull rates for Alberta producers whose product is prone to scab in Alberta's organic rich soils (Potato Growers of Alberta, 2010a). Producers are only eligible for crop insurance when they have more than five planted acres.

Additionally, the attribute of 'locally grown' may not be as important with potatoes as it is with other food products. In a consumption survey commissioned by the Potato Growers of Alberta and conducted by students at the University of Lethbridge (Friedman, 2010), the researchers found that when considering factors such as size, taste, price, appearance and origin, locally grown was the least important purchasing priority for potato consumers, while taste and appearance remained the strongest

considerations. Similarly, another consumer survey by the Potato Growers of Alberta (2009) noted that "foodies", who are generally most inclined towards buying local food overall, are not motivated towards potatoes. If Alberta were to market locally grown potatoes, strong branding of a consistently high quality product would be essential to pair with positive publicity about health and convenience.

Other challenges that ARD (2009) identified as faced by Alberta vegetable producers include the high cost of energy, the lack of skilled and unskilled labour, the "dumping" of imported products into Alberta markets and high waste levels at all stages of the supply chain.

The Case Studies – Table Potatoes

Three primary case studies were chosen for this study. They include a direct market supply chain, an intermediated supply chain and a mainstream supply chain.

Kitts Family Farm - Direct Supply Chain

The Kitts family operates a 1,000 acres mixed farm. The farm is currently owned and operated by six members of the Kitts family, who are also in the process of incorporating two younger family members into their operation. With this incorporation, three generations of the family now work in the business.

The Kitts Family Farm sells potatoes, along with a wide range of vegetables and other products, directly to consumers year round through their farm store (68% of sales), and through a number of local farmers' markets (30%). They also regularly sell small volumes of potatoes to a local institution (2%).

The Kitts used to grow potatoes primarily for the wholesale market but have shifted their focus to farm direct marketing as they found marketing their potatoes to wholesalers to be unprofitable due to higher than acceptable cull rates. Ultimately, the Kitts found that, for them, farm direct marketing realized consistently higher returns as their customers had a higher tolerance for potato irregularities. This switch also assured a steady cash flow for the operation.

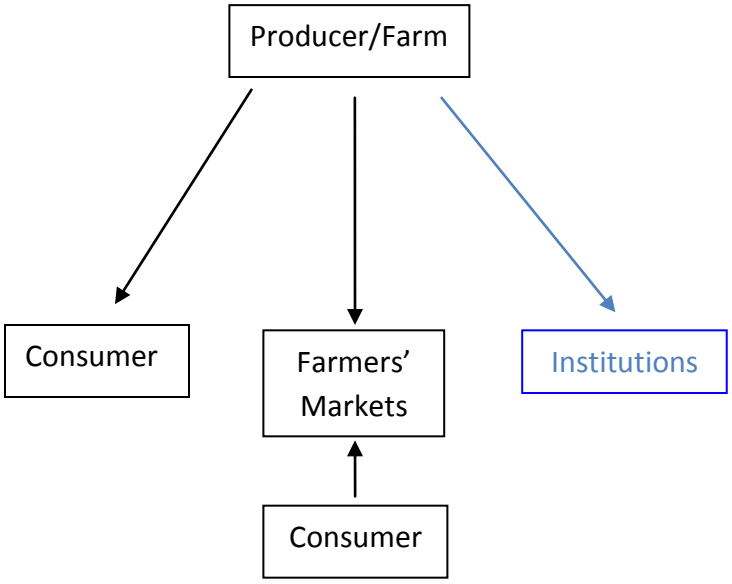
The Kitts grow five well-known varieties of table potatoes annually on roughly 40 acres of land. The Kitts purchase certified seed potatoes annually from Edmonton Potato Growers. They also secure annual On-Farm Food Safety certification.

Before potato skins set, workers on the Kitts farm harvest 10 acres of new potatoes by hand, with the balance mechanically harvested at maturity. All post harvest handling (washing, sorting, bagging, storage) is done on site. Starting in July, the Kitts sell washed new potatoes exclusively in three pound bags. As the season progresses, 5, 10, 20 and 50 pound bags of washed and sorted potatoes are also sold. Potatoes moved into bulk storage are left unwashed. Later in the fall, once potatoes start coming out of storage,

most are washed, sorted and bagged; unwashed potatoes are also made available for sale. Culls are left in the field while hand harvesting, but culls coming off the wash line are donated to a community service club.

The Kitts rely on signage and display materials in both their farm store and at farmers' markets, in addition to regular newspaper and radio ads to market their business to local consumers. The family also relies on its established history and reputation in the community to bring customers to their business. They foster this reputation and build their name recognition through active community participation, such as by providing tours of their farm to school groups and by donating vegetables to numerous public service organizations.

Figure 4: Direct Supply Chain for Table Potatoes
Direct to Customer: The bulk of the Kitts family's potatoes are sold either at their farm store or local farmers' markets (indicated in black). A small portion of their product is sold to a local institution for a price similar to that of their direct market (an intermediated supply chain; indicated in blue).



Miller's Market Garden – Intermediated Supply Chain

Nancy and Dave Miller run a small market garden operation. They sell a wide range of produce to customers primarily near a small southern Alberta community. The Millers grow potatoes, along with other vegetables on four acres that they maintain by hand. They grow four varieties of potatoes and sort, wash, weigh and bag the products before delivering them to their customers. They usually buy their seed from a trusted neighbour known for her expertise; the neighbour plants a number of varieties and,

after two seasons, the Millers select seed for the varieties that they like. They use the culls for themselves and their livestock.

The majority of the Miller's potatoes are sold into intermediated market channels, namely to restaurants in their nearby municipality (60%) and to a local food buying group (20%). The remainder of their product is sold directly to consumers at their farm gate (20%). They sell their potatoes in two sizes: in 40 pound bags to restaurants and in two pound bags at the farm gate and to a buying group who then resells to its members.

While they pride themselves on being a five-generation family farm, Nancy Miller's commercial produce operation started only five years ago. Nancy began her business by knocking on the door of a nearby restaurant and inquiring if they wanted her excess garden vegetables. From that point on, the Millers have grown their business through word of mouth and the relationships they have developed with their community.

The Millers do little marketing beyond signage and pamphlets but Nancy speaks at a number of community events and the family often donates food for functions and charities. They also regularly welcome school groups to tour their farm. The Millers feel they produce a high quality product. They boast that they've never had a customer try their product and not come back. They say that this is likely due to the family's "easy to know" attitude and also their value adding. Nancy is attentive to offering customers extra value. Frequently she throws in a free jar of jam with their order, especially if she made some that day, or she slips in a write up of the goings-on of the farm. According to Nancy,

> *"You don't have to do it very much or very often to get good customer relations going. [She likes to] give a little bit for free as people appreciate it as a humungous thing."*

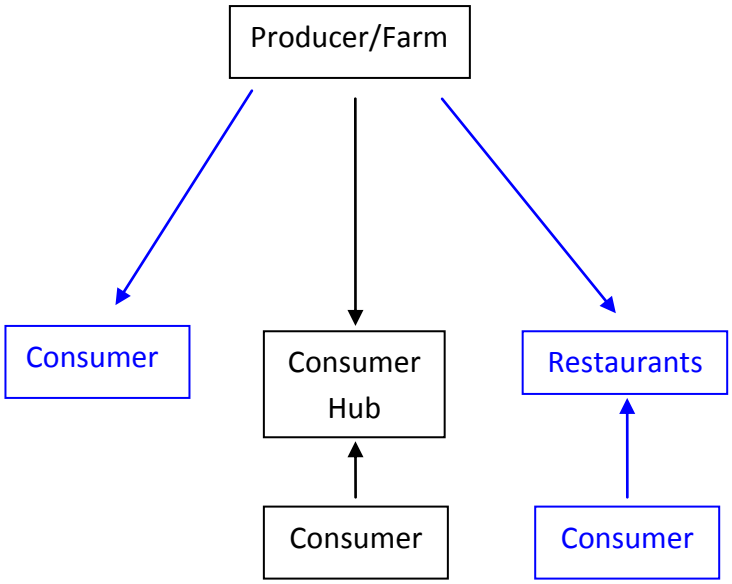
This generosity and perspective comes with an explicit farming philosophy: the Miller's farm is a natural (seeking organic certification), close to zero carbon emission operation. Lawns are managed by their geese and sheep instead of their lawnmower and everything else, from scything hay to harvesting, is done by hand. However, they do occasionally use their rototiller and a neighbour ploughs their fields twice a year.

To maintain this operation, Nancy herself works full time, year round on the farm and hires two part-time seasonal locals to help her in the summer. In response to their philosophy as well as their generosity, they receive a significant amount of help from their neighbours. Nancy also receives help from many of her customers, who volunteer after she has developed a relationship with them. In the summer, she has at least one, but often more like two or three volunteers on the farm every day.

The Millers determine their spring planting in consultation with their primary restaurant customer. They aim to "plant for their menu"; however, they concede that often the

opposite is true, with the restaurant accepting whatever the Millers give, including potatoes, on a weekly basis. Nancy has decided that, due to their historical relationship, this restaurant receives first pick of their produce; whatever is leftover is sold to her other restaurants, the food buying group or at her farm. All produce is supplied without a contract; arrangements are based on trust. All of their new customers have approached them. The Miller's supplementary restaurants and food group customers saw and heard about them in the community and contacted them about supplying product. Millers deliver their product all year round or until the supply runs out.

Figure 5: Intermediated Supply Chain for Table Potatoes
The Millers sell 60 per cent of produce to restaurants, 20 per cent to a food buying group, and the balance direct via farm gate sales**.** Feature supply chain is in black, the alternative supply chains also used are indicated in blue.



Wiley Potatoes – Mainstream Supply Chain

Bill Wiley and his son Carl are the second and third generation of the Wiley family to run their commercial table potato operation in southern Alberta. Bill and Carl work full time on their farm with part time support from another son, John. Ten seasonal workers from the local community also work on farm during harvest. The farm produces about 60 acres of table potatoes, along with certified cereal seed, and a few specialty varieties of certified seed potatoes. Three proven mainstream potato varieties are the backbone of their operation, while they also experiment annually with new selections, searching for varieties with greater disease resistance and better yields. The Wiley's buy high quality,

high generation seed potatoes every second year for their table and seed potato production. They sell the next generation of seed potato to other local farms.

The Wiley's have on-farm storage for their entire potato crop and a handling system to wash, grade and pack potatoes. Thirty-five per cent of their harvest is packed out into 50 pound, ready-to-sell cartons and the balance is shipped in 2,000 pound totes. The Wileys grade according to the federal grading standard[c]. They renew their On-Farm Food Safety certification annually and completed their Environmental Farm Plan approximately eight years ago.

When the Wiley's first started producing table potatoes they sold their own branded line directly to grocery stores in the area. Local wholesalers noticed their premium quality and wanted the Wiley's potatoes exclusively for their customers. The Wiley's switched to this model: selling washed, sorted and bagged Wiley brand potatoes to local wholesalers. This change allowed the Wiley's to focus on the production end of their operation.

Over the years, wholesalers in the province have determined that they want to deal with fewer producers, creating an opportunity for local aggregators. Today, the Wiley's sell exclusively to an aggregator who orders table potatoes from them once or twice a week depending on demand from their wholesalers. The aggregator repacks Wiley's bulk totes into retail poly bags under various private labels and distributes both the repacked potatoes and the cases of potatoes to retailers. The Wiley brand no longer appears in the marketplace.

The Wiley's selling season is from late September through April as they only sell potatoes after they have been in storage and the skins are firmly set. They used to sell new potatoes but they feel that American imports have displaced that opportunity, as they are available earlier and stand up better than local new potatoes in poly bags. Most of the Wiley's potatoes are sold in Alberta with a small percentage sold in British Columbia. Their culls are sold to a local dairy.

The Wiley's pricing is heavily influenced by potato prices in Manitoba and Saskatchewan. The Wiley's do not have a contract with their buyer, but have never had a problem selling potatoes, no matter the size of their crop. Bill has a give-and-take relationship with his aggregator where each person is willing to acknowledge the needs of the other and negotiate on price. Bill says,

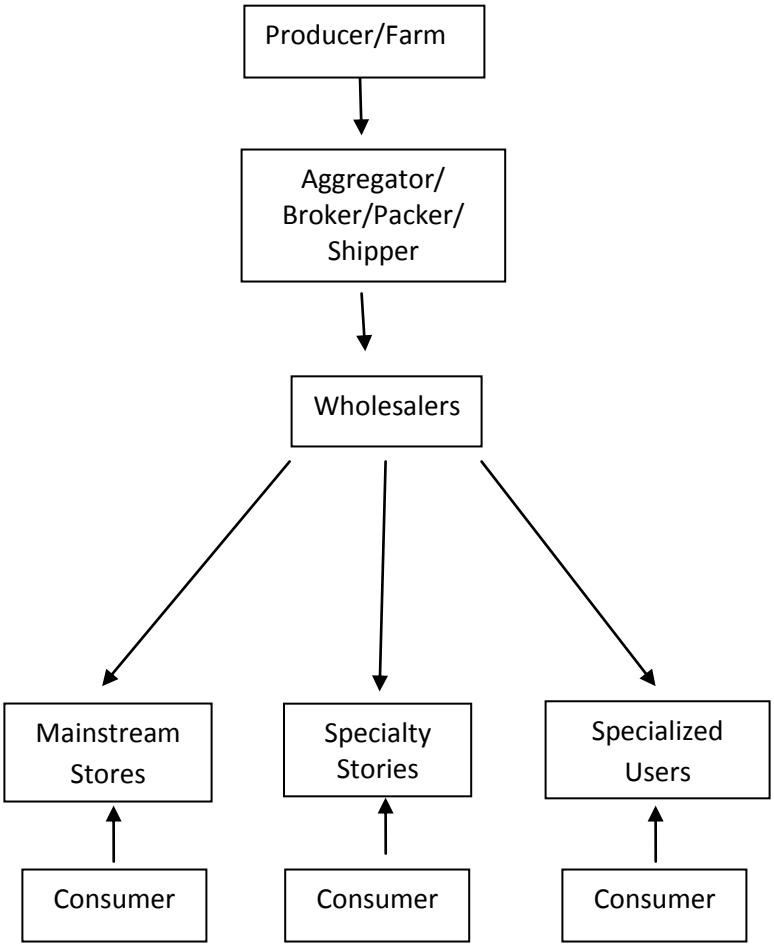
[c] Grades and Standards for Potatoes per Canada *Agricultural Products Act* Fresh Fruit and Vegetable Regulations

> *"When prices are low, either you discontinue the product and wait for better prices or just lower the price. It is a negotiation between supplier and buyer, the best they can do for the quality you ship, but it is usually the Manitoban price."*

Sometimes Bill does not sell at an unacceptable price and waits until the price rises. Sometimes though, he feels it is more important to support his aggregator, so he accepts a lower price. He believes that he does generally get a premium price due to the guaranteed quality and timely delivery he has maintained over the years, but he is not sure if this occurs all the time. He maintains that it is important to support and build trusting business relationships over time as he considers himself and his family in the potato business for the long run.

Figure 6: Mainstream Supply Chain for Potato

The Wiley's sell all their potatoes to an aggregator/broker/packer/shipper who sells the 50 pound cartons as is and repacks the 2,000 pound totes into custom poly before selling and distributing. Potatoes are then sold to mainstream food chains, specialty stores as well as other specialized users. Wiley's supply chain is in black. Potatoes travel from the aggregator to the wholesaler and then onto retailers. Although the producer only discussed relationships up to the aggregator, additional information was obtained outside the interview (thus the entire supply chain is indicated in black).



Supply Chain Analysis

Most table potato producers marketing through direct supply chains are mixed or differentiated operations selling a variety of fruits and vegetables. They undertake the production, marketing, distribution and retailing of their products to consumers. The large majority of these producers market their product at either farmers' markets or at the farm gate; however, an increasing number are also incorporating Community Shared Agriculture (CSA) into their marketing programs. A small number of producers market their potatoes through intermediated supply chains, particularly through restaurants and food delivery programs. The increasingly popular local food delivery programs take full advantage of locally grown potatoes due to their ease of storage. Producers also market potatoes into mainstream marketing channels either collaboratively or individually.

While in the past the Potato Growers of Alberta has helped promote product to consumers, there is no central potato marketing agency in the province. Producers carry the responsibility of marketing their own crops. Table potatoes are sold in Alberta largely on the open market but also occasionally under contract. The open market allows growers to attempt to manage price by marketing when prices are stronger, whereas contracts provide growers with security because they guarantee regular product demand (ARD, 2011c).

Producer Share

The producer share covering production, transportation costs and profit varied across each of the supply chains as did the retail price per pound. The mainstream producer share is approximately 24 per cent of the per pound retail price for loose unbagged potatoes over one season. The aggregator claims 18 per cent (including custom repacking, handling and distribution costs), the wholesaler 8 per cent, and the retailer retains 50 per cent. While the aggregator takes a share of the profit margin, and the retailer take an even larger percentage, the Wiley's believe that having an aggregator is worth it as the aggregator deals with the wholesalers' demands and there is no other means of gaining access to mainstream retailers.

For the direct market supply chain, new potatoes (at $2.00/pound) were not included. These are a separate market category and are not the same as table potatoes. As well, including them for one producer and not for another would skew the price comparison. The mainstream producer did not produce new potatoes. Approximately 60 per cent of the sale price for table potatoes was retained by the direct market producer because the only external costs are marketing expenses (20 per cent) and post harvest handling costs (20%). Unfortunately the potato price per pound the direct market can bear in their area is quite low and used as a loss leader. Therefore, net earnings are not substantive despite the high retention percentage. These percentages are approximations as the direct operator sells a broad spectrum of products to satisfy their

customers with each crop contributing to the overall financial picture and individual crops are not analysed separately.

The intermediated supply chain producer sold to both restaurants (at $2.50 per pound) and a buying club (at $3.50 per pound), and reported retaining 80 per cent of the consumer price, while 8 per cent went to marketing costs and 2 percent to on-farm handling. The figures here only reflect the buying club, which has minimal overhead and thus only adds 10 per cent mark up to the purchase price. Nonetheless, even though the price per pound received is notable for the intermediated supply chain Nancy and Dave Miller stated that the profit on potatoes is very slim due to the cost of manual labour for digging despite the price consumers are paying per pound. Both the direct and the mainstream producer harvest their table potatoes mechanically, and thus have fewer labour challenges.

Table 5: Percentage of price and price per pound for table potato supply chain

Segment	**Direct**		**Intermediated**		**Mainstream**	
	$/lb	**% of total**	**$/lb**	**% of total**	**$/lb**	**% of total**
Producer	$0.21	60%	$2.80	80%	$0.11	13%
Producer marketing costs	$0.07	20%	$0.28	8%	na	na
On Farm processing	$0.07	20%	$0.07	2%	$0.10	11%
Aggregator processing	na	na	na	na	$0.09	10%
Aggregator	na	na	na	na	$0.07	8%
Wholesaler	na	na	na	na	$0.07	8%
Retailer	na	na	$0.35	10%	$0.44	50%
Total	**$0.35/lb**	**100%**	**$3.50/lb**	**100%**	**$0.88/lb**	**100%**
Total across all functions completed by primary producer		**100%**		**90%**		**24%**

Economic Impact

There were many similarities in terms of the impact of primary producers on the local economy across all three supply chains. All of the producers contribute to the local rural economy by using local resources, services, and products. Most are sourced within a 30 kilometre radius or at most 100 kilometres.

Management of the direct market farm is done by six members of the farming family with two younger family members in training. There are 15 full-time staff and they employ 40 seasonal and/or part-time workers. Some of the seasonal staff are temporary foreign workers; however, the farm employs four or five local workers per one temporary foreign worker they hire. This large labour force deals with the entirety of the farm's market garden and greenhouse production, rather than solely potatoes.

To maintain the intermediated operation, the farmer works full time, year round on the farm and hires two part-time seasonal locals to help in the summer. Her farming philosophy and standing in her community garner the intermediated farmer additional volunteer farm help from surrounding neighbours and customers.

Both father and son work full time on the mainstream farm, with the help of two full-time, non-family members and 10 seasonal workers from the local community during harvest.

All three farms purchase outside services and product locally including:

- ✓ fertilizers and pesticides
- ✓ equipment
- ✓ fuel
- ✓ food safety consultants (direct and mainstream)

Kitts Family Farm also sells produce from neighbouring farms when the Kitts believe that the neighbour can do a better job with the crop than themselves.

In all three supply chains there was a significant contribution to the local economy. On the primary production level, the majority of local products, services and human resources were local (rural).

Food Miles and Fuel Use

There are several factors that affect kilometres that a product travels before it reaches the consumer. In the case of the three potato case studies the most complex system is for the mainstream producer as they ship to an aggregator, who ships to wholesalers, who then ships to multiple stores.

The greatest average distance potatoes traveled per trip was in the mainstream supply chain at 323 kilometres, followed by the direct supply chain (51 kilometres) and then the intermediated chain at 44 kilometres. All three chains shipped potatoes in combination with other products (the mainstream producer shipped potatoes only, but his aggregator and wholesaler shipped potatoes with other product to the retail stores).

Trucks in the intermediated and direct supply chains had fuel efficiency ratings of 14 miles per gallon (17 litres per 100 kilometres); the reefer for the mainstream supply chain had a rating of 1.57 miles per gallon (150 litres per 100 kilometres). Of the three supply chains studied the direct had the least environmental impact (litres/kilogram). The most inefficient was the intermediated that transported the least weight per trip. Despite poor fuel economy the mainstream was not the worst due to the sheer weight moved per trip.

Table 6: Food kilometres and fuel use per kilogram of table potatoes transported over one production cycle

	Distance per Trip (km)[1]	Fuel Use per Trip (L)	Fuel Use per kg Shipped (L/kg)
Mainstream	**Average per Trip**		
Farm to Aggregator	200	300	0.014
Aggregator to Wholesaler to Retailer	123	184	0.008
Intermediated	**Average per Trip**		
Farm to Consumer Hub	35	5.9	0.025
Direct	**Average per Trip**		
Farm to Market A	17	2.9	0.001
Farm to Market B	17	2.9	0.001
Farm to Market C	17	2.9	0.002
	Total for all Trips		
Mainstream	14,272	21,362.5	0.010
Intermediated	1,225	164.5	0.024
Direct Market	2,040	342.4	0.001

Other Business Considerations

In Alberta, table potatoes are the least lucrative type of potato to grow in comparison to either certified seed or processing potatoes. This is the result of a number of factors including crop yields, challenging post harvest handling requirements, grading standards and competition from imports. These factors are magnified by cheaper table potato imports, which add downward pricing pressure on local producers selling within the province.

ARD (2009) suggested that the development of cooperative storage and marketing strategies could help to extend the availability and increase the market access of Alberta products. With little interest in local table potatoes, the industry felt that the challenges outweighed the benefits.

All study subjects worked on established, multi-generational farms. Due to the high cost of land in the province and low profitability of the sector, none of these farmers said that they would be growing potatoes if they had to purchase their land at current prices. Only the direct and intermediated producers sold new potatoes. Alberta producers, in general, cannot compete with new potatoes coming out of California and Washington.

All study subjects grew other crops in addition to table potatoes. For the Wiley's, table potatoes were a part of their standard farm diversification plan. Both the Millers and the Kitts grew table potatoes to meet customer demand and to secure customer loyalty. Customers simply expect to be able to buy potatoes from a vegetable farmer.

In this study the intermediated potato producer was not eligible for production based insurance because such insurance requires a minimum of five planted acres of potatoes; however, even though both the direct and mainstream did qualify, neither sought nor secured crop insurance. The reason for this decision is based in the high cost for purchasing the insurance premium relative to the pay out and producers felt that purchasing crop Insurance was not economical. This stands in contrast to the processing potato industry, of which 98 per cent of growers reportedly hold crop insurance.

All of the producers emphasized that in order to be profitable and maximize returns farmers need a marketing strategy that suits their operation. For the direct and intermediate producers this involved eliminating commercial middlemen and either selling directly to consumers, as is the case for the Kitts Family Farm, or to intermediaries such as restaurants or buying clubs for the Miller's Market Garden. Even though the Wiley name is not known to the final consumer, it is their strong reputation for quality and consistency in the wholesale industry that assures their potatoes have access to a retail market.

The profitability of table potatoes was of concern to all levels of producers with imported potatoes influencing prices especially in the mainstream supply chain. Both the intermediate and direct producers noted that they could not run a successful market garden business without selling potatoes.

Labour costs contribute significantly to the reduced profitability equation especially with the intermediated producer harvesting the entire potato crop by hand. The direct market producer incurs similar labour costs when harvesting the new potato crop but shifting to mechanical harvesting once the skin is set helps to reduce labour costs overall. The mainstream producer mentioned labour, implementing and maintaining On-Farm Food Safety certification, and shipping materials such as pallets as examples of costs that continue to rise in relation to flat lining returns.

Producers also find it difficult to establish a direct relationship with large retailers as they prefer to deal with fewer suppliers. "Either you're big, with lots of infrastructure to keep you in the game or you get out of that business," says Bill Wiley. "There is so much to know, in terms of pesticides, food safety, rules and regulations, and red tape. It was easier years ago, but now it is too risky especially considering land [and] processing costs and there is little mercy."

Key Findings

Table potatoes remain a keystone product for vegetable growers, despite Albertans reduced consumption of potatoes. Producers are concerned about profitability of table potato operations; they are labour intense, have higher cull rates comparatively to other potato streams and relatively low value per weight. Nevertheless, consumers expect to find them at vegetable operations. Growers diversify their operations to spread the risk.

OVERVIEW OF LAMB MARKETS

Trends in lamb across Canada

Demand for lamb meat in Canada is growing. Between 1997 and 2008 demand increased 64 per cent (Canadian Sheep Federation, 2009). Lamb, like nearly all sectors of agriculture, has declined since 2008, likely due to the economic recession; however, it is expected to rise steadily into the future.

Growth in Canadian lamb consumption is attributed primarily to demographic trends in immigration, especially the expansion of south Asian and Middle Eastern communities. Other factors include the aging of the baby boomer population who will have more time and money to spend on cooking as they retire, and growing interest among Canadians for diverse foods, international flavours, and local products (Canadian Sheep Federation, 2009; EcoRessources, 2011; Kovalio, 2011). Based on these trends, per capita Canadian consumption of lamb meat is expected to increase by 42 per cent between 2003 and 2020 (Serecon, 2005).

Recent research on the consumption patterns of Canadian lamb consumers (Aitelmaalem et al., 2005; EcoRessources, 2011; Gooch et al., 2006; 2007; Kovalio, 2011) differentiates typical consumers as occasional and regular. Occasional consumers are generally shopping for local, specialty or high-end meat. They are prone to seeking out 'culinary experiences' that leave them with a sense of travel, the exotic and discovery. They tend to be over the age of 35, well educated, affluent and likely to eat lamb in restaurants rather than at home. Lamb consumption increases around Easter, a time when it is traditional for many Canadians to serve the meat. Most regular lamb consumers come from communities where lamb is deeply rooted in traditional eating habits and religious practices. Much of this regular consumption involves halal or kosher products.

Canadian lamb consumers value local products and prefer Canadian lamb to imports (Gooch et al, 2006). While the buying philosophy towards 'eating local' plays a part in this, particularly for occasional consumers, Canadian lamb is also a differentiated product. Grain (as opposed to grass) finishing, which is characteristic of Canadian lamb, gives it a subtler taste, so that imported lamb cannot easily be substituted for Canadian lamb.

Consumers have a difficult time finding Canadian lamb on store shelves. The production of lamb in Canada has declined in recent years and currently, domestic output is only meeting 42 per cent of demand (Canadian Sheep Federation, 2011a; EcoRessources, 2011). The remaining 58 per cent is met through imports, largely from Australia and New Zealand, even though those countries are also seeing a drop in production. 2011 may be a turning point in Canadian sheep production as sheep inventory has increased for the first time in a number of years. The most recently available data indicates that

there are 1.1 million sheep on Canadian farms, totalling $142 million in cash receipts for sheep and lambs per year (Canadian Sheep Federation, 2011a; Statistics Canada, 2011).

In 2009, the Canadian Sheep Federation (2009) identified predation and access to medications as two important factors limiting herd size. Later, increasing land prices, high feed costs during droughts and high lamb prices were also found to limit herd growth (Canadian Sheep Federation, 2011).

Today, lamb imported to Canada from Australia and New Zealand is very competitively priced. This suggests that imported lamb is likely to increase its market share over the coming years. Increased production of Canadian lamb is crucial to maintaining consumer loyalty, processing infrastructures and future investment (Gooch et al., 2006; 2007; MacTavish, 2010).

Despite fears that increased lamb production would cause the farm gate price to plummet (Anderson, 2011; MacTavish, 2010), a recent Sheep Value Chain Roundtable report (EcoRessources, 2011) found that lamb production would need to increase by 42 per cent before it would have a significant impact on the producer price.

Increasing lamb supply could have a number of benefits:

- ✓ encourage a more professional and business-like approach to lamb production
- ✓ encourage specialized transportation systems
- ✓ extend the lamb production year round
- ✓ encourage more pharmaceutical companies into the Canadian market for small ruminants
- ✓ allow more lamb specific processing facilities
- ✓ allow lamb to compete more effectively in mixed species production facilities

Of course production volumes, processing infrastructure and demand will all need to grow in a coordinated manner (EcoRessources, 2011).

Overview of Lamb Markets in Alberta

Alberta is the third largest producer of lamb in the country, generating approximately 19 per cent of the country's supply (Methuen, 2008). As of July 1, 2011, Statistics Canada estimated that Alberta sheep and lamb totalled 183,000 (Statistics Canada, 2011). Alberta flock sizes have been trending upwards more consistently than other provinces (Canadian Sheep Federation, 2011a; Statistics Canada, 2011). Alberta lamb producers are increasing their ewe lamb retention by 36 per cent; this suggests flock rebuilding in the province, likely due to factors such as improved forage production and record slaughter lamb prices (ARD, 2011d; Canadian Sheep Federation, 2011a). The rising price of lamb therefore seems to be a factor in both increasing and decreasing flock sizes, depending on the producer's cash flow situation and whether the producer is thinking short or long term.

Lamb production in Alberta has a high potential for growth. The province's federal processor can currently slaughter up to 2,000 head per week but is greatly underutilized. The plant managers are extremely interested in increasing their volumes and receiving more Alberta lambs throughout the year. Currently, additional lambs are coming from the United States and from Saskatchewan and British Columbia, where there are no federal facilities. It is estimated that 1.2 million people in Alberta consume lamb; however, the province only supplies 40 to 50 per cent of its demand (Methuen, 2008; EcoRessources, 2011).

The Case Studies - Lamb

Three primary case studies were chosen for the study. They include a direct market supply chain, an intermediated supply chain and a mainstream supply chain. In the direct and intermediated supply chains, the names are fictitious in order to protect the identity of the people and businesses involved. The producer in the mainstream supply chain requested that we use his actual name in the case study.

Pederson Family Farm – Direct Supply Chain

Jacob and Janet Pederson sell lamb directly to consumers in their local area, Edmonton, Calgary and one midsize city near their farm. Their customers find the meat especially tender and mild flavoured. They also value their relationship with the Pedersons, but Jacob feels that "if the quality isn't there, it wouldn't matter who you are, they aren't going to buy it." Pedersons market their lamb as "naturally raised."

The Pederson farm is about 360 acres, but much of the grain land has been rented to neighbours. The Pedersons have a flock of 70 to 80 mixed breed ewes, five mixed breed yearling rams and in season, approximately 110 lambs. Ewes lamb out once per year, and lambs are sold in the fall (October to December). Ewes average about 1.75 lambs per year.

The Pedersons buy rams to avoid inbreeding and sell cull ewes and rams through a local broker. Ewes are culled if they are poor mothers. Jacob and Janet have their sheep sheared annually and sell the wool to the Canada Co-operative Wool Growers Ltd., in Lethbridge.

Lambs are taken to a provincially inspected local abattoir/butcher shop for slaughtering, cutting and wrapping. Jacob and Janet sell their lamb as whole animals (approximately 80%) or sides (20%). The local abattoir works with the Pedersons to ensure that processing meets the customer preferences, but all sales are done by the Pedersons themselves. The abattoir provides pamphlets and cards to potential customers, and directs them to the Pedersons. Most sales come to the Pedersons by referral from other customers, or by current customers increasing their consumption.

Frozen meat is collected from the butcher, placed in reusable bags and returned to the farm. Jacob and Janet arrange for customers to meet them at parking lots in the major

cities for their meat delivery. The Pedersons have attended farmers' markets, but they are not keen to offer specific cuts needed at market, and are not sure that the cost of a booth would pay for itself.

Business is going well for the Pedersons. They do not advertise, but the meat "almost sells itself" through repeat business and customer referrals. The Pedersons staffed an Alberta Lamb booth at a local home show several years ago, resulting in their first sales. According to Jacob, getting the word out is a priority. Often people think they don't like lamb until they have tasted it. The Pederson's product is unlike New Zealand lamb and unlike mutton. The market resistance is often to an older, stronger flavoured product. "Once they've tried it, we have no troubles," claims Jacob.

Fifty per cent of Pederson's lamb is sold through direct market channels that include deliveries in the city. One-third of the animals are kept back to build the flock and remaining 17 per cent are sold through a broker to the conventional auction market, where most are then purchased by the federal processor either directly or after sales to other producers. Animals in these latter sales are destined to mainstream food markets in and out of Alberta. The Pedersons make a few sales locally and occasionally a customer will come to the farm to purchase a half or whole lamb. In this study we examine the market channel that runs directly to the consumer.

The Pederson's supply chain is very simple, with Jacob and Janet doing most of the work. When they go on vacation, they leave the sheep under the care of people they trust to come in and manage for them. Additional supports include shearers, a veterinarian, sheep breeders and various input suppliers (e.g. mineral, feed, fuel). Some of the supplies are bartered (e.g. use of bin space in trade for screenings) some are bought locally (e.g. veterinarian services) and some are acquired from outside the region (e.g. shearing).

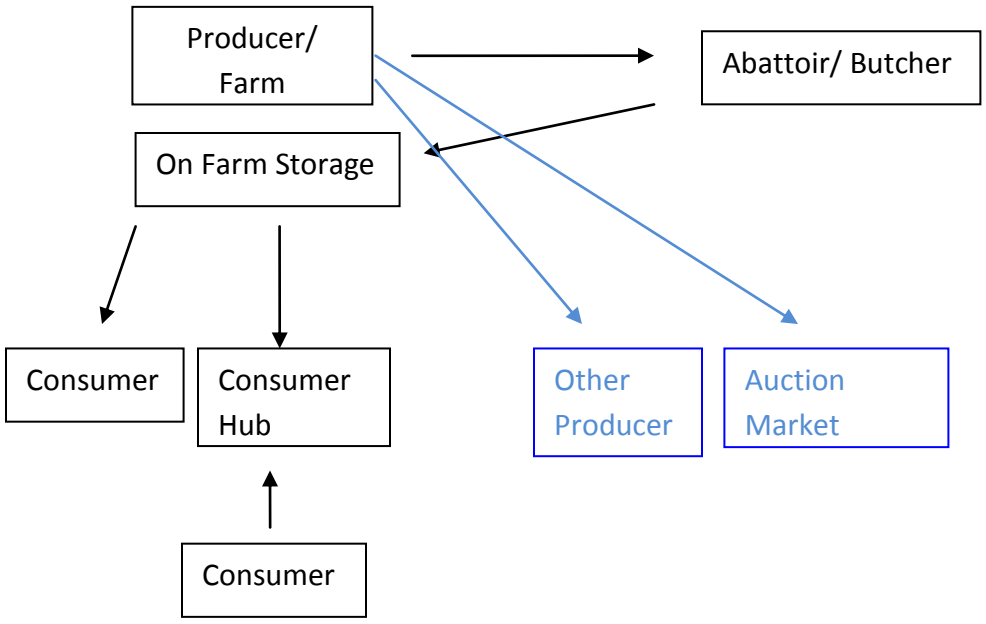
The Pedersons manage risk by completing an environmental farm plan and a food safety course. However, lamb is not eligible for production insurance and predation by coyotes is a risk. The Pedersons use guard llamas, but too many coyotes together overwhelm the llama's defences. Pedersons put the lambs in the barn overnight when coyote numbers are high, as coyotes are most active in the evenings. The municipal district has used hunters and trappers, and occasionally poisons to control coyotes. Pedersons have seen fewer losses to coyotes lately, but one problem coyote can take out quite a few lambs. Drought has also been a problem, causing Pedersons to import truckloads of hay.

The Pedersons are happy keeping the operation at a size that they can manage by themselves; both partners have full-time, off-farm jobs. They foresee expanding the herd to perhaps 100 ewes. They hope this will meet future demand and still be manageable for two people. They are considering purchasing additional handling equipment to ease the workload and allow them to increase the herd without increasing the labour. They estimate that their labour with the sheep includes about 60 per cent in

general herd management, 20 per cent lambing, 12 per cent delivery and 8 per cent marketing (arranging and phoning).

The Pedersons are happier now that they have a great deal of control over their prices. When Bovine spongiform encephalopathy (BSE) hit, it was devastating. The price was down to $60 or even $50 per animal. Now they calculate their costs and determine their own price.

Figure 7: Direct Supply Chain for Lamb
Direct to Customer: Animals are taken from the farm to the abattoir where they are killed, cut, and wrapped. The products are then returned to the farm for storage, delivered directly to the consumer at their home, or taken to a common pick up location (consumer hub). These supply chains are presented in black. Alternative supply chains that are used by the Pedersons but are not the focus of this analysis are marked in blue.



Rolling Hills Family Farm – Intermediated Supply Chain
Tom Campbell and his son, Brian, raise approximately 850 ewes and 1,500 lambs on their 700 acre farm. The Campbells also grow their own feed, hay and silage. They sell 90 per cent of their lambs to restaurants in the city, and nearly 10 per cent directly to customers. They occasionally sell a small number of lambs at auction, to the federal processing plant or to other producers.

At first, the Campbells sold their product at farmers' markets, but they found that this was a major time commitment, especially on market days. They began selling to restaurants a decade ago when chefs were beginning to buy from their farmers' market

stall. The chefs, typically from high-end restaurants, were impressed with their product quality and consistency and kept coming back. Tom began dealing directly with those restaurants, and word of mouth grew the business from there. Tom brought in additional restaurants by knocking on doors and convincing chefs to try the product. All his deals are handshake agreements.

> *"One or two good restaurants would make me just as much money as one [day at the] farmers' market and it takes me two minutes to phone them and I've got my route in the city ... Sometimes there are three restaurants on a block, so it's not like I have to go all over the city for it. I just make a loop through the city and do all my distribution."*

Tom values his relationships with the various chefs. Some have been with him from the start and they brought his product with them when they changed restaurants. Tom holds a deep respect for those chefs he's worked with over the years. "I've met some very talented, good people. I've enjoyed working with them."

The respect is mutual. Chefs keep coming back to Rolling Hills Family Farm, insisting that their product is consistently the best. Tom maintains that this quality likely comes from the land, clean spring water and nutrient-rich grass. This is part of his branding for Rolling Hills Family Farm. The Campbells raise the majority of their feed and use manure and compost to increase soil fertility. By maintaining this control, and by keeping their lambs through finishing, they can be accountable for the product they sell.

Chefs come with their staff to visit Rolling Hills Family Farm and see for themselves that the lambs are raised and handled well. Restaurants have the confidence to sell Rolling Hills Family Farm product and often put the farm's name on their menus. Tom markets the Rolling Hills Family Farm brand through profiles in numerous newspapers and in a slow food directory.

Tom sells 95 per cent of his lamb as specific cuts. He works with a number of restaurants to use all the available cuts of each lamb.

> *"It's a challenge because the chefs change their menus three to four times per year, so they like different cuts… you hope that one restaurant will take it off their menu so that another one can put it on theirs… It's always an ongoing challenge…But there are other chefs that will ask what I have too much of and they'll consider putting that [cut] on their menu or … use it for a special… So that's helpful. And I really enjoy working with them because we all work together in a way. We all help each other so that I'll warn them if I'm not going to have enough. Then they'll maybe use something else for a feature to help me through a bit. So we work back and forth."*

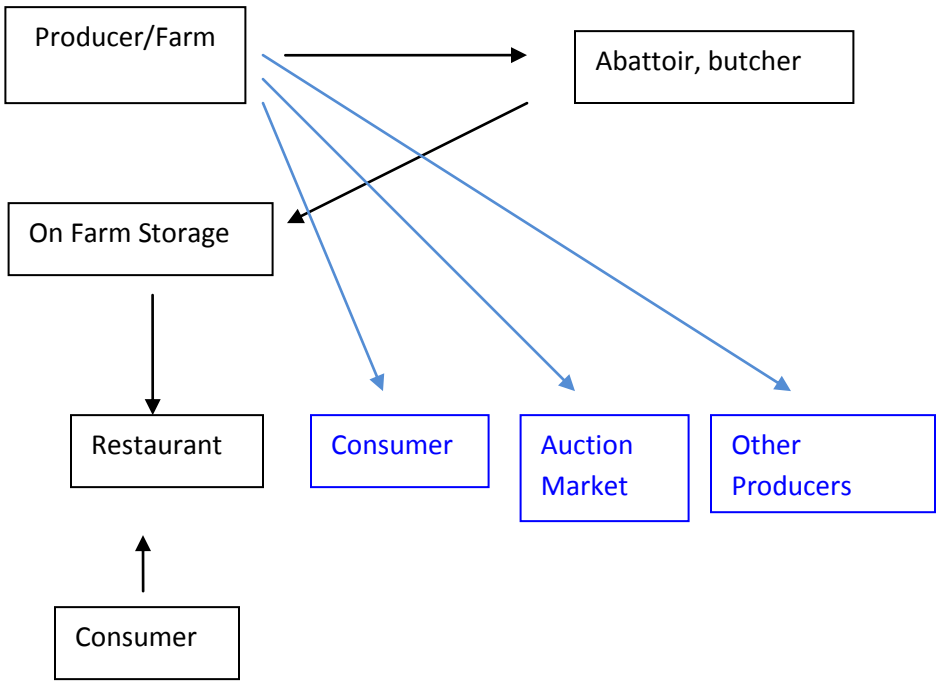
Restaurants occasionally buy whole carcasses and teach their employees how to work with them, giving the staff more of an appreciation for what they're preparing.

Tom markets the majority of his lamb (65 to 70%) as fresh, so he takes lambs to the provincially approved slaughter facility weekly. He transports the meat home in coolers in the back of his truck and then drives it out to restaurants the following day. On his restaurant delivery runs Tom also drops meat off to his direct customers living on the route, or they may pick it up from his restaurants.

Tom and Brian are the two primary workers on Rolling Hills Family Farm. They receive help during busy times from other family members. Generally they are able to maintain the farm on their own because they lamb over a six month period rather than all at once. By spreading lambing over a longer period they are able to fulfill their restaurants' year round demand. This requires considerable management.

The Campbells are steadily expanding their operation and hope to have about 50 more ewes in the coming season. They also have plans to purchase a walk in cooler and freezer on the farm, as well as a refrigeration unit to put in the back of their truck so that they can have more room for transportation.

Figure 8: Intermediated Supply Chain for Lamb
Farm to Restaurant to Consumer: Animals are taken from the farm to the abattoir where they are killed, cut and wrapped. The products are then returned to the farm for overnight storage and delivered to the restaurant the following day. In the diagram, the featured supply chain is in black, alternative supply chains used by the Campbells are marked in blue.



Albers Family Farm – Mainstream Supply Chain

Roger Albers advised us that he was entirely comfortable with his information being released; he did not believe that it was possible to hide his identity because of the uniqueness of his operation. He felt it would better to simply use his information "as is".

Lamb is the main focus of the Albers family business, run by Roger and Adele and their three sons. The family owns two quarters (160 acres each) of land in separate locations; most is in pasture/feedlot, but they have some crop land as well. They also raise goats.

Roger keeps 1,500 to 2,000 ewes and about 50 rams. Ewes are generally bought at auction marts. They do not hold over ewe lambs, but rather buy "old girls" because they require less attention and have a higher lambing rate. Ewes lamb out either in January or May, at an average rate of 1.5 lambs per year. This helps to spread the workload and also provide lambs at appropriate stages throughout the year. Their own ewes are Suffolk, but they buy lambs of whatever breeds are available, mostly Suffolk and Dorset.

Roger finishes lambs that he buys at auction and from about 200 individual producers. Producers sell to Roger when their lambs weigh between 60 and 90 pounds. The producer makes more money on larger animals, but may choose to sell to Roger earlier depending on the availability of feed and the producer's financial situation.

Although the Albers buy all lambs offered, Roger can easily assess quality. "You know the difference in quality just because of the look of the lamb, and how he looks back at you." Roger says he can fix an underweight or wormy lamb, but sometimes it is a race to get him healthy before he weakens.

Larger producers may sell lambs to Albers two or three times during the year, selling heavier lambs first. Smaller producers generally sell their lambs all at once. Most lambs are sold from September through November. In 2011, people held lambs a little longer than usual, as the grass was good for longer and because people were less cash strapped and could hold out for a higher price.

Bidding on lambs is a competitive process for the feedlots, so it is all about business, rather than personal relationships. Roger explains, "I think that more people are beginning to think that the sheep business is a business and not just something nice to have. The cute factor is maybe starting to wear off."

Producers often phone Roger up and ask him to buy their lambs. "It's getting harder and harder to get good deals with all the price information out there." Producers often know what the price is even before they phone. He generally takes the whole load, whenever people are willing to sell, as he does not wish to discourage them.

Roger may have up to 5,000 lambs at his feedlot at a time. This is full-time work for himself and his youngest son, Tyler. A second son, Cody, works at the feedlot part time. Ryan Albers, the oldest son, oversees a second feedlot which is permitted to have up to 15,000 lambs at a time. Ryan and a hired man work full time, year round. A third person works part time, year round. Roger feels they could use more staff during the busy season, but it is hard to find people on a seasonal basis.

Together, Albers may feed 40,000 lambs per year. They are expanding their market into Toronto and Winnipeg, and buying lambs from all the western provinces and from the United States. Some of the lambs at their feedlot are owned by the operation but some are custom fed for investors. "They're only getting two per cent from the bank and we can offer a little bit more, with a little bit higher risk, of course," explains Roger.

The Albers sell lambs to SunGold Specialty Meats, Canada's largest federally inspected lamb processor in Innisfail. The Albers have had a long-term, close relationship with the slaughter facility (previously Sunterra, Canada West and LambCo). Pricing negotiations consider current market conditions, production costs and the Albers' need for a reasonable profit. The Albers depend on the relationship with the Innisfail plant, as they

are selling a large volume of animals. They don't find it cost effective to sell less than full liner loads. In turn, the SunGold plant has been more collaborative, involving Roger in planning and marketing to their mutual benefit.

SunGold slaughters and butchers the animals and markets the meat to retail stores such as Safeway, Save On, Sobeys, Thrifty and Loblaw's, as well as foodservice establishments such as butcher shops. More than half of SunGold's lamb meat is sold in Alberta, with the rest going to Quebec, Ontario, British Columbia and the Maritimes. Roger markets all their animals to SunGold except cull ewes, which are shipped live to Toronto for slaughter. SunGold prefers to buy the lambs on a graded carcass basis, but Albers insists on a live weight basis.

Lambs are more abundant in the fall, and thus sell for less; they are less abundant, and therefore bring a better price in the spring. Demand is especially high during the Easter season. The Albers are able to sell year round by managing the feeding regime and matching feeding schedules with initial weight and condition. They slow lamb weight gain by feeding them a diet with less energy and protein. They target a live weight of 120 to 125 pounds for most of their lambs. SunGold is looking for an average of 115 to 120 pounds.

Roger does not have a farm safety plan, but uses wise management to handle his risk. Financial risk is reduced by experience, reading the marketplace, and because the sheep market, though it fluctuates season to season, is relative stable year after year. He monitors eastern markets, and keeps a sharp eye on costs. "Knowing your production costs really helps manage your risk." Sheep producers are not eligible for production insurance. The Albers use 20 watch dogs to manage risk from predators. They also shoot coyotes that come onto their property.

The Albers do not have a brand or label, as they market live animals, but they do advertise, mostly for people to sell feeder lambs to them. They also make connections through auction markets.

Roger sees a future in the lamb sector. The Canadian population is becoming more ethnic, and more people are interested in lamb. Demand exceeds production. This is true worldwide. The time is right for increased and improved production. "We need new producers, but producers that can produce a good quality lamb. Opportunity is there for sure."

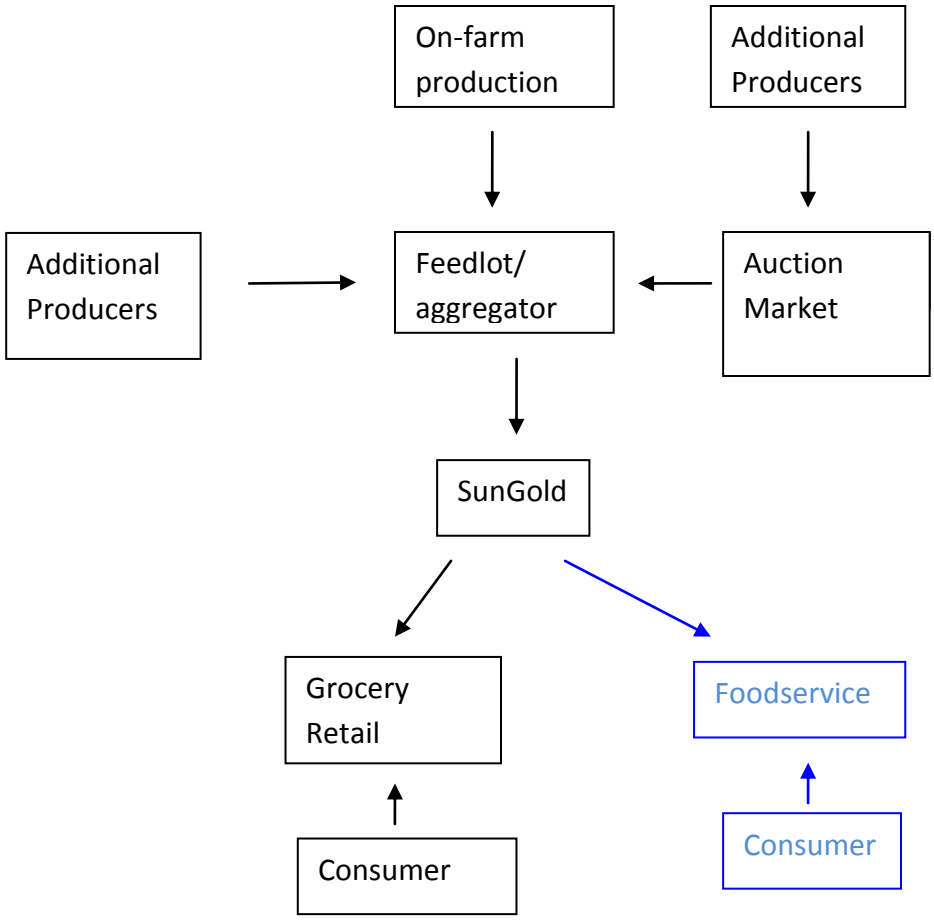
Like many people in the sheep industry, the Albers got started with a few ewes they bought to help teach the children about livestock. The economic numbers for sheep just made more sense than they did for cattle, so the flock has been expanding ever since.

Today the Albers are seen as industry leaders, buying throughout western Canada and providing advice and answering questions. The Albers are interested in expanding their

operation, by growing both their ewe flock and feedlot. They feel that labour will be a big challenge. Financing may be difficult, but they feel more confident about their ability to acquire what is needed financially than in terms of labour.

If people are considering getting into lamb production, Roger recommends they seek out mentors. They should start slowly, seek knowledgeable help and use a guard dog. Roger enjoys speaking to others about his business and the industry when he is asked.

Figure 9: Mainstream Supply Chain for Lamb
Mainstream: Producers sell their lambs to an aggregator who finishes the animals. The aggregator also produces his own animals. Animals are delivered to an inspected facility where they are slaughtered and the meat is cut and wrapped. The aggregator sells the meat to a variety of retail outlets. About 75 per cent of the meat goes to retail chains, and about 25 per cent goes to foodservice. In the diagram, the featured supply chain is in black, alternative supply chains are indicated in blue.



Supply Chain Analysis

Most lamb producers in the province have a breeding flock of ewes and raise lambs on pasture until fall. Lamb is considered an easy type of livestock to raise and a good choice for beginners. Most lambs are sold to feedlots in the fall, fed out and then slaughtered at the province's one federally inspected lamb processing plant. Many of the larger sales take place at auctions. Lambs are generally purchased on a live weight basis and transported directly from farm or feedlot to the abattoir. After slaughter, the carcasses hang for 24 to 48 hours in a chilling room. Then they are cut and wrapped before being sold by the processor, either as fresh or frozen meat, into a wholesale, retail or foodservice outlet.

Selling into this mainstream channel can be an attractive option. Producers are paid quickly and don't need to worry about marketing. On the other hand, producers have little control over their product or the price in this system (Eco Resources, 2011).

Alternately, producers can feed their lambs to market weight and take them to provincially inspected plants across the province. They can then sell the meat directly to consumers, or through farmers' markets, buying clubs and CSAs. Most is sold as frozen lamb. Producers may also sell lamb meat to restaurants, where a considerable portion of the lamb meat in the province is consumed (Gooch et al., 2006). This lamb can be either fresh or frozen, though fresh is often preferred at upscale establishments. When intermediated producers sell to butcher stores, those establishments may add value to the meat by processing them into sausages, marinated lamb, etc.

Direct and intermediated sales allow producers greater control over the production and marketing of their products through the supply chain. Though many producers find this an intimidating process, those who do it do not spend excessive time marketing.

Producer Share

The producer share varied across each of the supply chains. In the direct market supply chain where the producer sold product direct to consumers in the city, he reported that he received 79 per cent of the sale price, including the production, marketing and distribution share. The only other participant in the supply chain, the processor received the other 21 per cent.

For the intermediated supply chain, the producer retained approximately 27 per cent of the share, including the production, marketing, disposal and transportation amounts. In terms of price, these supply chains provided producers with similar prices per animal – $8.60 per pound in the direct chain and $5.66 per pound in the intermediated supply chain.

In the mainstream supply chain the aggregator produced lambs and also bought lambs from a variety of sources. He fed them up to final weight and sold them to the slaughter plant that processed the meat for sale to retail outlets. The producer share of $2.50 per pound (16%) exceeds the aggregator's at $1.83 per pound (11%). Although the aggregator receives less per pound, he sells an animal roughly twice the size that it was when he bought it.

There is considerable mark up in price between the aggregator and the retail store. This covers slaughter, cutting and wrapping, distribution, and all retail marketing.

Interestingly, the price per lamb brings all supply chains closer together. The direct supply chain price of $8.60 per pound is for a 30 pound lamb, which gives $258 per lamb. The intermediated price of $5.66 per pound is for a 50 pound lamb which gives $283 per lamb. The feedlot operator sells lambs to the processing plant at approximately $220 per lamb. Costs of production vary primarily with the weather and location, but may also vary among producers, so these comparisons may not reflect final profitability.

Table 7: Percentage of price and price per pound for lamb supply chain

Segment	**Direct[1]**		**Intermediated[2]**		**Mainstream[2, 3]**	
	$/lb	**% of total**	**$/lb**	**% of total**	**$/lb**	**% of total**
Producer	$4.77	44%	$4.06	19%	$2.50	16%
Producer marketing costs	$1.10	10%	$1.00	5%	na	na
Feedlot/aggregator	na	na	na	na	$1.83	11%
Slaughter	$2.23	21%	$0.64	3%	$11.67	73%
Cut and wrap			$0.70	3%		
Producer disposal costs			$0.20	1%		
Producer distribution costs	$2.71	25%	$0.40	2%		
Retailer	na	na	$14.33	67%		
Total	**$10.81/lb**	**100%**	**$21.33/lb**	**100%**	**$16.00/lb**	**100%**
Total across all functions completed by primary producer		**79%**		**27%**		**27%[4]**

[1]Based on 30 pounds meat per lamb
[2]Based on 50 pounds meat per lamb
[3]Based on producer selling a 60 pound animal; aggregator selling a 120 pound animal
[4]For those lambs born on the aggregators farm

Economic Impact

There were many similarities in terms of the impact of primary producers on the local economy across all three supply chains. All of the producers contribute to the local rural economy by using local resources, services and products. The primary labourers on all of the farms are the producers themselves. Each of them did need an extra hand from time to time for activities such as shearing or to enable the producers to go away for vacations. The majority of this extra labour came from family members and neighbours.

At least one of the producer families specifically mentioned that they try to keep the herd at a size they can handle on their own. When outside services and products were needed, it was generally local farms and businesses from the rural community that were hired or purchased from. This included:

- ✓ buying grain and hay from local farmers
- ✓ buying breeding stock from local farmers
- ✓ local neighbours sold animals to aggregator in the mainstream, though he also bought from further away
- ✓ minerals from local feed stores
- ✓ fuel
- ✓ veterinarian services and products such as vaccines
- ✓ additional services such as snow plowing, custom haying, etc.

It was also mentioned by several of the farmers that they have a strong community network of people who will come and help out when needed. In addition, some of the producers provided services within the community, such as advice and expertise to beginning or new entrants to the lamb/farming sector.

Food Miles and Fuel Use

There are several factors that affect the kilometres that a product travels before it reaches the consumer. For the direct marketer, a major factor is the distance to the consumer. Consumers tend to cluster in major centres and livestock production may be distantly located. In the direct supply chain, travel to the customer contributed over two-thirds of the total fuel use per kilogram of meat. Travel to and from an abattoir used relatively less fuel even though the trip to the abattoir carried far heavier loads. This same phenomenon was seen in the intermediated supply chain. For the mainstream chain, major factors are the distance from primary producers and auction markets to the feedlot and then the distance from the feedlot to the processing plant. The feedlot to plant portion of the mainstream supply chain was not followed, as the producers were more forthcoming than the lamb plant.

Table 8: Food kilometres and fuel use per kilogram of lamb transported over one production cycle

	Distance per Trip (km)	Fuel Use per Trip (L)	Fuel Use per kg Meat Shipped (L/kg)
Mainstream	**Average per Trip**		
Farm to Aggregator	321	102	0.068
Aggregator to Abattoir	130	41	0.006
Intermediated	**Average per Trip**		
Farm to Processor	60	6.5	0.014
Processor to Farm	60	6.5	0.014
Farm to Restaurant	200	21.5	0.047
Direct	**Average per Trip**		
Farm to Processor	55	9.2	0.045
Processor to Farm	55	9.9	0.049
Farm to Consumer	162	29.3	0.215
	Total over all Trips		
Mainstream	212,398	67,346	0.074
Intermediated	16,640	1792	0.076
Direct Market	1412	252	0.308

Other Business Considerations

A number of challenges have hampered the lamb sector over recent years both in terms of marketing and production. A primary concern in sheep production is coyotes. The provincial decision to move coyotes from the predator list to the pest list has caused problems for lamb producers. Some producers have tried a variety of guard animals but have found dogs to be the most effective solution.

Production can be limited by drought, as was clearly seen in 2003. The cost of importing hay can be prohibitive.

Disease had been an issue for one producer, both initially and during scale up.

Labour was seen as a potential issue. Although most labour was spread among the farm families, finding supplemental help during peak seasons was difficult. Raising sheep is an every day, year round activity. For producers who manage the herd alone, it can be difficult to get away for vacations or other off-farm activities. Producers need reliable and skilled replacements. Often these people are family and neighbours, but it is a challenge to find the right mix of willingness, availability and skill.

Fuel prices were also a concern. Small producers did not qualify for farm benefits such as the Alberta Farm Fuel Benefit program. Some felt that if the government tracked

prices of sheep the way they track cattle prices they would be more likely to qualify for farm benefits. Fuel prices were a concern to all who transported lambs to auction, market and the processor.

In terms of marketing, the recent economic recession caused difficulty in the marketplace. It was a particular challenge for the intermediated producer because his primary sales are to restaurants which were hit especially hard by tighter consumer budgets. During a recession people are less likely to eat in restaurants, and when they do, they tend to choose more economical items (Canadian Sheep Federation, 2009).

In terms of marketing, a major obstacle was consumers who are unfamiliar with the product, either because they have not tasted it or because what they remember is a different product than is available today.

One of the farms was becoming a confined feeding operation. The Confined Feeding Operation (CFO) guidelines take into account the number of animals, animal odour and zoning of the land to determine the setback that is required. It took much time and paperwork to become approved, but as acreages are developing around the farm, they need to be assured of their right to farm. They have a half mile setback on all sides that prevents subdivisions from getting too close. It also protects them from another feedlot or hog company coming into the area.

Key Findings

Demand for lamb exceeds supply. The market is largely untapped, both in the mainstream and in more direct markets. Infrastructure exists, but is underutilized. Scaling up requires an increase in quantity, but as the industry grows, a consistent quality will also be needed. Higher value niche markets are served by enterprising individuals. The mainstream market draws lambs from four provinces and the adjacent United States.

CROSS PRODUCT COMPARISON

Direct Supply Chains

The direct market producers in all three case studies use multiple avenues for distribution. The saskatoon and potato producers utilize multiple direct market supply chains (U-pick, farmers' markets, direct delivery), while the lamb producer sells his supplementary product to mainstream auction markets. Nonetheless, direct market sales make up the largest portion of each producer's sales (between 60% and 98%).

Each of the direct market producers also engage in a diverse range of supply chain functions. The Zanders integrate processing into their business, selling frozen as well as value added saskatoon products such as jams and spreads to their customers. The Kitts perform all the post harvest handling of their potatoes (washing, sorting, bagging, storage), in addition to marketing and transportation to their farmers' markets. Jacob and Janet Pederson do all their own marketing, storage, distribution and hold the responsibility for getting their lamb processed. Both the saskatoon and potato producers have diversified operations, selling a variety of local food products.

All of the direct market supply chains have strong linkages between producers and their consumers. All three producers interact with their customers on a regular basis. For the Zanders, the majority of their overall saskatoon sales take place on their farm. Therefore, they have invested in the aesthetics of and amenities on the farm to provide customers with a positive buying experience. They are rewarded with a loyal clientele of locals and vacationers. The Kitts interact regularly with customers at their farm store and farmers' markets. Their business is a household name in their area and the family relies on its established history and reputation in the community to bring customers to their business again and again. The Pedersons deliver in-person to their established customers and it is this relationship that Jacob relies on to continue to sell his lamb. They occasionally host buyers who come to visit on the farm.

All direct marketers contribute to a strong sense of community in their regions. This is particularly true when producers invite people onto their farm and therefore provide their communities with gathering places. Community engagement is specifically connected to the Kitts' business; it is through active community participation, such as providing school tours of their farm and donating vegetables to local public service organizations, that they build their reputation and market their products.

Generally, these direct market chains represent a small portion of product moving through local food supply chains. The saskatoon and lamb farms in particular are both quite small. The Kitts family farm may be an exception to this as it is relatively large for a market garden, growing 40 acres of potatoes (30 acres of table potatoes, 10 acres of new potatoes) in comparison to the mainstream producer with 60 acres.

Direct marketers set their prices primarily in relation to their production costs and their interactions with consumers. They also need to stay competitive in relation to other direct marketers.

Direct marketers may find their first consumers at farmers' markets. For instance, the Pederson's attended farmers' markets until they had enough of a clientele built up to support them when they left the farmers' market. Although very time consuming, a presence at the farmers' market may be crucial in creating awareness and driving business to on-farm stores, U-picks and other markets.

The challenges facing each direct marketer were largely challenges unique to their product (e.g., predators for the lamb producers). The one challenge all direct marketers mentioned was the difficulty finding labour. Alberta's strong economy and the bounty of relatively high paying jobs in the oil sector raises the bar for all other employers when looking for casual or seasonal labour, especially if specific skills are also required.

Direct marketers tend to be flexible and adapt to market demands as trends change. Their direct contact with customers aids in their understanding of market directions. However, some market trends are beyond their ability to accommodate. For instance, lamb producers have been hit hard by Bovine spongiform encephalopathy (BSE), 9/11 and the economic recession. Perhaps this is especially a lamb issue as lamb is, for many consumers, a luxury item priced above beef. However, the silver lining in this challenge for producers is that low conventional prices led them to innovative direct marketing. The Pedersons feel better now that they can set their price. The Kitts are able to market potatoes that were below grade in the mainstream system.

In general, the highest consumer prices are often found in the direct supply chain. Perhaps the consumers who buy from farmers directly are those who were already willing to pay a higher price or perhaps dealing directly with real people reduces their bargain hunting tendencies. In our study, this trend was true in comparison of direct and mainstream supply chains.

We found, however, that intermediated supply chains had good potential for farmers. In the saskatoon example, the producers in the intermediate and direct supply chains received very similar prices. The intermediated supply chain gave both the highest price per pound and the highest percentage return of any of the potato supply chains. The intermediated supply chain gave the highest price per live lamb.

The Kitts, who direct market potatoes, sold potatoes at the lowest price of any supply chain. For them, potatoes are a loss leader to get people to their market. The Pedersons, in the direct supply chain for lamb, also have the lowest total price. The product at the direct and mainstream chains are similar, fresh or frozen lamb meat but the intermediated chain offers an upscale full service ready to eat product, which naturally is at a higher price.

The average food miles (distances that products travel from farm to consumers) are lowest in the direct market supply chain. All are relatively low, ranging from zero on the Zanders' saskatoon farm (calculated for frozen product which is solely sold on farm), to 51 from the Kitts' farm, to 272 from the Pedersons. Fuel efficiency is greatest in the direct supply chains of potato and saskatoon, because most or all of the customers come to the producer. Of course this does not consider the consumer's fuel use. Generally, low distance is offset for direct marketers by low fuel efficiency because they are often carrying small loads. For example, while the Pedersons' lamb travelled the shortest distance of the lamb supply chain members to get to consumers, the overall impact was the highest because they carried small loads in a relatively inefficient vehicle. Only with significantly higher volumes could they attain the economies of scale that were present in the other lamb supply chains. This is not always the case, however, as the Kitts maintained the highest efficiency among the potato producers because they carried full loads of a diverse assortment of vegetables to market each week.

Intermediated Supply Chains

Intermediated supply chain producers are selling their products into a wide selection of markets, particularly to local restaurants, cafes, bakeries, caterers, resorts, wineries/meaderies, food buying clubs and other producers. Some producers, such as Tom Campbell, sell into only one of these avenues (restaurants). Others such as Amanda Reed sell into a multitude of venues (restaurants, cafes, bakeries, caterers, resorts, wineries/meaderies and other producers). While intermediated sales make up between 50 per cent and 90 per cent of these producers' total market, all also participate in one or more direct supply chains (farm gate, farmers' market or home delivery).

Like direct marketers, all intermediated producers also engage in a number of supply chain functions such as freezing and processing, marketing and delivery for saskatoons, washing, bagging, marketing and delivery for potatoes, waste disposal, marketing and delivery for lamb. Only the potato producer in this supply chain runs a diversified operation the other two focus solely on one product.

The producers' relationships with their customers are likely the most developed in the intermediated chains. None of the producers use contracts with their buyers and rely solely on the trust of a handshake. All producers work extremely hard to both establish and maintain the relationships they have with their buyers. This includes constant communication and cooperation to work with and meet every supply chain members' needs. These relationships tend to be value chains rather than simple supply chains. The relationships are solidly based on a superior product, producers stress that their product attracts and maintains the loyalty of customers.

Similarly, all three of these businesses have grown by word of mouth. All work diligently to 'get their name out there' within their respective communities. For the Reeds, branding their saskatoons is crucial and they often give buyers discounts if they mention

their farm's name on their menu or product label. Tom Campbell markets his product strongly by accountability, as raised and finished solely by himself. He would rather have a meat shortage than buy lamb from another producer to fill the gap. In this way, his name has become known with a consistent quality product and it is positive word of mouth that drives his growth. Nancy Miller relies heavily on her standing and contribution to her community to ensure her name and that of her farm are on everyone's minds.

In some cases, these relationships give the intermediated producers flexibility in determining their product's price. The saskatoon berry producer has fixed prices per grades and volumes of fruit, which are determined in part by the commodity prices that can be sustained in her area. She also negotiates prices with her buyers depending on additional value added benefits such as marketing. Tom Campbell sells his lamb based on a fixed price list rather than tying himself to the commodity market. Nancy Miller bases her prices both on her costs and in negotiation with her restaurants.

Sales volumes vary for the intermediated supply chains in this study, indicating that producers can find success at various stages of growth. The Miller's potato operation is the smallest in any product or commodity category growing only four acres of vegetables and three-quarters of an acre of potatoes. The Campbells and the Reeds run relatively large farms, operating 850 ewes and 35 acres of saskatoons respectively.

Both the Millers and the Reeds found navigating the regulatory requirements to be a challenge at their level of production. Municipal, provincial and federal legislation applies to their operation and they work closely with Alberta Health Services, ARD and the Canadian Food Inspection Agency to ensure they are following applicable regulations. The legislative requirements and the services of the enforcing agencies can be confusing for relatively small, inexperienced farmers. Often they use mentors to help them in this process.

Tom Campbell mentioned the vulnerability of this industry to economic changes. His product is sold into upscale establishments, and is thus tied to a greater extent to a positive economic environment.

Producers in the intermediated supply chain for saskatoons and potatoes received the highest percentage of the consumer's price for their product (75% and 80%). In both these cases, there was little value added applied to the consumer price. For the saskatoons, the wholesale rather than retail price was considered. For potatoes, only processing took place on farm. The picture is quite different for the lamb supply chain, where the retailer took the lion's share of the customer's price. With the lamb, the customer was buying a value-added product and the share of the price received by the retailer reflects that added value.

Food miles in the intermediated chain range from 10 to 320 kilometres. This range comes from the location of each producer's farm to their customers. Distance from a major centre is a liability for both direct and intermediated supply chains.

Fuel efficiency of the intermediated chain varied among the commodities. For saskatoons, fuel efficiency was much higher for the intermediated than for the mainstream supply chain. This reflects the need for the mainstream producer to take product a greater distance (i.e., out of province, for processing and using an oversized vehicle for his crop). For potatoes, the intermediated supply chain was the least fuel efficient. This resulted from low volumes per trip and the inability to gain economies of scale. For lamb, the mainstream and intermediated supply chains had similar fuel efficiency. Although the mainstream supply chain moved greater volume, using more fuel efficient vehicles, the producer in the intermediated lamb chain was also able to achieve economies of scale. He moves a significant volume of product, but has relatively a much shorter distance.

Mainstream Supply Chain

Products in the mainstream supply chains generally end up on conventional supermarket store shelves. Mainstream producers may sell their products to a processor who then distributes them to a variety of grocery chains, such as is the case with saskatoon berries. The mainstream potato producer sells his product to an aggregator who then repacks it into private label retail bags, then ships them to wholesalers who then distribute to retail outlets. The mainstream lamb producer runs the largest feedlot in the province, he receives animals from hundreds of producers and sells them to the province's federally inspected processing plant where they are then sold into either supermarkets or food service outlets such as butcher shops across the country. This supply chain is the sole marketing channel for the mainstream potato and lamb producers. The saskatoon producer runs a small farm gate and U-pick operation (accounting for 20% of sales) in addition to his mainstream sales.

The producers in this chain engage in fewer supply chain functions than in any other chain. Producers do not account for any of the packaging or marketing of their products and so are able to spend more time on production than producers in other chains. Because their operations tend to be larger, production requires more labour. All three mainstream producers run diversified operations. The potato and saskatoon producers sell a number of products into mainstream channels. The lamb producer sells other livestock into other market channels and the potato grower sells seed potatoes locally.

In common with all other chains, durable relationships with high levels of trust, information sharing, cooperation and interdependency are important in mainstream supply chains. These relationships are more formal than in any other supply chain, though are still not necessarily based on contracts.

The focus on social capital is least prominent in the mainstream case studies. Community engagement is not as strong a priority among these producers as it is in other chains. These producers are the least dependent of all of the chains on local consumers.

Producer prices in all three mainstream chains are closely linked with prices determined in national or international commodity markets, even when the final product is branded and has a fairly stable retail price.

Sales volumes in mainstream chains generally are high, though this is not significant in all commodities in this study. The lamb operator manages a significantly larger number of sheep than the direct or intermediated chain producers. However, volumes for the mainstream saskatoon producer are similar to those of their direct or intermediated counterparts. In fact, the mainstream saskatoon producer was actually harvesting fewer acres (20 acres) than the intermediated producer (35 acres). In the case of table potatoes the mainstream producer with 60 acres sells the greatest volume but receives the lowest price per pound. The farm direct producer, with 40 acres (30 acres of table and 10 acres of new) sells at a slighter higher price. The intermediated potato producer with the least acreage receives the highest price per pound.

Significant challenges for mainstream producers included increased paperwork, bureaucracy and managing quality. For the lamb producer, the increased paperwork was required to enable his operation to become a registered confined livestock operation. Both lamb and potato producers mentioned disease issues: the lamb producer when scaling up production and the potato producers in terms of diseases like scab that reduce potato aesthetics. Food safety certifications were an issue for the saskatoon and potato producers.

The producer share was least of all chains for the mainstream potato grower. This reflected the proportion of the price that was absorbed by the retailer and wholesaler. For saskatoons, the percentage of the wholesale price for the various producer functions was similar for the intermediated and mainstream producer. However, the mainstream producer received less because he got an equal percentage of a lower price. For lamb, the producer share for the intermediated producer was similar to the combined share of the primary producer and feedlot operator. The restaurant and the processing plant received similar percentages.

Uniformly, local food travelled the farthest in the mainstream chain moving between 323 and 1200 kilometres from its production location. Mainstream chains did not necessarily always have the largest environmental impact though, because all gain fuel efficiency by transporting large loads of product among their chains.

CANADA AND THE UNITED STATES: A COMPARISON

Local food supply chains are similar in Canada and the United States. In comparing the results of our case study with those from the landmark study conducted by the United States Department of Agriculture (USDA) (King et al., 2010), we find similar results in terms of the producer share of local food retail revenues, the local economic impact and the food miles of local products. Both studies show that diversification and a strong industry are key to successful local food supply chains.

The USDA study found that the producer share is generally highest in the direct supply chains and lowest in the mainstream. This is true because in both countries, producers retain the fewest dollars when the supply chains are the longest and most complex. While producers in the direct market supply chains often receive the highest price per unit they also undertake the responsibility for added supply chain functions such as processing, distribution and marketing, which can be costly and often involve the operator's own unpaid labour.

In both studies, products in the direct and intermediated supply chains traveled fewer kilometres from farms to consumers than those in the mainstream chain. However, the fuel use per unit of product in these shorter chains may still be greater than in the mainstream one because mainstream chains can attain greater fuel efficiency per unit with larger loads and logistical efficiencies than smaller operations can. This may be especially true in the USDA study, as their mainstream producers managed exceedingly large operations. In the current study, mainstream saskatoon and potato operations were not significantly larger than the other supply chains.

Both studies show that large amounts of wage and proprietor income in local food supply chains are retained within the local community, but more of it is retained in the direct and intermediated chains than in the mainstream. While some mainstream supply chain functions, such as retail and distribution, are performed locally and therefore contribute to local economic activity, such chains also rely on national and international networks to handle and deliver products to consumers. Some supply chains obtain products from local growers when they are available but from national and international growers in the off season.

Both studies also show that successful producers who participate in local food supply chains utilize a diverse range of products and market outlets. Small farms may diversify their product offerings to cover large fixed costs across multiple sources of revenue, or they may utilize multiple local market chains to take advantage of multiple revenue streams. Primarily in the United States, but also in the lamb industry in Alberta, some large farms diversified by using mainstream outlets as a residual market for excess supply.

When looking at Alberta potatoes and American apples it is apparent that local producers don't fare well in industries with a high degree of competition. The two case studies both showcase industries with a large number of producers selling products in the three markets, putting downward pressure on the price of the product. Therefore, producers in these markets are largely price takers. The exception to this is the intermediated potato producer who is able to sell her product at a high price because she is one of only a few market gardeners in her area.

It is also interesting to take a closer look at the Alberta saskatoon berry industry in comparison to the blueberry industry in the Oregon/Washington area of the United States. There are many similarities in these industries due to the similarity of the fruit and the potential for saskatoons is often compared to that of blueberries. Short harvest seasons and high perishability also restrict market opportunities for both crops. However, the blueberry market is strongly developed relative to that of saskatoons. Blueberry production is influenced by a strong industry, which links producers to a wide range of infrastructure such as research, education, promotion, packing and processing. This most directly supports mainstream and intermediated producers who draw on this infrastructure to market their products. As a result, blueberry producers are strongly connected to each other and other supply chain members; for example, the producers selling into the mainstream market harvest their own crops and also purchase from a large number of producers. Collective organizations also play an important role in organizing members of the direct and intermediated supply chains. In contrast, there is very little cooperation at this time among and between saskatoon berry producers and other chain members. Another major difference seems to be the use of mechanical crop harvesters. These harvesters were used in two of the three saskatoon operations studied but were not mentioned for the blueberry operations, though labour issues were cited as difficult challenges for the direct and mainstream blueberry producers. Labour issues were mentioned for Alberta producers in other products and for the direct saskatoon producer.

Inadequate integration of industry infrastructure may be a trend across sectors in Alberta. All of the local food supply chains in the USDA study had adequate access to processing and distribution services. In Alberta, each industry seems to lack some element of infrastructure necessary to build stable relationships across chain members. The saskatoon berry industry lacks processing infrastructure and cooperation between producers. Underproduction currently threatens lamb infrastructure and a single processor lends vulnerability to the sector. A provincially branded fresh potato line is stalled by the inability of the industry to entice a packer into marketing Alberta branded products and by the draw of potato producers to the processing potato chain which is comparatively more stable and economically more viable. Supply chain gaps exist in all three industries in the province, whereas the industries highlighted in the United States seemed to possess stable relationships with processors and internal investments in processing, packing and distribution. However, the USDA study does suggest benefits of further ties across supply chains.

KEY LESSONS

Direct Supply Chains

Producers in direct supply chains were diversified, having multiple markets such as U-pick, farmers' markets, farm stores, direct delivery and performing various tasks such as production, packaging, marketing and delivery. Producers are part of their brand and provide services in the broader community. Direct marketers are flexible and responsive to demand. Direct marketers have greater control over their operations. Often direct supply chains have low food miles, but this can be offset by lower fuel efficiency.

Intermediated Supply Chains

Producers in intermediated supply chains also prefer multiple markets and a variety of supply chain tasks. Intermediated supply chains can grow from direct supply chains; producers market directly to store owners rather than single consumers. Many of the principles remain the same. With a smaller client base and greater volume through each outlet, relationships are crucial at this level. Often these relationships are true value chains, with a greater flow of information between grower to restaurant, bakery, etc. The intermediated supply chain tends to be upscale competing with Sysco is not generally profitable. It is key to differentiate the product as local and high value.

Mainstream Supply Chains

Mainstream markets provide volume sales. These volumes provide economies of scale that improve fuel efficiency, despite increased food miles. Producers often lose control over pricing, but they also have fewer functions in the supply chain and are able to focus on production. Aggregators spend additional time on the management of product and paperwork.

Profitability

A number of producers are concerned with profitability. They recognized that success is situational, often requiring off-farm jobs, debt-free land and a diversity of market options. These requirements limit new entrants and growth of the various sectors. In most cases, success also requires a differentiated product or service.

Community Benefits

All producers bring economic impact to their regions. They buy within the community, employ neighbours at peak times and provide destinations and events with their businesses. All feel a connection to their local community and most depend on their reputations within the region for their business.

Environmental Impact

Producers who market direct generally incur fewer food miles. Those who produce the largest volumes generally have the economies of scale to improve fuel use efficiency.

These aspects are only a small part of the environmental impact of these operations, most of which are beyond the scope of this project.

Diversity and Flexibility

All producers that we interviewed showed a great deal of entrepreneurial spirit. They were willing to seek new markets and jump on new opportunities as they presented. Most producers had experience in more than one supply chain. This diversity was important to them and the best solutions were generally situation dependent. Farmers' markets were time consuming, especially for those distant from markets. But these venues help get the word out about new operations, which brings buyers to the farm store or connects chefs with venders. Diversity of supply chains provides opportunity and allows producers to explore alternate methods of bringing a product to market. For instance, mainstream markets are important to lamb producers who market through other channels, as they provide a back up for over production. A diversity of markets provided opportunity for different grades of saskatoons: soft berries to the winery, firmer berries to the on-farm store.

Value Chains

Supply chains become value chains when information is exchanged across links to the benefit of all. This was seen most clearly in the lamb mainstream and intermediated supply chains. In the mainstream chain the processor was dependent on the volume that the aggregator could bring and the aggregator was dependent on the market provided by the processor. Because each party was the only party that could deliver that service and each business' success required the other partner, information flowed freely between them, including a much greater ability to negotiate prices that met cost of production and included a profit margin. In the intermediated market, the relationship was based on a high quality, highly differentiated product that again could not be easily replaced. Lacking replacements in both supply chains provided the commitment necessary to make the chains work.

The saskatoon intermediated supply chain was close to becoming a value chain. The relationships between the producer and wineries/meaderies were strengthened through information sharing, mutually beneficial pricing and the promotion of each other's businesses. However, the relationships were still rather informal, which places the producer at a disadvantage in a fragmented sector that is dominated by many small-medium sized producers who are price takers. The saskatoon mainstream supply chain is not a value chain since it is incumbent upon the producer to find a customer(s) every season.

The move toward value chains was not as evident in the potato supply chains studied, though the producer and the restaurant are making some adjustments according to each other's operations.

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APPENDIX A – QUESTIONNAIRE FOR SASKATOON PRODUCERS

Performance of Local Food Supply Chains in Alberta

Informed Consent

On behalf of Alberta Agriculture and Rural Development (ARD), Dr. Brenda Frick with research team members Gunta Vitins, Merin Oleschuk, and Rochelle Eisen, and associated support staff (herein after referred to as 'the researchers') has been commissioned to conduct interviews that will result in the development of generalized Alberta case studies, comparing the structure, size, and performance of alternative and mainstream local food supply chains. This will be done in a confidential manner. No personal information will be provided to government or to anyone else outside of the researchers, only non-identifying, information will be shared with ARD. The case studies will be used by ARD in an effort to increase the understanding of the operation and performance of various business models, to describe each supply chain interaction with public policy and to identify barriers to growth or potential increases in cost structures.

We encourage you to participate in this important study. The interview will be scheduled at your convenience and will take approximately 1 ½ hrs to complete, depending on the length of your answers and the complexity of your operation. At any time during the interview you may request that we break and finish the interview at another time. Also, at any time during the interview, you can ask for the tape recorder to be turned off, refuse to answer a question, or refuse to participate further.

Every effort is being made to ensure confidentiality and anonymity. No one will have access to your individual survey responses or the interview information you provide except the researchers. Only the final generalized case studies will be included in the final research report being provided to ARD. The survey, tapes, and transcripts will all be securely stored in Brenda Frick's office for a period of three years after which they will be destroyed. The researchers will provide you with an opportunity to see the write-up of your portion of the case study in its close to final draft for you to ensure its accuracy. You will receive an electronic version of the final publicly available document.
If you have any questions or concerns about the survey or how your information will be used, please feel free to contact Dr. Brenda Frick by e-mailing organic@usask.ca or by calling 306-260-0663.

If you have any concerns regarding the overall project, please contact one of the ARD project team members at:

Mimi Lee 780-968-3552 or mimi.lee@gov.ab.ca

Eileen Kotowich at 780-853-8223 or eileen.kotowich@gov.ab.ca

Karen Goad at 780-538-5629 or karen.goad@gov.ab.ca.

This project is sponsored by Growing Forward, a federal-provincial-territorial initiative.

As a participant:

- I understand the purpose of the research and what my participation will entail.
- I understand I can stop the interview process at any time.
- I understand the information I provide is collected under the authority of and is subject to the *Freedom of Information and Protection of Privacy* Act and if I have any questions about how my personal information will be used, I can contact Mimi Lee, Economist, Alberta Agriculture and Rural Development, Tel: 780-968-3552.
- I give my permission to the researchers to use the information in a non-identifying way and include it in a final research report prepared for Alberta Agriculture and Rural Development.

Signature of Participant _____Date_____

Signature of Brenda Frick _____Date_____

Signature of Merin Oleschuk _____Date_____

Primary Producer Interview Guide – Saskatoon Berries
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

In the Consent Form we discussed the reasons behind why we are doing the study, and how the information is going to be used. Do you have any questions about this?

The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

By the term **local** we mean a product grown, produced or processed and then distributed and sold within Alberta.

A **supply chain** is a network of interconnected businesses involved in the provision of a product or service. We will also be talking about value chains which, for the purposes of this study, are closely related.

In a **value chain** the businesses work together to add value to the product through a shared relationship where all parties understand the benefits and costs to each player. For example, a supply chain in the Peace country was created when a bison producer contracted a processor to be their exclusive processor. They shared in the profits and the processor provided the operator the service they needed before serving others.

Interview Guide for Primary Producer – Saskatoons

Operation Description

1. Describe the different aspects of your operation. *(For example, crops grown, post harvest handling & storage facilities on farm/off farm, other services, etc.)*
2. How long have you been farming? How long has this farm been in your family?
3. What is the overall size of your farm? *(acres)* How many acres do you use for your operation? *(size for each aspect listed above)*
4. What varieties of saskatoons do you grow?
5. Do you do any post harvest handling or value-adding?
6. What grading standard do you follow?
7. What do you do with culls?
8. Do you purchase planting stock from other operations? Tell me about your relationship with these producers. *(For example, how often you buy from them, and how long you have been doing so)*
9. Are saskatoons the primary focus of your operation? In which format do you primarily sell?
10. How do you manage risk on your farm? (*completed Environmental Farm Plans (EFP), On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*
11. How do you differentiate your product and your farm?

Marketing Channels

12. Do you market your product in several ways?
    a. If yes, over the last three years, estimate what percentage of your saskatoons went through each marketing channel for each year.

For Direct Marketer

1. Farmers' markets: 2011_____% 2010_____% 2009_____%
2. Farm gate: 2011_____% 2010_____% 2009_____%
3. Delivery to individual consumers: 2011____% 2010____% 2009___%
4. Restaurants: 2011_____% 2010_____% 2009_____%
5. Other _____: 2011_____% 2010_____% 2009_____%

b. If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

13. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*
14. Do you sell year round or only during the season?
15. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.

Relationships

16. **For Direct Marketer**: Have you ever worked with any other operations in terms of marketing or adding value to your product? If so, in what way? How did that come about? *(For example, cooperatively to increase economy of scale, marketing capacity, to market with another company, to develop a value chain, etc.)*
17. **For Intermediary and Mainstream**: How long have you been working with _____? Tell me about the process of e.g. of how you began to work with them, and set up the terms of your relationship *(For example, contract/handshake/ understanding, pricing).*
    a. How often do you interact with _____? What is/are the purpose(s) of these interactions?
    b. How is it determined what volume of saskatoons you sell to _____? How far in advance is this decided?
    c. Do you ever have to make changes to your production practices to meet your sales deadlines?
    d. Do you ever work or interact with any of the other farmers that also sell to _____? If so, in what ways?
    e. How often do you interact with these other producers? Tell me about the types of interactions you have with them.

Local Economic Impact.

15. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**
e.g. farm worker	Seasonal	Temporary foreign workers	4

16. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why?, local interest in operation, etc.).*
17. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
18. Do you pay benefits?
19. Do off farm funds support the farming operation?
20. What services do you typically use on your operation? *(For example, custom harvesters, crop consultants, soil water test labs*, etc.*)* Where are these people/services located?
21. Where do you buy your inputs such as soil amendments, fertilizers, composts, planting stock, pesticides, equipment, hardware/tools, etc.?

Environmental Considerations

For Direct Marketer:

22. Do you own and operate any vehicles? If not, do you hire transportation services?
23. What markets do you attend? How often?
    a. What is the distance to these?
    b. How do you transport your products? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
24. If you use offsite storage, what is the distance to your storage facilities? How do you transport your products there? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?
25. Do your customers pick up directly from your farm? From drop off locations? If use drop off locations, where are they? Do you deliver the product to customers? Please provide a few examples of different customers that you deliver to and the distance you travel.
        i. What type of vehicle do you use for delivery? *(reefer truck, generator and freezer in the back of a pick up, pull a trailer, etc, fuel efficiency.).* Do you usually deliver a full load?
        ii. How often do you make these trips?
26. Does your product get to market any other way? Please explain.

For Intermediary and Mainstream:

27. Do you own and operate any vehicles? If not, do you hire transportation services?
28. How do you transport your product to the next stage in the supply chain? *(hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
29. What is the distance from your operation?
30. How often do you make this trip?

Production Costs and Profitability

31. What per cent of your time do you spend on production, marketing, transportation and distribution?

32. We would like to know the costs of moving your product through the supply chain.
    a. Please outline the costs related to moving your product from your farm to the point of sale. *(For example, production, post-harvest handling, processing, packaging, distribution, sales, marketing,.)*
    b. For operations that direct market bulk and packaged products or for operators who sell direct and to another company which grades/packs/processes and markets:
        i. Please provide a comparison of the costs related to direct marketing versus wholesaling. *(fuel, storage, packaging, are these fixed or variable)*
        ii. Why have you chosen to pursue one marketing channel versus the other? How did you decide what portion of your operation to dedicate to one versus the other?
33. What is your pricing structure for each of your various formats in each marketing channel *(For example, farm gate, farmers market, etc.)* Do they vary throughout the year?

Customers/Market

34. Describe your relationship with your customers. Why do they buy your products? *(For example, main attributes and values they place on the products)* Do you do special requests for customers?
35. Have they ever come to visit the farm? Wanted to help out your operation in some way? *(For example, promote the product, work a market stall)*

Business Development

36. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*
37. What would you say have been major challenges along the way? *(For example, consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access, competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)*

38. What challenges, if any would you say are specific to your marketing channels? How has this affected business decisions that you have made? Include comments on competition.
39. In the future are you considering any changes to your operation including a scaling up or down of your production, or modifying your marketing strategies? If so, in what ways?
40. Is there anything else you do to differentiate your operation? Your products?
41. Please describe the lessons you have learned when dealing with challenges/constraints in your operation.

Primary Producer/Packer/Shipper Interview Guide – Saskatoons
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

In the Consent Form we discussed the reasons behind why we are doing the study, and how the information is going to be used. Do you have any questions about this?

The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

By the term **local** we mean a product grown, produced or processed and then distributed and sold within Alberta.

A **supply chain** is a network of interconnected businesses involved in the provision of a product or service. We will also be talking about value chains which, for the purposes of this study, are closely related.

In a **value chain** the businesses work together to add value to the product through a shared relationship where all parties understand the benefits and costs to each player. For example, a supply chain in the Peace country was created when a bison producer contracted a processor to be their exclusive processor. They shared in the profits and the processor provided the operator the service they needed before serving others.

Primary Producer/Packer/Shipper - Saskatoons

Operation Description

1. Describe the different aspects of your operation. *(For example, crops grown, post harvest handling & storage facilities on farm/off farm, processing, marketing other services, etc.)*
2. How long have you been farming? How long has this farm been in your family?
3. What is the overall size of your farm? (*acres*) How many acres do you use for your operation? *(For example, size for each production aspect listed above)*
    a. Do you house your distribution facilities on your farm? What size of facilities are they? If not, where are these located?
    b. *(if applicable)* Where do you house your processing facilities? What size of facilities do you have?
4. If applicable, tell us about your processing *(For example, What products do you process? What type of processing do you do? What percentage of your processing is Saskatoon berries? What percentage of that is for product produced in Alberta?)*
5. What varieties of saskatoons do you grow?
6. Do you do any post harvest handling or value-adding?
7. What grading standard do you follow?
8. What do you do with culls?
9. Do you purchase planting stock from other operations? Tell me about your relationship with these producers. *(For example, how often you buy from them, and how long you have been doing so)*
10. Are saskatoons the primary focus of your operation? In which format do you primarily sell?
11. What percentage of the volume is produced on your farm?
12. How many different producers do you buy from? How often do you buy from them? How much do you typically buy?
13. Do you have purchase contracts with your suppliers? If so, can you describe the contract terms?
14. Do you brand the products? If yes, please elaborate.
    a. Do you market private label products for retail customers?*)*

15. How do you manage risk on your farm? (*completed Environmental Farm Plan, On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*

Marketing Channels

16. Tell me about the different marketing channels that your operation uses *(locations where product is sold, etc.)*
    a. What percentage of your saskatoons have been marketed through the different channels over the past three years?
        i. Farmers' markets: 2011_____% 2010_____% 2009_____%
        ii. Farm gate: 2011_____% 2010_____% 2009_____%
        iii. Wholesale/distributors
            1. _____ 2011_____% 2010_____% 2009_____%
            2. _____ 2011_____% 2010_____% 2009_____%
        iv. Retailers
            1. _____ 2011_____% 2010_____% 2009_____%
            2. _____ 2011_____% 2010_____% 2009_____%
            3. _____ 2011_____% 2010_____% 2009_____%
            4. _____ 2011_____% 2010_____% 2009_____%
            5. _____ 2011_____% 2010_____% 2009_____%
            6. _____ 2011_____% 2010_____% 2009_____%

v. Delivery into the city to individual consumers: 2011_____% 2010_____% 2009____%
vi. Restaurants: 2011_____% 2010_____% 2009_____%
vii. Processors: 2011_____% 2010_____% 2009_____%
viii. Other_____: 2011_____% 2010_____% 2009_____%

b. *(If Applicable)* If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

17. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*
18. How do you package your saskatoons (*describe pack sizes, packaging, etc*.)
19. Do you sell year round or only during the season?
20. Does demand by each of your marketing channels vary over time? (*monthly, yearly)*

21. How often do your customers place orders? How far in advance do they place the orders? How do you determine, in advance, what volumes you will need for your customers? Do your customers provide information that help you forecast demand? *(purchase commitments noted in a written contract, verbal commitments, advance or standing orders (faxed or emailed), etc).*
    a. Does this process differ between your smaller scale and larger scale/institutional customers? If yes, in which ways?
22. How important has the development of your brand been to your ability to market and scale of sales to each of your marketing streams? Why?
23. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.
24. Are there different attributes of your product that you sell to different customers *(frozen versus fresh, dried, value-added, etc.).*

Customers/Market

25. Describe your relationship with the end consumer. What do you think is driving them to buy your product/brand? *(main attributes and values they place on the products).*
26. Tell me about the process of developing your relationship with your retailers, wholesalers, and processors.
    a. How long have you been selling to them?
    b. Has your relationship changed over time?
    c. What challenges have you faced in selling to each of these customers?

Distribution, Marketing and Product Sales

27. What customer categories do you service? (*wholesalers/distributors, retailers – independents/mainstream chains, restaurants, processors, etc.)*
28. How do you determine your sale prices to customers? Please describe your pricing structure, including any variances between the various customers.
29. Do you have any type of promotional strategy to move products further down the supply chain?

Relationships

30. Tell me about your relationship with the producers that you buy from *(how long you have known them, depth of relationship, etc.)*
    a. With the first producers you started working with, how did you determine the terms of your relationship? *(contract/handshake/ understanding, pricing)* Has this process changed over time?
31. How often are you in contact with your various producers? What is the nature of the interaction?
    a. Do you work with the producers so that they meet the grade, quality, and other specific aspects of your brand? Do you have a way of verifying these standards?
    b. Do you work with the producers to manage supply? How do you deal with the limitation of product seasonality?
    c. Have you had significant fluctuations in the demand for your product? How have you managed this in terms of purchased product and inventory on farm?
32. How do you set prices with your producers?
    a. What do you pay them per unit? Does this vary? Based on what?
33. How do you decide how much volume you will buy from your various producers?
    a. Do they sell their saskatoons through other channels? If so, approximately what percentage of their products is sold through your company?

Local Economic Impact.

34. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**
e.g. farm worker	Seasonal	Temporary foreign workers	4

35. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why?, local interest in operation, etc.).*
36. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
37. Do you pay benefits?
38. Do off farm funds support the farming operation?
39. What services do you typically use on your operation? *(For example, custom harvesters, crop consultants, soil water test labs*, etc.*)* Where are these people/services located?
40. Where do you buy your inputs such as soil amendments, fertilizers, composts, planting stock, pesticides, equipment, hardware/tools, etc.?

Environmental Considerations

41. What are the general steps involved in getting your product from the farms to your facilities and then to your customers?
42. Where are the suppliers you buy from located?
    a. How are the saskatoons transported to your operation? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. How many/much are typically shipped at once? How often? Is it usually a full load?
43. What is the distance to your processor?
    a. How are the saskatoons transported to the processor? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. How much are typically shipped at once? How often? Is it usually a full load?
44. If you use offsite storage, what is the distance to your storage facilities?
    a. How do you transport your products? *(hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?
45. If you work with a distributor *(central distributor, retail centre distributors)*, what is the distance to this location?
    a. How are the products delivered to the facilities? *(hire, drive truck, what type of vehicle)*
    b. What size shipment is typically delivered? How often? Is it usually a full load?
46. What is the distance between the distribution facilities and your end market?
47. What is the distance between your storage facilities and your customers? (*e.g. wholesalers/distributors, retailers (distribution centers and direct store delivery), processors, restaurants, etc)*
    a. How are the products delivered to your customers' facilities? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. What size of a shipment is typically delivered? How often? Is it usually a full load?

Production Costs and Profitability

48. We would like to know the costs of moving your product through the supply chain.
    a. Please outline the costs related to moving your product from your farm to the point of sale. *(production, post-harvest handling, packing, processing, storage, distribution, marketing)*
        i. Have these costs changed over time? (*with growth, streamlining, changes in your operation)*
    b. If you market your products through different channels, please outline the difference in costs related to each channel.
        i. Why have you chosen to pursue one versus the other? How did you decide what portion of your operation to dedicate to one versus the other?
49. What price do you charge for your products? *(different pack sizes, fresh/further processed, marketing channels within their operation including between different retailers, etc.*
    a. What prices do your customers charge for your product*? (wholesale/distributors, processors, retailers)* Is the price consistent?
    b. Do prices fluctuate throughout the year?

Processing

50. Describe your relationship with your processor.
    a. Do you have a formal contract with them?
51. What does it cost to process your products?
52. Do you supply the packaging and labeling to the processor? Do you apply any labeling yourself?
53. Have you faced any challenges directly related to processing over the life of your business? Please describe.

Business Development

54. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*
55. Has your company been involved in developing the local food supply chains in Alberta or the marketing of local products? In what ways? And what do you think the benefit has been to local agri-businesses? To your company?
56. What are the major challenges that you have encountered over the development of your business? *(consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access, competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)*
    a. Have there been major challenges that you can identify related to working with specific clients? If yes, which clients? If yes, what have those challenges been?
57. Have you considered expanding or scaling up your business? What are the opportunities and challenges related to doing so?
58. Do you share information with your various partners in the supply chain to deal with quality issues, make adjustments to better meet market demand, etc.?
59. Please describe the lessons you have learned when dealing with challenges and constraints as they relate to the local food supply chains you work with.

APPENDIX B – QUESTIONNAIRE FOR POTATO PRODUCERS

Performance of Local Food Supply Chains in Alberta

Informed Consent

On behalf of Alberta Agriculture and Rural Development (ARD), Dr. Brenda Frick with research team members Gunta Vitins, Merin Oleschuk, and Rochelle Eisen, and associated support staff (herein after referred to as 'the researchers') has been commissioned to conduct interviews that will result in the development of generalized Alberta case studies, comparing the structure, size, and performance of alternative and mainstream local food supply chains. This will be done in a confidential manner. No personal information will be provided to government or to anyone else outside of the researchers, only non-identifying, information will be shared with ARD. The case studies will be used by ARD in an effort to increase the understanding of the operation and performance of various business models, to describe each supply chain interaction with public policy and to identify barriers to growth or potential increases in cost structures.

We encourage you to participate in this important study. The interview will be scheduled at your convenience and will take approximately 1 ½ hrs to complete, depending on the length of your answers and the complexity of your operation. At any time during the interview you may request that we break and finish the interview at another time. Also, at any time during the interview, you can ask for the tape recorder to be turned off, refuse to answer a question, or refuse to participate further.

Every effort is being made to ensure confidentiality and anonymity. No one will have access to your individual survey responses or the interview information you provide except the researchers. Only the final generalized case studies will be included in the final research report being provided to ARD. The survey, tapes, and transcripts will all be securely stored in Brenda Frick's office for a period of three years after which they will be destroyed. The researchers will provide you with an opportunity to see the write-up of your portion of the case study in its close to final draft for you to ensure its accuracy. You will receive an electronic version of the final publicly available document.

If you have any questions or concerns about the survey or how your information will be used, please feel free to contact Dr. Brenda Frick by e-mailing organic@usask.ca or by calling 306-260-0663.

If you have any concerns regarding the overall project, please contact one of the ARD project team members at:

Mimi Lee 780-968-3552 or mimi.lee@gov.ab.ca

Eileen Kotowich at 780-853-8223 or eileen.kotowich@gov.ab.ca

Karen Goad at 780-538-5629 or karen.goad@gov.ab.ca.

This project is sponsored by Growing Forward, a federal-provincial-territorial initiative.

As a participant:

- I understand the purpose of the research and what my participation will entail.
- I understand I can stop the interview process at any time.
- I understand the information I provide is collected under the authority of and is subject to the *Freedom of Information and Protection of Privacy* Act and if I have any questions about how my personal information will be used, I can contact Mimi Lee, Economist, Alberta Agriculture and Rural Development, Tel: 780-968-3552.
- I give my permission to the researchers to use the information in a non-identifying way and include it in a final research report prepared for Alberta Agriculture and Rural Development.

Signature of Participant _____Date_____

Signature of Brenda Frick _____Date_____

Signature of Merin Oleschuk _____Date_____

Primary Producer Interview Guide – Table Potatoes
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

In the Consent Form we discussed the reasons behind why we are doing the study, and how the information is going to be used. Do you have any questions about this?

The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

By the term **local** we mean a product grown, produced or processed and then distributed and sold within Alberta.

A **supply chain** is a network of interconnected businesses involved in the provision of a product or service. We will also be talking about value chains which, for the purposes of this study, are closely related.

In a **value chain** the businesses work together to add value to the product through a shared relationship where all parties understand the benefits and costs to each player. For example, a supply chain in the Peace country was created when a bison producer contracted a processor to be their exclusive processor. They shared in the profits and the processor provided the operator the service they needed before serving others.

Interview Guide for Primary Producer – Table Potatoes

Operation Description

18. Describe the different aspects of your operation. *(For example, crops grown, post harvest handling & storage facilities on farm/off farm, other services, etc.)*
19. How long have you been farming? How long has this farm been in your family?
20. What is the overall size of your farm? *(acres)* How many acres do you use for your operation? *(size for each aspect listed above)*
21. What potato varieties do you grow?
22. Do you do any post harvest handling or value-adding?
23. What grading standard do you follow?
24. What do you do with culls?
25. Do you purchase seed potatoes from other operations? Tell me about your relationship with these producers. *(For example, how often you buy from them, and how long you have been doing so)*
26. Are table potatoes the primary focus of your operation? In which format do you primarily sell?
27. How do you manage risk on your farm? (*completed Environmental Farm Plans (EFP), On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*
28. How do you differentiate your product and your farm?

Marketing Channels

29. Do you market your product in several ways?
    c. If yes, over the last three years, estimate what percentage of your potatoes went through each marketing channel for each year.

For Direct Marketer

6. Farmers' markets: 2011_____% 2010_____% 2009_____%
7. Farm gate: 2011_____% 2010_____% 2009_____%
8. Delivery to individual consumers: 2011____% 2010____% 2009___%
9. Restaurants: 2011_____% 2010_____% 2009_____%
10. Other _____: 2011_____% 2010_____% 2009_____%

d. If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

30. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*
31. Do you sell year round or only during the season?
32. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.

Relationships

33. **For Direct Marketer**: Have you ever worked with any other operations in terms of marketing or adding value to your product? If so, in what way? How did that come about? *(For example, cooperatively to increase economy of scale, marketing capacity, to market with another company, to develop a value chain, etc.)*
34. **For Intermediary and Mainstream**: How long have you been working with _____? Tell me about the process of e.g. of how you began to work with them, and set up the terms of your relationship *(For example, contract/handshake/ understanding, pricing).*
    f. How often do you interact with _____? What is/are the purpose(s) of these interactions?
    g. How is it determined what volume of table potatoes you sell to _____? How far in advance is this decided?
    h. Do you ever have to make changes to your production practices to meet your sales deadlines?
    i. Do you ever work or interact with any of the other farmers that also sell to _____? If so, in what ways?
    j. How often do you interact with these other producers? Tell me about the types of interactions you have with them.

Local Economic Impact.

16. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**
e.g. farm worker	Seasonal	Temporary foreign workers	4

42. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why?, local interest in operation, etc.).*
43. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
44. Do you pay benefits?
45. Do off farm funds support the farming operation?
46. What services do you typically use on your operation? *(For example, custom harvesters, crop consultants, soil water test labs*, etc.*)* Where are these people/services located?
47. Where do you buy your inputs such as soil amendments, fertilizers, composts, seed potatoes, pesticides, equipment, hardware/tools, etc.?

Environmental Considerations

For Direct Marketer:

48. Do you own and operate any vehicles? If not, do you hire transportation services?
49. What markets do you attend? How often?
    c. What is the distance to these?
    d. How do you transport your products? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
50. If you use offsite storage, what is the distance to your storage facilities? How do you transport your products there? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?
51. Do your customers pick up directly from your farm? From drop off locations? If use drop off locations, where are they? Do you deliver the product to customers? Please provide a few examples of different customers that you deliver to and the distance you travel.
    i. What type of vehicle do you use for delivery? *(reefer truck, generator and freezer in the back of a pick up, pull a trailer, etc, fuel efficiency.).* Do you usually deliver a full load?
    ii. How often do you make these trips?
52. Does your product get to market any other way? Please explain.

For Intermediary and Mainstream:

53. Do you own and operate any vehicles? If not, do you hire transportation services?
54. How do you transport your product to the next stage in the supply chain? *(hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
55. What is the distance from your operation?
56. How often do you make this trip?

Production Costs and Profitability

57. What per cent of your time do you spend on production, marketing, transportation and distribution?

58. We would like to know the costs of moving your product through the supply chain.
    c. Please outline the costs related to moving your product from your farm to the point of sale. *(For example, production, post-harvest handling, processing, packaging, distribution, sales, marketing, etc)*
    d. For operations that direct market bulk and packaged products or for operators who sell direct and to another company which grades/packs/processes and markets:
        i. Please provide a comparison of the costs related to direct marketing versus wholesaling. *(fuel, storage, packaging, are these fixed or variable)*
        ii. Why have you chosen to pursue one marketing channel versus the other? How did you decide what portion of your operation to dedicate to one versus the other?
59. What is your pricing structure for each of your various formats in each marketing channel *(For example, farm gate, farmers market, etc.)* Do they vary throughout the year?

Customers/Market

60. Describe your relationship with your customers. Why do they buy your products? *(For example, main attributes and values they place on the products)* Do you do special requests for customers?
61. Have they ever come to visit the farm? Wanted to help out your operation in some way? *(For example, promote the product, work a market stall)*

Business Development

62. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*
63. What would you say have been major challenges along the way? *(For example, consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access,*

competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)

64. What challenges, if any would you say are specific to your marketing channels? How has this affected business decisions that you have made? Include comments on competition.
65. In the future are you considering any changes to your operation including a scaling up or down of your production, or modifying your marketing strategies? If so, in what ways?
66. Is there anything else you do to differentiate your operation? Your products?
67. Please describe the lessons you have learned when dealing with challenges/constraints in your operation.

Primary Producer/Packer/Shipper Interview Guide – Table Potatoes
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

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The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

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Interview Guide – Primary Producer/Packer/Shipper – Table Potatoes

Operation Description

60. Describe the different aspects of your operation. *(For example, crops grown, post harvest handling & storage facilities on farm/off farm, processing, marketing other services, etc.)*
61. How long have you been farming? How long has this farm been in your family?
62. What is the overall size of your farm? (*acres*) How many acres do you use for your operation? *(For example, size for each production aspect listed above)*
    a. Do you house your distribution facilities on your farm? What size of facilities are they? If not, where are these located?
    b. *(if applicable)* Where do you house your processing facilities? What size of facilities do you have?
63. If applicable, tell us about your processing *(For example, what products do you process? What type of processing do you do? What percentage of your processing is potatoes? What percentage of that is for product produced in Alberta?)*
64. What potato varieties do you grow?
65. Do you do any post harvest handling or value-adding?
66. What grading standard do you follow?
67. What do you do with culls?
68. Do you purchase seed potatoes from other operations? Tell me about your relationship with these producers. *(For example, how often you buy from them, and how long you have been doing so)*
69. Are table potatoes the primary focus of your operation? In which format do you primarily sell?
70. What percentage of the volume is produced on your farm?
71. How many different producers do you buy from? How often do you buy from them? How much do you typically buy?
72. Do you have purchase contracts with your suppliers? If so, can you describe the contract terms?
73. Do you brand the products? If yes, please elaborate.
    a. Do you market private label products for retail customers?*)*

74. How do you manage risk on your farm? (*completed Environmental Farm Plan, On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*

Marketing Channels

75. Tell me about the different marketing channels that your operation uses *(locations where product is sold, etc.)*
    a. What percentage of your table potatoes have been marketed through the different channels over the past three years?
        i. Farmers' markets: 2011_____% 2010_____% 2009_____%
        ii. Farm gate: 2011_____% 2010_____% 2009_____%
        iii. Wholesale/distributors
            1. _____ 2011_____% 2010_____% 2009_____%
            2. _____ 2011_____% 2010_____% 2009_____%
        iv. Retailers
            1. _____ 2011_____% 2010_____% 2009_____%
            2. _____ 2011_____% 2010_____% 2009_____%
            3. _____ 2011_____% 2010_____% 2009_____%
            4. _____ 2011_____% 2010_____% 2009_____%
            5. _____ 2011_____% 2010_____% 2009_____%
            6. _____ 2011_____% 2010_____% 2009_____%

v. Delivery into the city to individual consumers: 2011_____% 2010_____% 2009____%
vi. Restaurants: 2011_____% 2010_____% 2009_____%
vii. Processors: 2011_____% 2010_____% 2009_____%
viii. Other_____: 2011_____% 2010_____% 2009_____%

b. *(If Applicable)* If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

76. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*
77. How do you package your table potatoes? (*describe pack sizes, packaging, etc*.)
78. Do you sell year round or only during the season?
79. Does demand by each of your marketing channels vary over time? (*monthly, yearly)*

80. How often do your customers place orders? How far in advance do they place the orders? How do you determine, in advance, what volumes you will need for your customers? Do your customers provide information that help you forecast demand? *(purchase commitments noted in a written contract, verbal commitments, advance or standing orders (faxed or emailed), etc).*
    a. Does this process differ between your smaller scale and larger scale/institutional customers? If yes, in which ways?
81. How important has the development of your brand been to your ability to market and scale of sales to each of your marketing streams? Why?
82. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.
83. Are there different attributes of your product that you sell to different customers *(fresh, value-added, etc.).*

Customers/Market

84. Describe your relationship with the end consumer. What do you think is driving them to buy your product/brand? *(main attributes and values they place on the products).*
85. Tell me about the process of developing your relationship with your retailers, wholesalers, and processors.
    a. How long have you been selling to them?
    b. Has your relationship changed over time?
    c. What challenges have you faced in selling to each of these customers?

Distribution, Marketing And Product Sales

86. What customer categories do you service? (*wholesalers/distributors, retailers – independents/mainstream chains, restaurants, processors, etc.)*
87. How do you determine your sale prices to customers? Please describe your pricing structure, including any variances between the various customers.
88. Do you have any type of promotional strategy to move products further down the supply chain?

Relationships

89. Tell me about your relationship with the producers that you buy from *(how long you have known them, depth of relationship, etc.)*
    a. With the first producers you started working with, how did you determine the terms of your relationship? *(contract/handshake/ understanding, pricing)* Has this process changed over time?
90. How often are you in contact with your various producers? What is the nature of the interaction?
    a. Do you work with the producers so that they meet the grade, quality, and other specific aspects of your brand? Do you have a way of verifying these standards?
    b. Do you work with the producers to manage supply? How do you deal with the limitation of product seasonality?
    c. Have you had significant fluctuations in the demand for your product? How have you managed this in terms of purchased product and inventory on farm?
91. How do you set prices with your producers?
    b. What do you pay them per unit? Does this vary? Based on what?
92. How do you decide how much volume you will buy from your various producers?
    a. Do they sell their table potatoes through other channels? If so, approximately what percentage of their products is sold through your company?

Local Economic Impact.

93. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**
e.g. farm worker	Seasonal	Temporary foreign workers	4

94. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why? local interest in operation, etc.).*
95. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
96. Do you pay benefits?
97. Do off farm funds support the farming operation?
98. What services do you typically use on your operation? *(For example, custom harvesters, crop consultants, soil water test labs*, etc.*)* Where are these people/services located?
99. Where do you buy your inputs such as soil amendments, fertilizers, composts, seed potatoes, pesticides, equipment, hardware/tools, etc.?

Environmental Considerations

100. What are the general steps involved in getting your product from the farms to your facilities and then to your customers?
101. Where are the suppliers you buy from located?
    a. How are the table potatoes transported to your operation? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. How many/much are typically shipped at once? How often? Is it usually a full load?
102. If applicable, what is the distance to your processor?
    a. How are the potatoes transported to the processor? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. How much are typically shipped at once? How often? Is it usually a full load?
103. If you use offsite storage, what is the distance to your storage facilities?
    a. How do you transport your products? *(hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?
104. If you work with a distributor *(central distributor, retail centre distributors)*, what is the distance to this location?
    a. How are the products delivered to the facilities? *(hire, drive truck, what type of vehicle)*
    b. What size shipment is typically delivered? How often? Is it usually a full load?
105. What is the distance between the distribution facilities and your end market?
106. What is the distance between your storage facilities and your customers? (*e.g. wholesalers/distributors, retailers (distribution centers and direct store delivery), processors, restaurants, etc)*
    a. How are the products delivered to your customers' facilities? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. What size of a shipment is typically delivered? How often? Is it usually a full load?

Production Costs and Profitability

107. We would like to know the costs of moving your product through the supply chain.
    a. Please outline the costs related to moving your product from your farm to the point of sale. *(production, post-harvest handling, packing, processing, storage, distribution, marketing)*
        i. Have these costs changed over time? (*with growth, streamlining, changes in your operation)*
    b. If you market your products through different channels, please outline the difference in costs related to each channel.
        i. Why have you chosen to pursue one versus the other? How did you decide what portion of your operation to dedicate to one versus the other?

108. What price do you charge for your products? *(different pack sizes, fresh/further processed, marketing channels within their operation including between different retailers, etc.*
    a. What prices do your customers charge for your product*? (wholesale/distributors, processors, retailers)* Is the price consistent?
    b. Do prices fluctuate throughout the year?

Processing (if applicable)

109. Describe your relationship with your processor.
    a. Do you have a formal contract with them?

110. What does it cost to process your products?

111. Do you supply the packaging and labeling to the processor? Do you apply any labeling yourself?

112. Have you faced any challenges directly related to processing over the life of your business? Please describe.

Business Development

113. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*

114. Has your company been involved in developing the local food supply chains in Alberta or the marketing of local products? In what ways? And what do you think the benefit has been to local agri-businesses? To your company?

115. What are the major challenges that you have encountered over the development of your business? *(consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access, competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)*

    a. Have there been major challenges that you can identify related to working with specific clients? If yes, which clients? If yes, what have those challenges been?

116. Have you considered expanding or scaling up your business? What are the opportunities and challenges related to doing so?

117. Do you share information with your various partners in the supply chain to deal with quality issues, make adjustments to better meet market demand, etc.?

118. Please describe the lessons you have learned when dealing with challenges and constraints as they relate to the local food supply chains you work with.

APPENDIX C – QUESTIONNAIRE FOR LAMB PRODUCERS

Performance of Local Food Supply Chains in Alberta

Informed Consent

On behalf of Alberta Agriculture and Rural Development (ARD), Dr. Brenda Frick with research team members Gunta Vitins, Merin Oleschuk, and Rochelle Eisen, and associated support staff (herein after referred to as 'the researchers') has been commissioned to conduct interviews that will result in the development of generalized Alberta case studies, comparing the structure, size, and performance of alternative and mainstream local food supply chains. This will be done in a confidential manner. No personal information will be provided to government or to anyone else outside of the researchers, only non-identifying, information will be shared with ARD. The case studies will be used by ARD in an effort to increase the understanding of the operation and performance of various business models, to describe each supply chain interaction with public policy and to identify barriers to growth or potential increases in cost structures.

We encourage you to participate in this important study. The interview will be scheduled at your convenience and will take approximately 1 ½ hrs to complete, depending on the length of your answers and the complexity of your operation. At any time during the interview you may request that we break and finish the interview at another time. Also, at any time during the interview, you can ask for the tape recorder to be turned off, refuse to answer a question, or refuse to participate further.

Every effort is being made to ensure confidentiality and anonymity. No one will have access to your individual survey responses or the interview information you provide except the researchers. Only the final generalized case studies will be included in the final research report being provided to ARD. The survey, tapes, and transcripts will all be securely stored in Brenda Frick's office for a period of three years after which they will be destroyed. The researchers will provide you with an opportunity to see the write-up of your portion of the case study in its close to final draft for you to ensure its accuracy. You will receive an electronic version of the final publicly available document.

If you have any questions or concerns about the survey or how your information will be used, please feel free to contact Dr. Brenda Frick by e-mailing organic@usask.ca or by calling 306-260-0663.

If you have any concerns regarding the overall project, please contact one of the ARD project team members at:

Mimi Lee 780-968-3552 or mimi.lee@gov.ab.ca

Eileen Kotowich at 780-853-8223 or eileen.kotowich@gov.ab.ca

Karen Goad at 780-538-5629 or karen.goad@gov.ab.ca.

This project is sponsored by Growing Forward, a federal-provincial-territorial initiative.

As a participant:

- I understand the purpose of the research and what my participation will entail.
- I understand I can stop the interview process at any time.
- I understand the information I provide is collected under the authority of and is subject to the *Freedom of Information and Protection of Privacy* Act and if I have any questions about how my personal information will be used, I can contact Mimi Lee, Economist, Alberta Agriculture and Rural Development, Tel: 780-968-3552.
- I give my permission to the researchers to use the information in a non-identifying way and include it in a final research report prepared for Alberta Agriculture and Rural Development.

Signature of Participant _____Date_____

Signature of Brenda Frick _____Date_____

Signature of Merin Oleschuk _____Date_____

Primary Producer Interview Guide – Lamb
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

In the Consent Form we discussed the reasons behind why we are doing the study, and how the information is going to be used. Do you have any questions about this?

The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

By the term **local** we mean a product grown, produced or processed and then distributed and sold within Alberta.

A **supply chain** is a network of interconnected businesses involved in the provision of a product or service. We will also be talking about value chains which, for the purposes of this study, are closely related.

In a **value chain** the businesses work together to add value to the product through a shared relationship where all parties understand the benefits and costs to each player. For example, a supply chain in the Peace country was created when a bison producer contracted a processor to be their exclusive processor. They shared in the profits and the processor provided the operator the service they needed before serving others.

Interview Guide for Primary Producer – Lamb

Operation Description

35. Describe the different aspects of your operation. *(For example, sheep/lambs, pasture, grain, feedlot, custom services, storage, etc.)*
36. How long have you been farming? How long has this farm been in your family?
37. What is the overall size of your farm? *(acres)* How many acres do you use for your operation? *(size for each aspect listed above)*
38. How many ewes, lambs and rams do you have on the farm? What breeds?
39. Do you ever purchase ewes/lambs/rams from other operations? Tell me about your relationship with these producers. *(For example, how often you buy from them, and how long you have been doing so)*
40. Is lamb the primary focus of your operation? In which format do you primarily sell? *(ie. meat)*. *Do you also sell breeding stock?*
41. How do you manage risk on your farm? (*completed Environmental Farm Plans (EFP), On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*
42. How do you differentiate your product and your farm?

Marketing Channels

43. Do you market your product in several ways?
    e. If yes, over the last three years, estimate what percentage of your lamb (meat), went through each marketing channel for each year.

For Direct Marketer

11. Farmers' markets: 2011_____% 2010_____% 2009_____%
12. Farm gate: 2011_____% 2010_____% 2009_____%
13. Delivery to individual consumers: 2011____% 2010____% 2009___%
14. Restaurants: 2011_____% 2010_____% 2009_____%
15. Other _____: 2011_____% 2010_____% 2009_____%

    f. If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

44. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*
45. Do you sell year round or only during the season?
46. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.

Relationships

47. **For Direct Marketer**: Have you ever worked with any other operations in terms of marketing or adding value to your product? If so, in what way? How did that come about? *(For example, cooperatively to increase economy of scale, marketing capacity, to market with another company, to develop a value chain, etc.)*
48. **For Intermediary and Mainstream**: How long have you been working with _____? Tell me about the process of e.g. of how you began to work with them, and set up the terms of your relationship *(For example, contract/handshake/ understanding, pricing).*
    k. How often do you interact with _____? What is/are the purpose(s) of these interactions?
    l. How is it determined how many lambs you sell to _____? How far in advance is this decided?
    m. Do you ever have to make changes to your production practices to meet your sales deadlines?
    n. Do you ever work or interact with any of the other farmers that also sell to _____? If so, in what ways?
    o. How often do you interact with these other producers? Tell me about the types of interactions you have with them.

Local Economic Impact.

17. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**
e.g. farm worker	Seasonal	Temporary foreign workers	4

68. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why?, local interest in operation, etc.).*
69. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
70. Do you pay benefits?
71. Do off farm funds support the farming operation?
72. What services do you typically use on your operation? *(For example, custom grazing,* AI, *veterinary, slaughter and processing)* Where are these people/services located?
73. Where do you buy your inputs such as feed, hay, supplements, salt blocks, medications/drugs, etc.?

Environmental Considerations

For Direct Marketer:

74. Do you own and operate any vehicles? If not, do you hire transportation services?
75. What abattoir do you use?
    a. What is the distance to the abattoir?
    b. How do you transport your animals there? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
    c. How often do you take animals to slaughter? How many do you typically take at a time?
76. What markets do you attend? How often?
    e. What is the distance to these?
    f. How do you transport your products? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
77. If you use offsite storage, what is the distance to your storage facilities? How do you transport your products there? *(For example, hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?
78. Do your customers pick up directly from the abattoir? Or do you pick up the lamb and deliver it to the customer?
    a. If you pick up the product, where do you deliver it to afterwards? What is the distance? Please provide a few examples of different customers that you deliver to.
        i. What type of vehicle do you use for delivery? *(reefer truck, generator and freezer in the back of a pick up, pull a trailer, etc, fuel efficiency.).* Do you usually deliver a full load?
        ii. How often do you make these trips?
79. Does your product get to market any other way? Please explain.

For Intermediary and Mainstream:

80. Do you own and operate any vehicles? If not, do you hire transportation services?

81. How do you transport your lamb (meat and live animals) to the next stage in the supply chain? *(hire, drive truck, what type of vehicle, fuel efficiency)* Is it usually a full load?
82. What is the distance from your operation?
83. How often do you make this trip?

Production Costs and Profitability

84. What per cent of your time do you spend on production, marketing, transportation and distribution?

85. We would like to know the costs of moving your product through the supply chain.
    e. Please outline the costs related to moving your product from your farm to the point of sale. *(For example, production, processing, packaging, distribution, sales, marketing,.)*
    f. For operations that direct market bulk and cuts or for operators who sell direct and to another company which finishes/processes and markets the lamb
        i. Please provide a comparison of the costs related to direct marketing versus wholesaling. *(fuel, storage, packaging, are these fixed or variable)*
        ii. Why have you chosen to pursue one marketing channel versus the other? How did you decide what portion of your operation to dedicate to one versus the other?
86. What is your pricing structure for each of your various formats (For example, *live, "on the hook", boxed freezer lamb, bone-in/boneless, special cuts, etc.)* in each of your marketing channels

Customers/Market

87. Describe your relationship with your customers. Why do they buy your products? *(For example, main attributes and values they place on the products)* Do you offer special cuts and do special requests for customers?
88. Have they ever come to visit the farm? Wanted to help out your operation in some way? *(For example, promote the product, work a market stall)*

Business Development

89. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*
90. What would you say have been major challenges along the way? *(For example, consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access, competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)*
91. What challenges, if any would you say are specific to your marketing channels? How has this affected business decisions that you have made? Include comments on competition.
92. In the future are you considering any changes to your operation including a scaling up or down of your production, or modifying your marketing strategies? If so, in what ways?
93. Is there anything else you do to differentiate your operation? Your products?
94. Please describe the lessons you have learned when dealing with challenges/constraints in your operation.

Primary Producer/Aggregator Interview Guide – Lamb
Performance of Local Food Supply Chains in Alberta

Preliminary Details (to be completed by interviewer)

Date and time of interview:_____

Contact number:_____

Interviewee's name: _____

Interviewer's name:_____

Length of interview:_____

Name of the operation:_____

Name of the owners of the operation:_____

Location of operation: _____

Introductory message – Interviewer to read to Interviewee

In the Consent Form we discussed the reasons behind why we are doing the study, and how the information is going to be used. Do you have any questions about this?

The Consent Form also indicated that the individual responses you provide will be held confidential. The personal information you provide will be used to enable the development of generalized business case studies. It is collected under the authority of and is subject to the privacy protection provisions of Alberta's Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about how your personal information will be used please phone Mimi Lee, Alberta Agriculture and Rural Development at 780-968-3552 or email mimi.lee@gov.ab.ca.

We will be discussing local products/markets and supply chains. Before we start, I would like to let you know what we mean by each of these terms.

By the term **local** we mean a product grown, produced or processed and then distributed and sold within Alberta.

A **supply chain** is a network of interconnected businesses involved in the provision of a product or service. We will also be talking about value chains which, for the purposes of this study, are closely related.

In a **value chain** the businesses work together to add value to the product through a shared relationship where all parties understand the benefits and costs to each player. For example, a supply chain in the Peace country was created when a bison producer contracted a processor to be their exclusive processor. They shared in the profits and the processor provided the operator the service they needed before serving others.

Interview Guide – Primary Producer/Aggregator

119. Describe the different aspects of your operation. *(For example, sheep/lambs, pasture, grain, feedlot, custom services, processing (if any) storage, distribution/wholesaling, marketing, etc.)*
120. How long have you been farming? How long has this farm been in your family?
121. What is the overall size of your farm? (*acres*) How many acres do you use for your operation? *(For example, size for each production aspect listed above)*
    a. Do you house your distribution facilities on your farm? What size of facilities are they? If not, where are these located?
    b. *(if applicable)* Where do you house your processing facilities? What size of facilities do you have?
122. If applicable, tell us about your processing *(For example, What products do you process? What type of processing do you do? What percentage of your processing is lamb? What percentage of that is for product produced in Alberta?)*
123. How many lambs move through your operation in one year? For what purposes (breeding stock, meat, etc)?
124. What percentage of the volume is produced on your farm?
125. How many different producers do you buy from? How often do you buy from them? How much do you typically buy?
126. At what stage do you typically buy from other producers *(Under 60 lb. (long-term feeders), 60-80 lb. (middle-term feeders), 81-94 lb. (short-term feeders), finished*)?
    a. How many/much do you buy of each stage/type?
    b. Do these numbers vary over time? If so, what influences these variations?

127. Do you have purchase contracts with your suppliers? If so, can you describe the contract terms?
128. Do you brand the products? If yes, please elaborate.
    a. Do you market private label products for retail customers?*)*
129. How do you manage risk on your farm? (*completed Environmental Farm Plan, On-Farm Food Safety assessments, secured On-Farm Food Safety Certification, do you have production insurance, how do you manage paperwork, etc)*

Marketing Channels

130. Tell me about the different marketing channels that your operation uses *(locations where product is sold, etc.)*

a. What percentage of your lambs have been marketed through the different channels over the past three years?

i. Farmers' markets: 2011_____% 2010_____% 2009_____%

ii. Farm gate: 2011_____% 2010_____% 2009_____%

iii. Wholesale/distributors

1. _____ 2011_____% 2010_____% 2009_____%
2. _____ 2011_____% 2010_____% 2009_____%

iv. Retailers

1. _____ 2011_____% 2010_____% 2009_____%
2. _____ 2011_____% 2010_____% 2009_____%
3. _____ 2011_____% 2010_____% 2009_____%
4. _____ 2011_____% 2010_____% 2009_____%
5. _____ 2011_____% 2010_____% 2009_____%
6. _____ 2011_____% 2010_____% 2009_____%

v. Delivery into the city to individual consumers: 2011_____% 2010_____% 2009____%

vi. Restaurants: 2011_____% 2010_____% 2009_____%

vii. Processors: 2011_____% 2010_____% 2009_____%

viii. Other_____: 2011_____% 2010_____% 2009_____%

b. *(If Applicable)* If you have only one marketing channel, has this been the case for the past three years? If not, what other channels did you use before?

131. Tell me about the different products and formats that you sell. What percentage of each format comprises your product sales? *(percentage in volume and dollar sales)*

132. How do you package your lamb? (*describe pack sizes, packaging, etc*.)

133. Do you sell year round or only during the season?

134. Does demand by each of your marketing channels vary over time? (*monthly, yearly)*

135. How often do your customers place orders? How far in advance do they place the orders? How do you determine, in advance, what volumes you will need for your customers? Do your customers provide information that help you forecast demand? *(purchase commitments noted in a written contract, verbal commitments, advance or standing orders (faxed or emailed), etc).*

    a. Does this process differ between your smaller scale and larger scale/institutional customers? If yes, in which ways?

136. How important has the development of your brand been to your ability to market and scale of sales to each of your marketing streams? Why?

137. Do you have plans to expand your marketing channels? If yes, which ones? Tell me a little bit about your decision.

138. Are there different attributes of your product that you sell to different customers *(frozen versus fresh, local, grass fed, grain-finished, natural, hormone/pesticide free, organic, etc.).*

Customers/Market

139. Describe your relationship with the end consumer. What do you think is driving them to buy your product/brand? *(main attributes and values they place on the products).*

140. Tell me about the process of developing your relationship with your retailers, wholesalers, and processors.

    a. How long have you been selling to them?
    b. Has your relationship changed over time?
    c. What challenges have you faced in selling to each of these customers?

Distribution, Marketing And Product Sales

141. What customer categories do you service? (*wholesalers/distributors, retailers – independents/mainstream chains, restaurants, processors, etc.)*

142. How do you determine your sale prices to customers? Please describe your pricing structure, including any variances between the various customers.

143. Do you have any type of promotional strategy to move products further down the supply chain?

Relationships

144. Tell me about your relationship with the producers that you buy from *(how long you have known them, depth of relationship, etc.)*
    a. With the first producers you started working with, how did you determine the terms of your relationship? *(contract/handshake/ understanding, pricing)* Has this process changed over time?
145. How often are you in contact with your various producers? What is the nature of the interaction?
    a. Do you work with the producers so that they meet the grade, quality, and other specific aspects of your brand? Do you have a way of verifying these standards?
    b. Do you work with the producers to manage supply? How do you deal with the limitation of product seasonality?
    c. Have you had significant fluctuations in the demand for your product? How have you managed this in terms of purchased product and inventory on farm?
146. How do you set prices with your producers?
    c. What do you pay them per unit? Does this vary? Based on what?
147. How do you decide how many lambs you will buy from your various producers?
    a. Do they sell their lambs, through other channels? If so, approximately what percentage of their products is sold through your company?

Local Economic Impact.

148. Let's go through who works on your farm

List the job/role: **(e.g. farm worker, delivery, administrative, farmers' market seller ,etc.)**	**Are they: seasonal/part time/full time/ volunteer**	**Who are they? (family, local, temporary foreign worker, apprentice, etc.)**	**How many fit this description?**

e.g. farm worker	Seasonal	Temporary foreign workers	4

149. Is this an ideal profile of who you would like to have working on the farm? Why? *(For example, easy or difficult to find workers, understaffed and if so why?, local interest in operation, etc.).*
150. Has the number of farm employees remained constant over the past 3 years? If no, please explain.
151. Do you pay benefits?
152. Do off farm funds support the farming operation?
153. What services do you typically use on your operation? *(For example, custom grazing,* AI, *veterinary, slaughter and processing).* Where are these people/services located?
154. Where do you buy your inputs such as feed, hay, supplements, salt blocks, medications/drugs, etc.?

Environmental Considerations

155. What are the general steps involved in getting your product from the farms to your facilities and then to your customers?
156. Where are the suppliers you buy from located?
    a. How are the animals transported to your operation? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. How many/much are typically shipped at once? How often? Is it usually a full load?
157. What is the distance to your abbatoir and processor?
    a. How are the animals transported to your operation? *(hire, drive truck, what type of vehicle, fuel efficiency)*

b. How many/much are typically shipped at once? How often? Is it usually a full load?

158. If you use offsite storage, what is the distance to your storage facilities?
    a. How do you transport your products? *(hire, drive truck, what type of vehicle, fuel efficiency)* How often? Is it usually a full load?

159. If you work with a distributor *(central distributor, retail centre distributors)*, what is the distance to this location?
    a. How are the products delivered to the facilities? *(hire, drive truck, what type of vehicle)*
    b. What size shipment is typically delivered? How often? Is it usually a full load?

160. What is the distance between the distribution facilities and your end market?

161. What is the distance between your storage facilities and your customers? (*e.g. wholesalers/distributors, retailers (distribution centers and direct store delivery), processors, restaurants, etc)*
    a. How are the products delivered to your customers' facilities? *(hire, drive truck, what type of vehicle, fuel efficiency)*
    b. What size of a shipment is typically delivered? How often? Is it usually a full load?

Production Costs and Profitability

162. We would like to know the costs of moving your product through the supply chain.
    a. Please outline the costs related to moving your product from your farm to the point of sale. *(finishing animals, slaughter and processing (per animal), packing and distribution, marketing)*
        i. Have these costs changed over time? (*with growth, streamlining, changes in your operation)*
    b. If you market your products through different channels, please outline the difference in costs related to each channel.
        i. Why have you chosen to pursue one versus the other? How did you decide what portion of your operation to dedicate to one versus the other?

163. What price do you charge for your products? *(fresh versus frozen), cuts/average for whole animal, average when sell whole or half animal (if*

applicable), special cuts and products (sausages, etc.) marketing channels within their operation including between different retailers, etc.

a. What prices do your customers charge for your product*? (wholesale/distributors, processors, retailers)* Is the price consistent?

b. Do prices fluctuate throughout the year?

Processing

164. Describe your relationship with your processor.
    a. Do you have a formal contract with them?
165. What does it cost to process an animal?
166. Do you supply the packaging and labeling to the processor? Do you apply any labeling yourself?
167. Have you faced any challenges directly related to processing over the life of your business? Please describe.

Business Development

168. Tell me about the history of your business. When did you get started? What stages of development have you gone through since then? *(For example, changes in business model, changes in size of operation, sales volumes, marketing channels, major infrastructure changes)*
169. Has your company been involved in developing the local food supply chains in Alberta or the marketing of local products? In what ways? And what do you think the benefit has been to local agri-businesses? To your company?
170. What are the major challenges that you have encountered over the development of your business? *(consistency/quality of product, regulations (which ones and how), production (capacity, access to water, inputs, etc.), distribution, labour, market access, competition, transportation, storage facilities, policies, financing, food safety best practices, land challenges, etc.)*
    a. Have there been major challenges that you can identify related to working with specific clients? If yes, which clients? If yes, what have those challenges been?

171. Have you considered expanding or scaling up your business? What are the opportunities and challenges related to doing so?
172. Do you share information with your various partners in the supply chain to deal with quality issues, make adjustments to better meet market demand, etc.?
173. Please describe the lessons you have learned when dealing with challenges and constraints as they relate to the local food supply chains you work with.