



BRANDON  
UNIVERSITY

CASE STUDY

# Canadian Prairie Garden Puree Products

## Strategies for Growth of Bulk Food Processing in Manitoba

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FEBRUARY 2015

## >> Acknowledgements

*Thanks to Canadian Prairie Gardens and all the supply chain partners and industry stakeholders who participated in this research.*

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# Executive Summary

>> This applied research project answers the question: *Where are the opportunities for growth in bulk food processing?*

This case study is one of three conducted to describe successful bulk food processing companies in Manitoba and give insight into opportunities for growth through innovation in these industries.

Canadian Prairie Garden Puree Products is a new company that is founded on a ground-breaking innovation; they have developed and implemented a unique puree manufacturing process. Their direct steam injection process makes many novel products: purees from vegetables, fruit and pulses for use as ingredients in the food manufacturing and food service industry.

Canadian Prairie Garden (CPG) has the potential to become a significant player in the market for puree ingredients. This growth will depend on the company gaining new markets for their products and managing their growth to be able to serve their new markets reliably and effectively. Development of new puree products and demonstration of use of their purees in recipes will be essential components to their sales and marketing efforts.

CPG will need to work with all other members of the supply chain to build a stable network that meets everybody's needs. All members of the chain will need to invest and innovate to build this new business to its potential. This represents both a challenge and an opportunity for all involved.



*Beet Chocolate Cake*

*Courtesy of CPG –  
canadianprairiegarden.com*

*A preliminary cross case analysis report of the three case studies can be found at:  
[www.brandonu.ca/rdi/files/2011/02/Innovation-in-Agri-food-Processing.pdf](http://www.brandonu.ca/rdi/files/2011/02/Innovation-in-Agri-food-Processing.pdf)*

# Introduction



*Chickpea Puree*

*Courtesy of CPG – canadianprairiegarden.com*

## PURPOSE OF STUDY

Growth in food processing to produce bulk ingredients represents a major opportunity for Manitoba to increase economic activity in the province.

This research is a preliminary study into the opportunities for growth that come from innovation in the bulk food processing industry in Manitoba.

For the purpose of this study a bulk ingredient processor is defined as a company that sells to manufacturers, bulk wholesalers, distributors or businesses; the unit of sale will be significantly larger than the retail size.

## RESEARCH METHODS

The main research method was interviews with company and association leaders through the supply chain, together with researchers and other innovation partners.

This research uses “Instrumental Case Studies”: three Manitoba bulk food ingredient processing companies and their associated supply chains are examined to provide insight into growth and innovation within the bulk food processing industry.

The studies gather data on: history, activities (describe chain processes), setting (product & industry), and other contexts and informants (chain). Beyond this description, the focus of the study is growth and innovation in each company and supply chain.

The “Oslo Manual” guidelines for collecting and interpreting innovation data were used to formulate the interview tool for the semi-structured interviews conducted in this study.

An innovation is defined as the implementation of a significant change in product, process, marketing or organization that is new (or significantly improved) to the company.

The interviews covered several areas of focus:

- Overview: a description of the company, industry and supply chain, and how they work together
- An investigation of innovation in the companies, supply chain and industry:
- Past innovations that lead to this industry
- Innovation opportunities for the future
- Factors that affect ability to innovate
- Linkages to outside innovation resources

*Oslo Manual Source: OECD & Eurostat Agri-Food. 2005: Guidelines for collecting and interpreting innovation data.*

## INTERVIEW PARTICIPANTS

Participant	Role
Kelly Beaulieu <i>Canadian Prairie Garden Purees</i>	Processor
Local vegetable grower	Grower, Pre-processor, Transporter
Dave Shambrock <i>Manitoba Food Processors Association</i>	Processor industry Association
Dustin Omeniuk <i>Trappers Transport</i>	Transport
North American Ingredient Distributor	Distributor
Jonathon Hughes <i>Zast Foods</i>	Marketer
Mavis McRae – Project Manager Brad Gray - Chef <i>Red River Applied Research</i>	Innovation partner
Susan Abel, <i>Food &amp; Consumer Products Canada</i>	Manufacturing Industry Association
Martin Scanlon <i>Department of Food Science, University of Manitoba</i>	Researcher
Roberta Irwin <i>Food Development Centre</i>	Innovation partner
Tanya Der Manager, Food Innovation & Marketing, <i>Pulse Canada</i>	Commodity Industry Association
John Placko Culinary director, <i>Modern Culinary Academy</i>	Innovation partner
Bonnie Bain <i>Farm Credit Canada</i>	Financial

## VEGETABLE & PUREE INDUSTRY

Manitoba has an established vegetable growing sector with annual exports of over \$2m in fresh or chilled vegetables excluding potatoes; farm cash receipts for field vegetables were over \$35m in 2014. The majority of Manitoba vegetables are grown in the Portage area, most fresh produce is marketed through “Peak of the Market”.

Fruit and vegetable processing has been carried out in basic forms since pre-history. Major modern methods of preservation to extend shelf-life are to produce canned, frozen, and dried foods and juices. As the global population becomes more urbanized and wealthier, the demand for these products is increasing at about 1.1% annually (about 2x population growth)\*. The global puree industry is estimated to be about \$56b/year (N America \$32b). The global processed vegetable industry is estimated at \$190b for 2014.\*

\* Ref. *Global Fruit & Vegetables Processing, IBIS, World Industry Report, August 2014* (<http://www.ibisworld.com>)

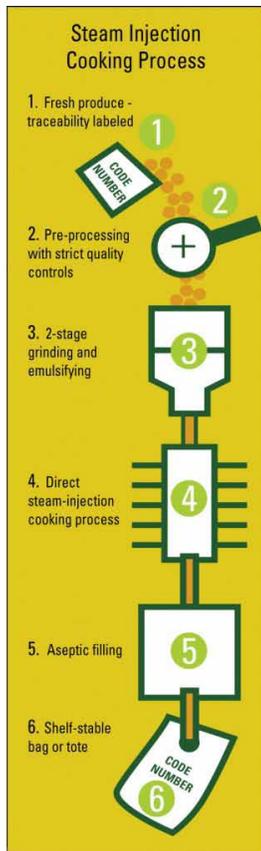
## CANADIAN PRAIRIE GARDEN PUREE PRODUCTS

### The Company

Canadian Prairie Garden processes the superior quality, locally grown raw produce into non-GMO purees. Both the plant and the growers are fully CFIA and HACCP certified.

Canadian Prairie Garden (CPG) began full scale processing in January of 2014 after 10 years of technological innovation. The pilot plant was operational in 2010. There are currently 10 employees working at the processing plant located in the “incubator” facility at the Food Development Centre in Portage la Prairie, Manitoba.

The company was started, and is owned and operated by COO Kelly Beaulieu. Kelly is a professional agronomist who grew up as a member of the Sandy Bay First Nation in Manitoba, Canada. The company's goal is to establish a processing capability that would capture the superior quality of the area's vegetable, legume and fruit crops.



Courtesy of CPG – canadianprairiegarden.com

squash and saskatoons. Package sizes are 10kg, 240kg and 1300kg. Purees can be used as an ingredient in many applications including: soups, baby foods, smoothies, baked goods and desserts, mixed dishes and entrees including pasta enhancements, sauces and dressings.

### Processing

Fresh vegetables, fruit or pulses are processed into purees on an enclosed, continuous processing line using a process that is exclusive to CPG Puree Products. The direct steam injection high temperature cooking process results in full cooking and sterilization with minimal damage to cell structure of the vegetable, legume or berry ingredients.

Their current processing capacity is up to 25 million kg/year.

### Products

Products include 30 different low-acid purees with no additional ingredients or preservatives, including: carrots, onions, cauliflower, broccoli, beans and pulses,

### Markets / Customers

CPG has chosen to market their purees as ingredients to both the food manufacturing industry and food service buyers. Currently they are concentrating on the North American market.

### Position in Industry

CPG Puree Products is a new company with an innovative product that is developing its position in the industry with about \$3m in sales in 2014. Competing products are frozen purees, unprocessed beans and pulses and fresh vegetables, particularly in food services.

### Competitive Advantages

- High quality purees - pure, colour, taste
- Shelf stable - not frozen
- Saves labour – food services
- New innovative ingredients

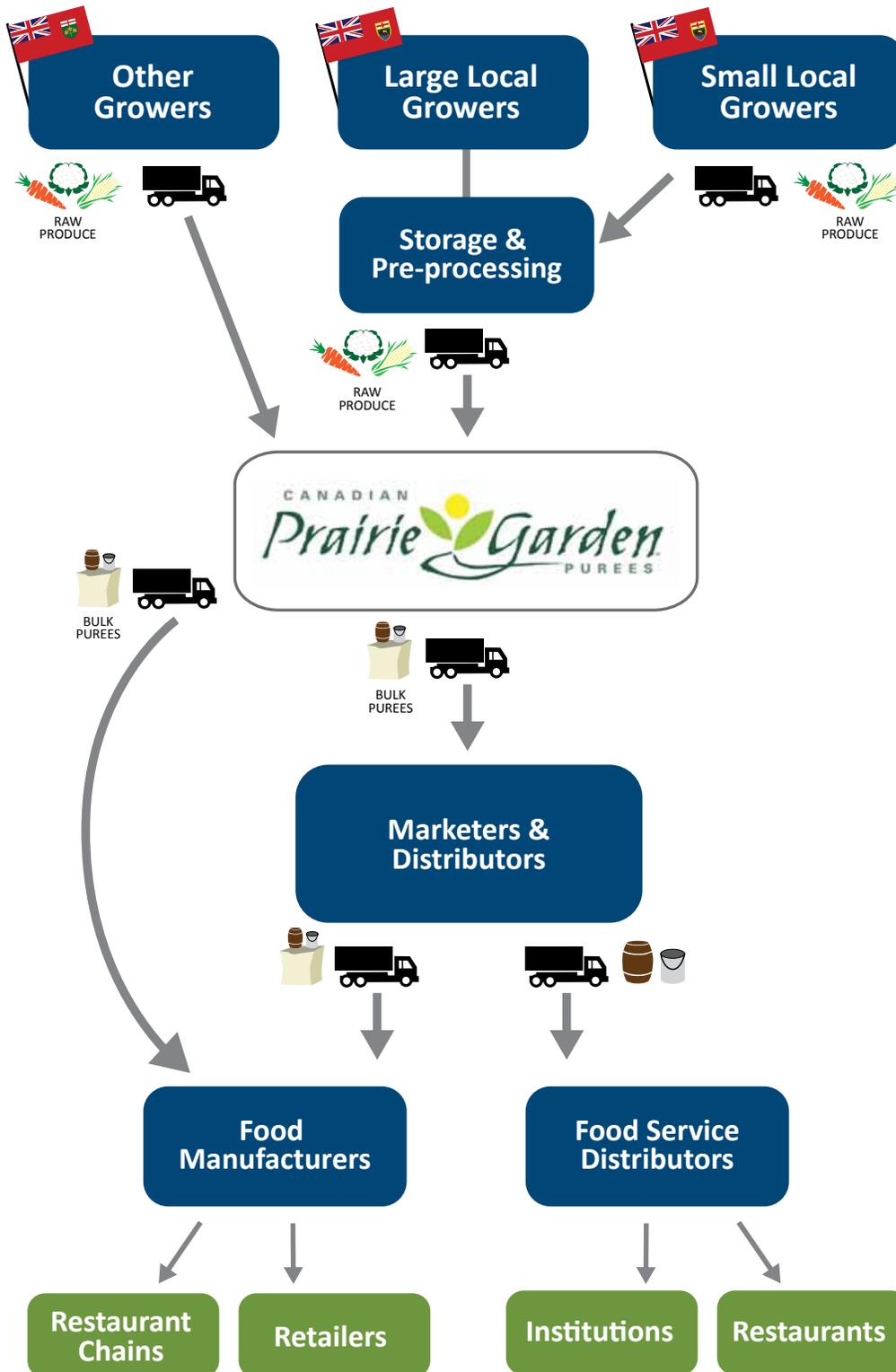
### SUPPLY CHAIN

CPG purchases directly from local growers, who at present are pre-processing the vegetables.

Vegetable growing is well established in the Portage area as the soils and climate are well suited. CPG can use culled vegetables (e.g. broken & crooked carrots) that do not meet retail standards; this reduces costs and waste of valuable food resources. CPG is in the process of developing the customer side of their chain, with the assistance of several industry partners in marketing and distribution.

They are selling their purees as ingredients into two main markets: food manufacturers and food services either directly or through distributors.

# CANADIAN PRAIRIE GARDEN SUPPLY CHAIN



# Innovations

Canadian Prairie Garden Puree Products’ business plan is based on a “new to the world” process innovation that took 6 years to develop, and 4 more years to bring to full production. This process results in new shelf-stable puree products with superior taste, colour and nutrients. These new ingredients require significant process and marketing innovation

to bring them to market, and establish consistent relationships with manufacturing and food service customers. There is considerable potential for growth in traditional puree applications and new opportunities made possible by the unique direct steam injection process.

<p><b>CPG1 Innovation: Direct steam injection</b></p> <p>Type: Process / Product</p> <p>New to: World</p> <p>Part of supply chain: Processor</p> <p>When: Past 10 years – 4 years production</p> <p>Time Line: Incremental</p> <p>Developed: In-house with equipment manufacturer and consultants.</p>	<p>Cooks the vegetable in 4-20 seconds which causes effective destruction of microbes with minimal damage to cell structure of the vegetable, legume or berry ingredients; there is no scorching of the puree which can happen with other methods.</p> <p>The gentle cooking process results in a consistent high quality product with retention of flavors, colors and nutrients.</p> <p>There is a 30% reduction in water usage and waste as well as energy, and up to 60% reduction in cleaning chemicals when compared with other processes.</p>
<p><b>CPG2 Innovation: Aseptic packaging</b></p> <p>Type: Process / Product</p> <p>New to: Industry</p> <p>Part of supply chain: Processor</p> <p>When: Past 10 years</p> <p>Time Line: Incremental</p> <p>Developed: In-house with consultant</p>	<p>Fresh, sterile bag with no microbes, no food pathogens; a safe way to handle the product. No addition of preservatives to the product is important to some customers. Three package sizes are available; after opening, the puree is usable for up to 7 days when refrigerated.</p> <p>The combination of direct steam injection and aseptic packaging gives a shelf-stable product (24 months) which is easy to transport, store and easy to use, (no need to freeze or refrigerate). This reduces labour and handling costs, and improves logistics for manufacturing and food service customers.</p>
<p><b>CPG3 Innovation: Hiring experienced people</b></p> <p>Type: Organizational</p> <p>New to: Company</p> <p>Part of supply chain: Processor</p> <p>When: Last 5 years</p> <p>Time Line: Step-wise</p> <p>Developed: In-house</p>	<p>CPG has made a deliberate effort to hire operational, sales and marketing staff with experience and a proven track record in the food processing industry.</p> <p>CPG also works closely with numerous advisors, consultants, academics, chefs and more recently marketers and distributors to expand the company’s research, development and marketing network.</p>

<p><b>CPG4 Innovation: Pre-processing</b></p> <p>Type: Organizational → Process</p> <p>New to: Company</p> <p>Part of supply chain: Grower</p> <p>When: Within the last year</p> <p>Time-Line: Incremental</p> <p>Developed: In-house with the growers</p>	<p>Pre-processing the raw product, i.e. cooling/washing/cutting/taking seeds out was recently moved from the processor to the growers; this allows CPG to be more efficient. Larger growers already have equipment and staff in place for such tasks for other customers. This is effective with present volumes. However, the price of produce will go up as the farmer's responsibilities increase. The less the farmer has to handle product, the better (unload it, cool it, wash it, handle it again, deliver in plastic totes – doubles the price). If volumes increase substantially, pre-processing may need to be done by the processor.</p>
<p><b>CPG5 Innovation: Agronomy</b></p> <p>Type: Product / Process</p> <p>New to: Company</p> <p>Part of supply chain: Grower</p> <p>When: Continuously, past and future</p> <p>Time Line: Incremental &amp; step-wise</p> <p>Developed: In-house and with suppliers</p>	<p>Growers innovate to increase yield and quality through improved agriculture practices and new varieties of crops that are developed by government &amp; industry researchers.</p> <p>As CPG grows they may work with local growers to grow new crops to provide supplies for new purees.</p>
<p><b>CPG6 Innovation: Food safety</b></p> <p>Type: Organizational → Process</p> <p>New to: Company</p> <p>Part of supply chain: All, including transport</p> <p>When: Continuously, past and future</p> <p>Time Line: Incremental &amp; step-wise</p> <p>Developed: With regulators</p>	<p>The trend over past years has been for progressively better quality control and increased monitoring of processes to ensure food safety. This trend is anticipated to continue in the future.</p> <p>This affects the whole supply chain from growers to ingredient customers, including transportation to and from processing facilities. This requires incremental innovation, mostly through certification and training of employees.</p>
<p><b>CPG7 Innovation: Product development</b></p> <p>Type: Process / Product → Marketing</p> <p>New to: Industry</p> <p>Part of supply chain: Processor / Market</p> <p>When: Continuously, past and future</p> <p>Time Line: Incremental &amp; step-wise</p> <p>Developed: In-house, and with outside researchers; food scientists; chefs; customers</p>	<p>CPG's processing technology allows for continuous innovation in new products. There is continuous process/product innovation; ranging from working with customers to meet their exact specifications for particle size and texture to developing new puree products such as: cauliflower; navy beans and pulses.</p> <p>CPG also works with consultant chefs and customers to research new uses for their puree products; and demonstrate their use in recipes for both manufacturing and food service users. This includes traditional uses in soups and sauces to more innovative ideas such as incorporating bean puree into crème brulee or pulses into pasta. CPG considers this to be an essential step in marketing a new ingredient.</p>

<b>CPG8 Innovation: Expansion</b>	<p>CPG is planning to expand production significantly in the next 5 years. With plans to build to \$30m in 3 years, and \$180m in 5 years with a total of 6 process lines in a new facility. This level of expansion was considered reasonable by case-study participants. The opportunity for expansion is great in the \$56b global fruit and vegetable processing industry. There is no problem with supply of raw product, the land and expertise is available locally; especially with the recent reduction of potato acres. Other alternative possibilities for expansion are licensing of the direct steam injection process to other companies and spin-off companies that use CPG purees to make other ingredients or retail products.</p>
Type: Organizational	
New to: Company	
Part of supply chain: Process	
When: Next 5 years	
Time Line: Incremental	
Developed: In-house	

<b>CPG9 Innovation: Product expansion</b>	<p>Opportunities for growth from expansion of products, derived from future product and marketing innovations:</p> <ul style="list-style-type: none"> <li>• Protein or fibre supplementation from beans and pulses, this may be enhanced by future possible health claims</li> <li>• CPG purees enable consumers to increase vegetable consumption through non-traditional processed food sources.</li> </ul>
Type: Marketing → Product	
New to: Industry	
Part of supply chain: Customer	
When: past & continuing	
Time Line: Incremental	
Developed: In-house	



Left: Carrot Puree    Right: Carrot Cake  
 Courtesy of CPG – [canadianprairiegarden.com](http://canadianprairiegarden.com)

# Innovation Methods

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## Factors that Affect Ability to Innovate

The incentives to innovate within this supply chain are to develop and grow the company, to maintain employment and grow sales through finding and meeting the needs of customers. Research funding has also facilitated R&D, e.g. MRAC, ARDI, AAFC.

Innovation ideas are generated in-house and through networks, they are evaluated through a business plan before research investment is made.

Obstacles to innovation are predictable: money, time and staff. Research and development takes away from production and is expensive. Generating in-house expertise to deal with new technology is a challenge.

It is also a challenge to introduce an innovative ingredient into the marketplace; change is difficult for any company, whether they are a manufacturer with an established product line or a chef with an established menu and ingredient sources. A new ingredient can require investment and innovation by the manufacturer in product development, product testing, processing changes, equipment and marketing. A new ingredient must justify these investments and be available as a consistent, high quality supply for a competitive price.

## Innovation Linkages

CPG innovates in-house, with the assistance of a network of experts: an engineering company to develop the process equipment, the Food Development Centre; food scientists; Red River Applied Researchers (chefs) and other industry consultants and partners.

Relationships with innovation linkages are both informal and formal; services are either paid for or “in-kind”. Some open information sources are used.

Ownership of intellectual property is a concern that is addressed through non-disclosure agreements; some innovations are kept “in-house”.

Opinions on the nature of the linkage relationships within the supply chain were variable; from collaborative to cooperative. There is good communication between neighbours in the chain – cooperative/coordinated; however a collaborative relationship through the entire value chain has not yet developed.

There is a good distribution network across North America; distributors and brokers believe in the product. It is too early to tell how stable relationships are with customers; however linkages with researchers are stable.

# Limits to Growth

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General opinion is that CPG has a superior product with a number of competitive advantages, especially in terms of taste, colour, nutritional retention, and shelf-life. These will appeal to manufacturers and food service suppliers, especially those who are capitalizing on current trends towards “natural” “pure” and “healthy”. The trend towards “functional foods” could also be advantageous to CPG as their products can enable the incorporation of fruits, veggies and pulses (with their fibre and protein) into processed foods. There is enthusiasm through the supply chain and innovation partners about the unique quality of CPG puree products and the potential for global growth.

The challenge is to raise awareness of the company and its products and gain enough customers to grow at a sustainable rate. Money is another limiting factor: significant investment in marketing and processing facilities will be needed to achieve the desired growth. Processing capacity must keep pace with sales; consistency of supply is paramount in the ingredients business.

Price is also important; a balance needs to be achieved between the customers’ desire for a low price and a premium price for a quality product needed for sustainability of investment, processing and supply (growers) for CPG.

There is enough local capacity for growers to produce sufficient supply of quality vegetables, expansion in the number of vegetable growers would also be relatively easy as the seeded potato acres have decreased recently. If CPG could run at full capacity in the future, the number of producers around the Portage la Prairie area could triple. As processing volumes increase there will need to be negotiations with growers – on price and supply (as there may not be sufficient volume of lower priced culled product). This will ensure that all parties are happy when the business starts to grow and volumes increase.

# Conclusions

Canadian Prairie Garden Puree Products is aiming to grow quite quickly. The challenge will be to work with growers and customers to balance the growth of supply, processing capacity and customer base.

The study participants thought CPG's goal of 6 fold growth of processing capacity in 5 years was reasonable and achievable. Developing and fostering good relationships throughout the supply chain will be essential to CPGs smooth growth and success. This potential growth is founded on a world-leading innovation in process and product, combined with innovative and sustained marketing to food service and food manufacturing customers.

There is great potential for growth in the bulk processing industry for fruit and vegetable purees. Consumers know the health benefits of these foods; purees provide an easy to use ingredient that will increase vegetable and pulse consumption. CPG is highlighting the purity, quality and ease of use of its Canadian prairie products; this approach would likely be beneficial to other Manitoba bulk ingredient processors.

The health benefits and ease of use are the most important aspects to highlight. Marketing the natural freshness and purity of this prairie Canadian product would also help the growth of CPG and the bulk food industry in Manitoba.

Some suggested areas of possible further expansion of puree products and their marketing included increased use in processed foods for specific health benefits; such as protein or fibre supplementation from beans or pulses.



*Top: Parsnip Puree  
Bottom: Parsnip Gnocchi*

*Courtesy of CPG –  
canadianprairiegarden.com*



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