



BRANDON
UNIVERSITY

CASE STUDY

Bee Maid Honey

Strategies for Growth of Bulk Food Processing in Manitoba

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RURAL
DEVELOPMENT
INSTITUTE

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Rural Development Institute, Brandon University

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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 eight conducted to describe successful bulk food processing companies in Manitoba and give insight into opportunities for growth and innovation in these industries.

Bee Maid Honey is a producer owned honey processor and packager with facilities in Manitoba and Alberta. The majority of their production is packaged for retail, either their own brand or private label. They also sell bulk processed honey for ingredient use by food manufacturers or the food service industry and bulk raw honey to other honey processors.

Bee Maid has built a reputation for consistent, high quality product and service over 60 years, particularly in the area of innovative packaging. The company has grown steadily and plans to continue to do so through expanding into more export markets. The honey industry is addressing challenges to bee health by working with other players in the agricultural industry. In the future, the continued expansion of the use of pollination services in agriculture will change bee-keeping, but with good coordination, the whole industry can benefit.



Courtesy of Bee Maid Honey –
www.beemaid.com

Introduction

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 follows from a preliminary study into the opportunities for growth that come from innovation in the bulk food processing industry in Manitoba. For the purpose of these studies a bulk ingredient processor is defined as a company that sells to manufacturers, bulk wholesalers, distributors, businesses and food service. Private label sales are also included as a type of bulk sale in this research; in addition some processors also sell their own branded products. The unit of sale will be in most cases significantly larger than the retail size.

The notion of health benefits associated with ingredients was an additional factor examined with the majority of companies selected.

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”: eight 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” guidelines¹ for collecting and interpreting innovation data were used to formulate the interview tool for the semi-structured interviews conducted in this study.

¹ Oslo Manual Source: OECD & Eurostat Agri-Food. 2005: Guidelines for collecting and interpreting innovation data.

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

INTERVIEW PARTICIPANTS

Participant	Role
Guy Chartier <i>Bee Maid Honey</i>	Processor
Bill Bygarski <i>MB Honey Producers (MCHP)</i>	Producer
North American wholesale distributor	Distributor
North American retail chain	Customer
Rod Scarlett <i>Canadian Honey Council</i>	Commodity Organization
Ronald Fessenden, MD, MPH	Resource: honey health research
Dave Shambrock <i>Manitoba Food Processors Association</i>	Processor Industry Association

HONEY INDUSTRY

Honey is a natural, unrefined food that does not spoil and has been a human food for more than 8000 years. The Canadian apiculture (honey bee) industry produces more than 75 million pounds of honey each year, Canada usually accounts for 2-4% of world

honey trade². In 2013 Canadian honey exports³ were over \$59million with United States (\$45.5m) and Japan (\$11.9m) being the major export destinations. Manitoba accounts for 26% of Canadian honey exports. In 2014 there were 546 beekeepers in Manitoba (8,777 in Canada) and 78,000 colonies (694,217 in Canada)⁴. Honey bees are also important as pollinators; the estimated value of honey bees to crop pollination in Canada is over \$2 billion⁵.

In 2014 Canadian honey production value was about \$201m. Manitoba was third in honey production with 17%, just behind Saskatchewan (20%) and Alberta (42%)³.

The global honey bee industry is facing bee-health challenges, varroa mites are a major factor in overwintering losses of up to 44% in some provinces. This affects the bottom-line of bee-keepers and the price of honey.

Health Benefits of Honey

Honey's anti-microbial properties have been the focus of most valid clinical research. In many studies honey has been shown to be effective as a topical skin treatment for more than 60 bacteria, fungal infections and treatment of burns. Several recent studies have demonstrated that honey is more effective than an over-the-counter cough suppressant; suitable for children above the age of 12 months.

Honey has long been accepted as a healthy, pure, natural source sweetener; a tasty, convenient source of carbohydrates and energy. Honey's potential therapeutic effects⁶ suggest several promising areas of research:

- Anti-microbial effects and mechanisms
- Evaluation of the effect of processing on the composition and health benefits of honey.

- Effect of honey consumption on fasting blood sugar and HbA1c levels in type 1 & 2 diabetics and normal individuals
- Effect of honey consumption before bedtime on sleep patterns and REM sleep
- Long term effect(s) of honey consumption on risk factors for the metabolic syndrome (diabetes, obesity, hypertension, cardiovascular disease)

There has been relatively little study of these potential benefits of honey. The reason is two-fold; there are over 300 varieties of honey each of which may have different properties, this complicates research methodology. Also, realizing patents and profits from honey's health benefits may be difficult. However, if current research confirms how and why honey is beneficial to health, there is the potential for wide acceptance and an increase in honey use and consumption.

BEE MAID HONEY

The Company

Bee Maid is the only Canadian honey company that sources all its honey from its owners; the more than 300 beekeepers who are members of the Manitoba (includes Saskatchewan) and Alberta honey co-operatives. Each co-operative has its own packing facility, Winnipeg and Spruce Grove, Alberta. Bee Maid markets and distributes honey from both plants. Bee Maid also owns a plastic bottle manufacturing plant, based in the Spruce Grove facility.

Bee Maid Honey Limited commenced operation in 1954 when the Manitoba and Saskatchewan Honey Co-Operatives agreed to market all their honey jointly. In 1961-2, the Alberta Honey Co-op joined with the Manitoba and Saskatchewan Co-ops to form Bee Maid Honey and began full participation in both the domestic and export markets.

Manitoba Bee Maid accounts for about one third of Manitoba honey production, and about 10% of Canadian honey processing. There are 40 employees

2 <http://faostat3.fao.org/home/E: Food & Agriculture Organization of the United Nations, Statistics Division>

3 <http://www.agr.gc.ca/>: Statistical Overview of the Canadian Honey Industry – 2013

4 Statistics Canada. Cansim table 001-0007 - Production and value of honey, annual

5 http://www.honeycouncil.ca/honey_industry_overview.php

6 Report to Committee for the Promotion of Honey and Health, R. E. Fessenden, 2008



Locations of Bee Maid Honey's beekeepers across the Prairies
Courtesy of Bee Maid Honey - <http://www.beemaid.com/>

at the Winnipeg facility, including administration, processing, packing, and bee-supplies.

Processing

Honey requires little processing. The raw honey is warmed-up, filtered to remove any solid matter such as wax or pollen in order to ensure adequate shelf life. Honey is pasteurized to kill any yeast that may be present by rapidly heating to about 160°F, then rapid cooling, prior to packing into bulk containers or retail bottles.

All Bee Maid honey processing and packing operations are SQF certified and undergo regular HACCP inspections, monitored by Canadian Food Inspection Agency (CFIA), to insure that the utmost levels of food safety. Bee Maid Honey is Kosher and true source certified, with traceability back to the producer.

Products

Liquid honey forms the majority of Bee Maid product. The colour and taste of honey differs according to the nectar source, the flowers visited by the honey bees. Three main types of liquid honey are available: traditional Canada No 1 White, Golden and Amber.

Retail and private label honey is packaged in retail sizes. Bulk, liquid honey is available in 15kg, 30Kg and 284kg barrels and totes. Classic creamed honey and squeezable creamed honey are also available.

Markets / Customers

Majority of sales are retail packaged, either Bee Maid or private label. Bee Maid Honey also sells to wholesalers, distributors in retail, foodservice, baking and the food ingredient industry and exports raw honey to other packers in the US and Japan mainly (approximately 20% of the business).

Position in Industry

Bee Maid is the largest single source honey packer in Canada and in the top 10 in North America.

Competitive Advantages

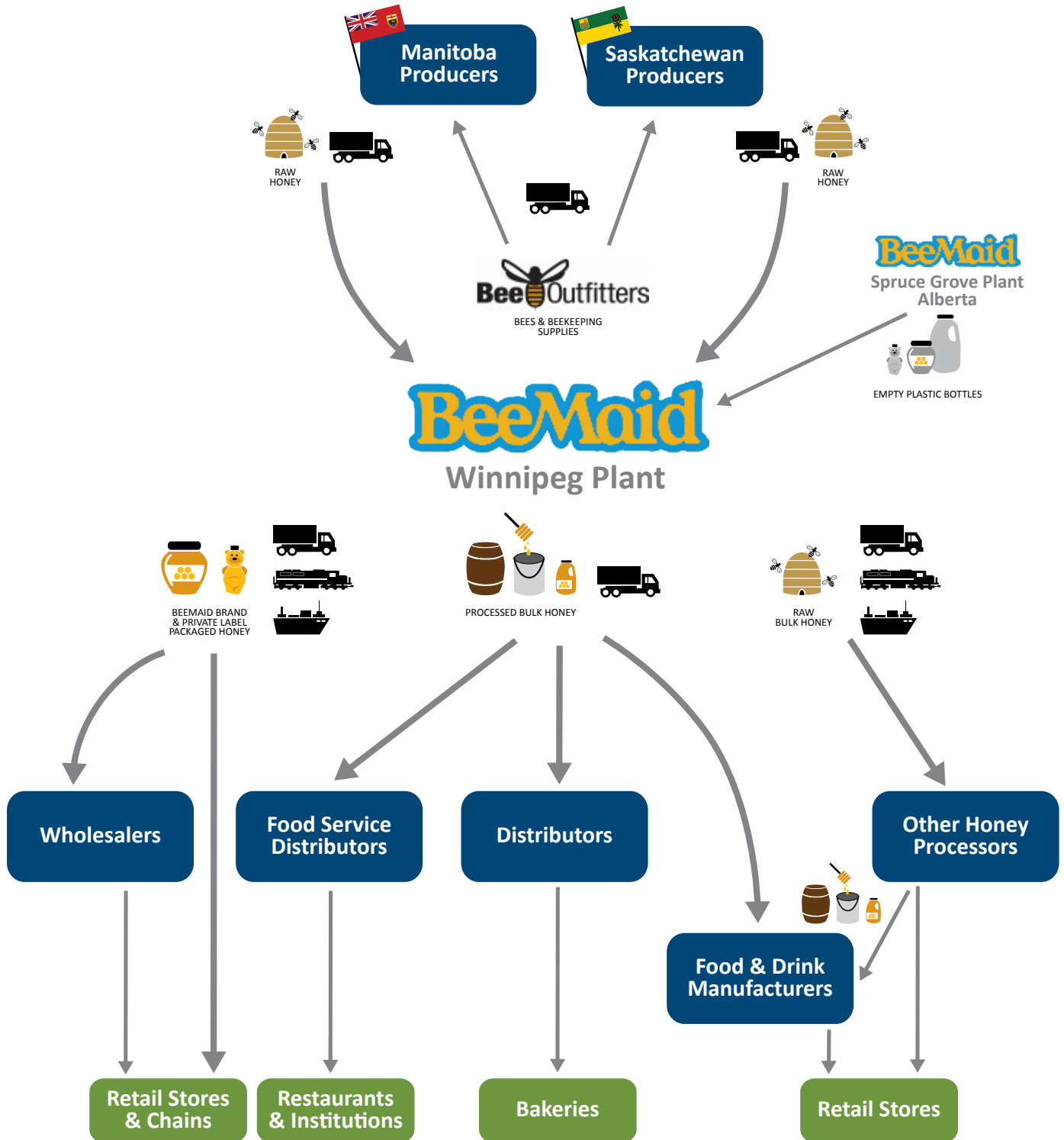
- Producer owned - consistent high quality honey
- Honey experts - knowledge of entire honey industry from bee to bottle
- Packaging - design and make their own plastic bottles

Supply Chain

Bee Maid Honey's beekeepers harvest the honey and ship it to Bee Maid Honey plants for packing and distribution. Bee Maid cleans and re-uses their own heavy duty honey barrels for raw honey, this practice reduces both costs and waste. Bee Outfitters, a Bee Maid company, supplies bees and supplies to members and other prairie apiarists: this keeps the company in-tune with the entire honey industry.

The majority of Bee Maid's sales are retail packaged as private label and Bee Maid brands. They sell direct to large retail chains (central warehouses) and through wholesalers to smaller retail stores. The company is also an exclusive private label supplier to two major food service distributors. Bulk honey is also sold as an ingredient to food and drink manufacturers. To ensure consistent supply to their customers Bee Maid's intake is greater than their processed sales. They sell any excess raw honey to other honey processors, usually on the export market. Bee Maid sells most of its honey in North America. They have not exported to Europe since 2012 due to strict GMO guidelines.

BeeMaid Honey Supply Chain



Innovation

Bee Maid Honey and the Canadian honey industry are well established, with significant export business, based on consistent quality product and service. Bee Maid's innovation is concentrated around retaining their market share through providing existing and new customers with excellence in product and packaging. All parts of this supply chain continuously innovate to

keep up with technology, serve their customers better and remain competitive. Honey was generally seen by the supply chain members as a traditional product, where there is not much innovation around the product itself. No surprise that most of the innovations identified focused on marketing, organizational and process type of innovations.

BM 1 Innovation: Producer-owned cooperative

Type: Organizational → Marketing

New to: Canadian Beekeeping Industry

Part of supply chain: Producer / Processor

When: 1930's to future

Time Line: one-step then incremental, keeps evolving

Developed: In-house within the Prairie honey industry

Prairie provincial honey cooperatives formed in the 1930's to jointly market honey. This organizational innovation continued with MB and SK Cooperatives establishing Bee Maid Honey in 1954; Alberta joined in 1962. Individual bee-keepers benefited from this innovation since they could sell their honey, share risks and gradually increase the value of the honey they sold. The 1970's saw expansion in processing and reach of marketing beyond provincial borders, to the current position of world-wide distribution.

Bee Maid is currently the largest single source honey packer in Canada and among the top 10 in North America. Since the early 2000's Bee Maid has re-positioned itself as a co-op in the honey industry by marketing its strengths such as the extensive knowledge of the honey industry from "hive to home", being producer owned and supporting Canadian bee-keepers; taking advantage the emerging trend of "knowing where your food comes from".

BM 2 Innovation: Product development

Type: Product / Process

New to: Industry

Part of supply chain: Processor

When: Continuous to future

Time Line: Multiple step-wise

Developed: In-house with customers

Bee Maid developed a new "creamed honey" product in the mid-1990s: a shelf-stable opaque honey that can be dispensed from a bottle. This unique product can also be flavoured – lemon or cinnamon for example. This adds diversity to Bee Maid's product-line.

Within the wider industry other products are being developed – such as solid honey to give "candy" and honey flavored whiskey and water. "Natural, unfiltered" honey is also marketed in the US; this is not heated above 120°F, has bee-parts and wax removed with cloth filters, but retains small pollen particles, that are removed by conventional processing (micro-filtering).

Honey is a common ingredient in many products; as such, new products with honey as an ingredient are constantly being introduced by food manufacturers. These new products often follow consumer trends towards foods that are natural, healthy and convenient; though price and shelf-life are still very important factors for both retailers and consumers.

<p>BM 3 Innovation: Packaging</p> <p>Type: Product / Marketing</p> <p>New to: Industry / Company</p> <p>Part of supply chain: Processor / Retail</p> <p>When: Continuous to future</p> <p>Time Line: Multiple step-wise</p> <p>Developed: In-house with co-packers & retailers</p>	<p>Bee Maid has the capability to design and manufacture custom plastic bottles at their Alberta plant. The company is always working with customers to improve the functionality and shelf appeal of their packaging. This ranges from squeezable bottles; hive and bear shapes; and club-size. Packaging is a key factor in making products stand-out from their competition in all markets: branded, private label and food-service.</p> <p>“Lil-honey” single serve packaging for coffee-shops is an important recent innovation. This not only provides a clean, convenient product for their customers and consumers; but also increases brand awareness for Bee Maid Honey.</p>
<p>BM 4 Innovation: New Markets</p> <p>Type: Marketing</p> <p>New to: Industry / Company</p> <p>Part of supply chain: Processor / All</p> <p>When: Continuous to future</p> <p>Time-Line: Incremental</p> <p>Developed: In-house with chefs, consultants and researchers</p>	<p>Bee maid proactively started discussions and worked together with well-known chefs in Winnipeg, discovering that chefs preferred to use darker coloured honey as an ingredient. By marketing amber honey as “chef’s choice” Bee Maid has become a major player in supplying the food services industry.</p> <p>The Canadian honey industry makes more honey than Canadians consume, so expansion to export markets is always pursued. At present Bee Maid is exploring expansion into the Chinese market; taking advantage of their consistent high quality product, packaging expertise but also the reputation of Canadian products.</p> <p>There is potential for honey to be marketed for specific health benefits. Honey has many possible health applications and this has the potential to increase demand for honey, but additional scientific research is needed.</p>
<p>BM 5 Innovation: Bee Health</p> <p>Type: Process → Organizational</p> <p>New to: Industry</p> <p>Part of supply chain: Producers</p> <p>When: Continuously, past and future</p> <p>Time Line: Incremental & step-wise</p> <p>Developed: with government, researchers and agricultural industry</p>	<p>Honey bees are the “producers” in the honey industry and beekeepers are constantly striving to keep their bee populations healthy; staying ahead of pests, diseases and weather.</p> <p>The major health threat is the varroa mite. This caused a major change in Canadian overwintering practices in the late 1980’s when bee importing was restricted to only queens; that led producers to find ways to keep their hives over winter.</p> <p>There is a strong tradition of working together in the bee industry. The “bees and neonicotinoid pesticides” issue has recently resulted in a unique collaboration between apiarists, crop producers, pesticide companies and government to come together to find a solution for all.</p>

<p>BM 6 Innovation: Pollination Services</p> <p>Type: Organizational → Process</p> <p>New to: Agricultural industry</p> <p>Part of supply chain: Producer</p> <p>When: Last 20 years and future</p> <p>Time Line: Incremental & step-wise</p> <p>Developed: With crop producers</p>	<p>Pollination by honey bees is becoming more important for a number of crops; especially fruit trees, blueberries, cranberries and canola (2 colonies /acre increases yield by 15%). The Canadian pollination industry has been valued at \$4.4b, over 10X the value of the honey industry. This is more prevalent in Alberta; presently in Manitoba all bee-keepers are honey producers, though many also offer pollination services.</p> <p>A related challenge is that some bee-keepers need to innovate due to the increasingly “monoculture” nature of agriculture, the lack of biodiversity. For example, canola flowers for 35 days, and bees need a food source for the rest of the summer.</p>
<p>BM 7 Innovation: Updating technology</p> <p>Type: Process</p> <p>New to: Company</p> <p>Part of supply chain: All</p> <p>When: Continuously, past and future</p> <p>Time Line: Incremental & step-wise</p> <p>Developed: In-house with equipment suppliers</p>	<p>Through the distribution and retail side of the supply chain, innovations are made continuously to keep pace with changes in technology. These changes give more energy efficiency; save labour; streamline systems and achieve better tracking of products to enable to companies to serve their customers better and remain competitive.</p> <p>On the producer side: apart from overwintering (BM5) bee-keeping practices have not changed a lot over the years. However some mechanization has occurred: from radial to parallel honey extractors; wax presses and self-levelling booms to lift hive boxes.</p>
<p>BM 8 Innovation: Diversification</p> <p>Type: Organizational</p> <p>New to: Company</p> <p>Part of supply chain: All</p> <p>When: Continuous</p> <p>Time Line: Step-wise</p> <p>Developed: In-house</p>	<p>Several companies in various parts of the chain had diversified their operations from their original business. Bee Maid sells beekeeping supplies in addition to buying and selling honey. Beekeepers are adding pollination services and selling bees in addition to honey production.</p> <p>Diversification is partly in response to a need for a service, it is also a way of spreading and reducing risk. For example: many wholesale distributors had to diversify to food service when the wholesale industry changed fundamentally about 5 years ago as a result of cigarette manufacturers taking over their own distribution.</p>

Innovation Methods

Factors that Affect Ability to Innovate

The **incentives to innovate** within this supply chain are to stay in business, ensure a sustainable cost model of operation and keep the customers satisfied and engaged. Money and ensuring bee health were also mentioned as incentives to innovate.

Bee Maid has an innovation team and ideas **are generated** in-house and through their members, customers and suppliers. At the bee-keepers' end of the supply chain ideas are mainly generated by individuals, but also by discussing ideas in meetings and adapting innovations from others.

This individuality in generating ideas is one of the **obstacles to innovation**. However, this is improving over time with more associations taking a proactive approach in connecting bee-keepers and encouraging knowledge sharing and discussions. Other obstacles mentioned come down to resources (cost, time, staff and expertise) and the fact that not much scientific research has been done in relation to bee-keeping and honey production.

Innovation Linkages

Bee Maid's innovation team sources **external knowledge** from Food Development Centres, consulting firms, designers and various packaging suppliers, and from customers. Provincial associations and governments are great partners for sourcing and disseminating knowledge for producers, through workshops and national conventions. Since honey is a common international product, the internet is an additional source of external innovation ideas.

Relationships with innovation linkages are mostly informal and ownership of intellectual property was not mentioned as a concern by the members of the supply chain.

Opinions on the nature of the **linkage relationships** within the supply chain were variable; from coordinated to collaborative. Overall Bee Maid's supply chain is considered by participants one of the most integrated supply chains compared to other processors in the honey industry. Bee Maid is seen as succeeding in linking the honey producers with its customers and honey consumers.

Consistence/Stability: Relationships within this supply chain are considered long term and stable, with most of the chain members having grown their businesses together. However, this stability may be vulnerable to change if the traditional profitability of honey is challenged by a drop in the international price of honey.

Limits to Growth

One of the main barriers to growth as seen by the industry stakeholders interviewed for this case study is that honey itself is not a very innovative product. Although the industry and Bee Maid specifically, have been creative with attractive and innovative packaging and there are marketing opportunities under the “natural foods” umbrella, there is not much diversity when it comes to the product itself. An exception to this is a company from PEI that has developed a line of pure dried honey products.

As with every agricultural commodity, honey supply is affected by bee diseases, weather and agronomy, including pesticide use. All these factors can affect bee health and populations, and in the long run affect honey production and processing. Bee-keepers and others in the honey industry are working together and building relationships with the larger agricultural community, including chemical companies, to address these challenges.

It is worth noting that recently there have been significant obstacles in exporting Canadian honey to Europe, in part because it may be produced through pollination of a genetically modified crop and the definitions surrounding the GM pollen are unclear. This gives an additional barrier to growth for Bee Maid and other processors in the industry.

Honey production used to be the soul of bee-keepers’ business in Canada. Recently, the fast



expansion of the pollination services sector has changed the nature of the Canadian beekeeping industry. Honey bees are extremely important for the pollination of crops in Canada and pollination services offer promising growth expansion capabilities for the bee-keepers. This change in the structure of the honey industry may effect bee and honey supply; however, with good coordination the entire industry can benefit.

Finally, Bee Maid is a single source packer that only packs Canadian honey; this gives some competitors a price advantage since they can source cheaper honey from other countries.

Conclusions

Bee Maid has been an established successful company with stable growth over the years. Operating as a co-op has proven successful not only for the co-op members that benefit from a stable partnership to market their honey but also for the company as it is the only single source processor that uses exclusively Canadian honey. With the emerging consumer trends of “knowing where your food comes from” and “buy local”, Bee Maid has competitive advantages for future growth in both North American and international markets.

Honey is a traditional product that has been part of consumer’s diet for many generations and there have been few innovations in texture and flavour of product itself. Honey does continue to be a popular ingredient with a natural and healthy reputation; as such new products containing honey are continuously being introduced. The possibility exists for expansion into health and medical applications if scientific research proves some of honey’s potential health benefits.

Significant innovations have occurred around the functionality and the design of Bee Maid packaging. More user-friendly and attractive honey products are currently offered in the market and this is a continuous and evolving process.

Diversification was a common theme through the entire supply chain, from producer and processor to distributor and store, all had diversified their products, markets or customers to reduce risk and build their business.

Bee Maid’s supply chain is very well integrated and Bee Maid manages to link the source (bee-keepers) with its customers and final consumers. The pollination services industry is likely to continue to expand. There will be a challenge to manage supply and demand of bees and honey; however pollination does offer bee-keepers an opportunity for diversification and with good coordination the whole industry could potentially benefit.



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