An Overview of the BC Potato Industry

Potatoes are the largest field vegetable crop in BC, comprising approximately one-third of all field vegetables produced, and providing a solid foundation for field vegetable production in the province. The BC potato industry includes production of table and seed potatoes, and is well known for its certified virus-free seed potato program. Organic potatoes are another small but growing sector of the industry.

INDUSTRY PROFILE

Across Canada

Canada has 171,000 ha (422,541 acres) of land under potato production. In 2002, a total of 4.7 million metric tonnes (10.4 billion lbs) of table potatoes were produced.[i] The main producing province is Prince Edward Island which accounts for 29% of all Canadian grown potatoes. Manitoba is the second largest producer, accounting for 18% of the total, and New Brunswick and Alberta each produce about 15%. British Columbia accounts for less than 3% of national potato production (see Figure 1).

British Columbia

In 2001, the total value of the BC potato industry was estimated at $35.6 million. Early, mid and late season table potatoes accounted for approximately 80% of sales valued at $28.5 million.[ii] The remaining 20% of sales were in seed potatoes, valued at $7.1 million[iii]. There were more than 51,675 tonnes (13.9 million lbs) of table potatoes, and over 17,426 tonnes (38.4 million lbs) of seed potatoes produced (see Table 1).

BC's potato industry experienced a challenging period in the late 1990's. Poor weather in 1997 and the loss of the province's major potato processor in 1998 resulted in a significant economic impact for growers. The industry has since recovered and growers have successfully increased production and farmgate sales to levels comparable to the mid 90's. In September 2000, a favourable ruling by the Canadian International Trade Tribunal, upholding restrictions on the dumping of US potatoes into BC, has helped assure the competitiveness of BC product as the industry continues to grow. Table 1 shows the growth in the area harvested, and the volume and value of production for seed and table potatoes between 1997 and 2001.

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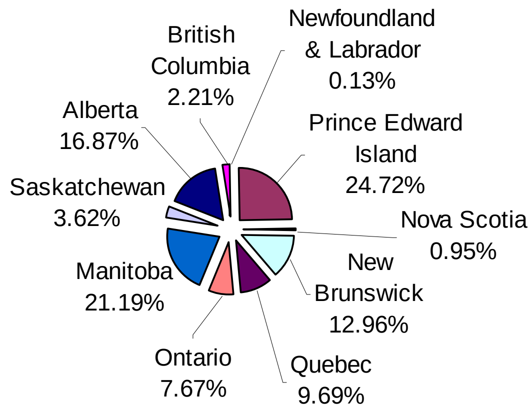
Figure 1: Percentage of Total Canadian Potato Production in Each Province



Data Source: Statistics Canada, Catalogue No. 22-008-XIE.

Table 1: BC Potato Industry, 1997-2001			
Category/Year	***Acreage harvested***	***Volume ('000 lbs)***	***Value ($'000)***
Table			
1997	4,930	98,877	16,492
1998	5,703	121,670	22,256
1999	5,291	108,757	22,686
2000	5,882	124,500	23,932
2001	6,002	113,924	28,526
Seed			
1997	2,053	33,879	4,743
1998	1,972	33,530	4,862
1999	2,113	48,593	7,775
2000	2,113	36,696	5,871
2001	2,028	38,419	7,108
Total			
1997	6,983	132,756	21,235
1998	7,675	155,200	27,118
1999	7,404	157,350	30,461
2000	7,995	161,196	29,803
2001	8,030	152,343	35,634

Source: British Columbia Ministry of Agriculture, Food and Fisheries, Horticulture Statistics

Demographics/Geographics

Seventy-two commercial potato growers farmed a total of 5,525 acres of table potatoes throughout the province in 2003.6 Table 2 lists the distribution of acreage and producers; over 75% of production is located in the Fraser Valley and Lower Mainland, with the balance on Vancouver Island, in the Interior, and a small amount in northern regions.

Table 2: Number of Growers, and Production Acreage for BC Potatoes, 2003/04

	Table Potatoes		Seed Potatoes	
Region	**Number of Growers***	**Acres of Production**	**Number of Growers****	**Acres of Production**
Pemberton Valley			17	670
Fraser Valley (District I)	52	4,318.25	8	867
Vancouver Island & Cariboo (District II)	10	523.60	1	48
Interior (District III)	10	684.00	2	737
Total - British Columbia	72	5,525.85	28	2,322

*Registered with the BC Vegetable Marketing Agency.
** Registered with the BC Certified Seed Potato Growers' Association. There are an additional five non registered growers.

In 2003 there were 2,322 acres of seed potato production.iv The Pemberton valley, north of the Lower Mainland region is a seed potato control areas where only certified disease-free seed potatoes are produced. The remote location is well suited for producing virus-free seed stock. Seed potatoes are also grown in the Lower Mainland, the Interior's Creston and Okanagan valley areas, and a small amount on Vancouver Island (see Table 2).

Markets

More than two-thirds of BC table potatoes are sold to wholesale markets and approximately 20% are sold to processors. About 10% of the crop is sold through direct marketing channels such as roadside stands and farmer's markets.ii Table 3 shows the volume and value of sales to the various markets.

Table 3: Markets for BC Potatoes, 2001

Market	Quantity ('000 lbs)	Value ($'000)
Wholesale	77,990	20,207
Direct Marketing	11,746	5,417
Food Service Sales	24,188	2,903
Total	113,924	28,527

Source: BC Ministry of Agriculture, Food and Fisheries, Horticulture Statistics.

Trade

BC is a net importer of table potatoes and a net exporter of seed potatoes. In 2002, imports of fresh and processed table potatoes were over $50 million more than exports.

Imports

According to Statistics Canada, in 2002, BC imported 107,753 tonnes of potatoes with a value of over $59.3 million. 6 Almost 100% were fresh potatoes from the United States, mostly Washington State and Idaho.v In addition, potatoes are also imported from other provinces in Canada.

Exports

In 2001, BC exported $9.2 million in potato products.vi Seed potatoes accounted for over half of export sales. Statistics Canada estimates that 11,466 metric tonnes (25.3 million lbs) of seed potatoes were exported, with a value of over $4.8 million. Other potato exports include 5,930 tonnes of fresh potatoes valued at close to $4.3 million, and a small amount of frozen prepared potato products such as French fries. There is also a small export market for BC organic potatoes sold to the western United States.

Marketing

Table Potatoes

In BC, many of the high volume storage vegetable crops, including table potatoes, are regulated by the *Natural Products Marketing (BC) Act.* The BC Vegetable Marketing Commission (BCVMC) administers the Act and regulates production, packing, storage and marketing of products within the three Districts in BC: the Lower Mainland (District I); Vancouver Island and Gulf Islands (District II); and the Southern Interior Region (District III). Quota is required to grow table potatoes, and is allocated by the Commission based on a producer's 5-year average production during the various quota periods established. When 100% of the quota has been shipped, all producers, including new producers, get an equal opportunity to ship additional product. The Commission may also allocate additional quota to new or existing producers based on market requirements. Producers in the three districts are required to register annually with the Commission and provide their production intentions to the Commission.[vii]

The Commission only regulates products if requested by at least 70% of the producers representing 70% of the vegetable crop produced. The vegetable growers represented by the Commission may also vote to deregulate a vegetable.

Quota has no monetary value and if a grower makes no deliveries on the quota for several years, the quota disappears. This method allows the entrance of new growers and prevents the quota from developing an intrinsic value.

Fees charged by the agencies to the growers are based on a unit or tonnage basis. The revenue generated is used to pay marketing, storage, shipping and other costs. Since sales agencies are producer-owned, agency fees in excess of expenses are returned to the producers.

Marketing Options

Registered producers may market potatoes directly to consumers at farmer's markets or from stands located on their farms. Unless the producer has been exempted from doing so, all other potatoes must be marketed through a designated agency of the Vegetable Marketing Commission[7]. There are five designated agencies in BC that market potatoes and other regulated field vegetables:

- Lower Mainland Vegetable Distributors Inc.
- Island Vegetable Co-operative Association
- Vancouver Island Produce
- Interior Vegetable Marketing Agency
- Fraserland Organics Inc.

Producers may apply to the Commission for an exemption from marketing through a designated agency. The Commission regularly provides exemptions for producers in isolated areas and if the Commission determines there will be no impact on the orderly marketing of the regulated product. All regulated crops produced north of the 53rd parallel (Quesnel) are exempted, but growers selling more than one ton of potatoes are required to register with the Commission.[7]

With the exception of public markets and direct marketing, the (regulated) market in BC is segmented into five main categories:

- Earlies
- Whites
- Reds
- Yellows
- Russets

The BC Vegetable Marketing Commission sets the minimum selling price each week or as often as necessary, in consultation with its sales agencies. BC is historically a price taker and therefore the selling price is determined according to the landed price of potatoes imported from the US. The price setting practice brings stability to the market, and while maintaining a competitive position, limits BC grower-to-grower price competition which could force prices down below the cost of production.

Seed Potatoes

Seed potatoes are not regulated by the Vegetable Marketing Commission; in the seed potato sector, individual producers seek out their own buyers, and prices are negotiated between the growers and their buyers. Approximately 57% of BC seed potatoes are exported to the western US, mostly Washington State. The remaining 43% is utilized by Canadian producers.[viii]

Crop Production

Table potatoes

The potato is a very adaptable plant that can be grown in many regions of the province. There are more than 35 different potato varieties grown in BC. Crops are planted from mid-February through mid-June, depending on the climate and the variety that is being grown. Potato plants grow from sprouted "eyes" on seed-pieces (pieces cut from seed potatoes). When the potato plants are between 20 and 30 cm high, soil is piled up along the base of the plants. This process, called hilling, ensures that the potato tubers will not be exposed to light. Light exposure causes the potato tubers to turn green, making them unmarketable.[9] Before harvesting, the potato vines are "topkilled" to set the skin on the potato tubers and help prevent damage during harvest. Harvesting is mostly by machine, and occurs from July to October, depending on the variety of potato being grown.

Complete potato production information is available in the *BC Vegetable Production Guide for Commercial Growers,* available from the BC Ministry of Agriculture, Food and Fisheries (BCMAFF).

Seed potatoes

Potatoes can become infected with viral diseases; therefore, most growers plant only certified seed potatoes to ensure they start with disease free plants. Certified seed potatoes are grown and monitored carefully to decrease the likelihood of contamination by certain viruses and diseases. Over 30 varieties of seed potatoes are grown in BC. The production process begins with laboratory grown tissue culture plantlets, called

nuclear (N) stock, derived from mother tubers that have been tested and found to be free of diseases. Stem cuttings are taken from the plantlets and grown into the first field-grown plant stock from which seed potatoes are produced. This first generation of seed is known as the Pre-Elite (PE) class, from which six subsequent generations are produced, with pathogenic testing at each stage:
Elite I (EI) ⇨Elite II (EII) ⇨Elite III (EIII) ⇨Elite IV (EIV) ⇨ Foundation (F) ⇨ Certified (C)

The classes Elite III, Elite IV, Foundation and Certified are available commercially as certified seed potato. Foundation and Certified classes are generally used for commercial table potato crops. In order to have seed potatoes certified, a grower must meet certification standards set by the Canadian Food Inspection Agency.[ix]

Economics

Major capital expenditures include machinery, irrigation and drainage, building facilities for storage and handling, vehicles, and on farm washing/grading/packaging equipment. For a 100 acre potato farm, these expenses total over $550,000, plus land costs.[x]

The most significant direct operating expenses are incurred in washing,grading,packaging, and marketing the product. Other direct expenses include seed, fertilizer, crop protection, labour and machinery maintenance.

Although yield per acre is lower than mid and late season varieties, early potatoes provide the highest market price and largest contribution margin. Production costs for mid and late season varieties range from 60% to 85% of sales revenue, as compared to 35% to 45% for earlies.

Organic potatoes have higher production costs and market prices than conventionally produced potatoes. Production costs account for approximately 55% of sales revenue. Based on target yields, organic production has the potential to provide the highest contribution margins; however, production and marketing risks may be more significant.

Further information on production economics is available in the BCMAFF Planning for Profit factsheets for various potato crops, available online at:

http://www.agf.gov.bc.ca/busmgmt/budgets/potato.htm.

Industry Organizations

BC Certified Seed Potato Growers Association

A grower association representing 27 of the 32 seed potato growers on provincial and national seed potato issues.

The BC Potato and Vegetable Growers' Association

The association acts on behalf of members on issues that affect the viability of their potato growing operations. It also provides direction to the Potato Industry Development Committee in the development of its annual work plan. Membership includes all potato growers licensed by the BC Vegetable Marketing Commission, and dues-paying seed potato growers.

BC Vegetable Marketing Commission

Besides administering quota and marketing regulations, the BCVMC represents BC growers in trade and regulatory issues, and provides industry information through its website and online newsletter, *Veggie Times.* In association with government and other organizations, the Commission is also involved in ensuring food safety.[7]

BC Agriculture Council

The British Columbia Agriculture Council (BCAC) provides leadership in representing, promoting, and advocating the collective interests of all agricultural producers in the province. The Council fosters cooperation and a collective response to matters affecting the future of agriculture in the province, such as environmental and labour issues, and facilitates programs that benefit the industry.

Canadian Horticultural Council

A non-profit, national organization representing many Canadian horticultural sectors at a national and international level on issues such as: research and technology, trade, industry standards, finance and human resources. The Council also addresses other issues pertinent to the vegetable industry such as plant health crop protection tools and food safety.[xi]

Industry Advantages

Certified virus-free seed potato program

The Pemberton certified seed potato program, the designation of seed potato control areas, and the Canadian Food Inspection Agency's certification standards, help to ensure a reliable source of high quality seed. Widespread use of local certified seed potatoes reduces the incidence of crop losses associated with disease.

Regulated marketing system

A well established marketing/quota system provides cohesive pricing and distribution for small growers dealing with large corporate buyers.

Location

The main growing regions have good access to major markets, transportation, and distribution facilities.

Pest management research

Scientists at the Pacific Agri-Food Research Centre are working on novel control strategies for several potato pests, which allow local producers to reduce the use of pesticides and provide better pest control through effective integrated pest management (IPM) strategies.

Industry Challenges

Aging owner/operators and workforce
Potato farm operators and labourers are aging and few younger new growers are being attracted to the industry The economic difficulties in transferring farm equity to the next generation is a serious impediment to handing down farms to younger family members.[xii]

High production costs
Of all the major field vegetable production areas in Canada, BC producers have the highest costs for land, labour, chemical and fertilizer inputs and fuel.[xiii]

Unpredictable weather
Poor weather has historically affected the quality and volume of yields. 1997 was a disastrous year for BC potato producers, with industry losses estimated as high as $31 million.[xiv]

Economies of scale
The relatively small size of BC potato farms reduces the opportunity for higher returns based on economies of scale that influence overhead costs.[13]

Declining processing market
The production volume of BC vegetables is not large enough to support major processing companies. Closure of a major potato processing company in 1998 has had a significant impact on the industry.

Lack of industry and product development
Local industry development activities are limited by the small size of the BC industry relative to other North American potato producing regions.[13]

Pest and disease control
Pest and disease management is a major concern for growers. The decreasing effectiveness, and reduced number, of registered pesticides place BC growers at a disadvantage. The United States and Europe have several new effective pesticides that are not registered in Canada. Often these new pesticides are less harmful to the environment and to biological controls. The small size of the Canadian vegetable industry influences large pesticide companies' decisions to spend the resources needed for Canadian registration. The limited availability of pesticides places more emphasis on integrated pest management (IPM) practices.

Trade relationships
Trade between Canada and the United States must be conducted with integrity to avoid trade action related to the dumping of potatoes into the marketplace at below the cost of production. The Canadian International Trade Tribunal (CITT) conducts inquiries and provides rulings on trade and anti-dumping tariff issues.

Food safety

The threat of food-borne illnesses has received increased attention in recent years. A food safety program has been developed for producers by the BC Vegetable Marketing Commission, in association with BCMAFF. Food safety checklists are available for growers to analyze and address on-farm food safety risks. Growers are also required to keep records that detail their production practices.

Regulations

The potato industry in BC is regulated by numerous legislative Acts at federal, provincial and municipal levels. The regulations encompass environmental protection, plant protection, labour, pesticides, food safety, health and safety, and land use.[xv,xvi] A list of legislative Acts is available online from InfoBasket, Field Vegetable Community – FAQ webpage:
http://infobasket.gov.bc.ca/infoman/mypage/gadgets/FieldVegetables/EditedContent/legislation.asp

Outlook

The production of BC potatoes appears to be stable; however, the industry is facing economic, and production challenges. The large volume of potato imports into the province indicates that there is room for expansion by local producers. In reality, the small annual production capacity in BC limits the province's ability to increase market share of fresh product or attract major processing companies. High land values are a major constraint to increasing the production volume in order to take advantage of these market opportunities.

Traditional wholesale markets will continue to account for the majority of sales, but the increased power of large, consolidating purchasers is intensifying competition with other potato producing regions. Some smaller growers are turning to opportunities in market garden and direct to consumer markets to buffer the risk in the wholesale market[11], where commodity pricing led by US growers dominates. Producer-Vendor licenses are becoming increasingly popular with producers. These licenses allow growers to market and sell to small stores that are not customers of the marketing agencies.[11] New market opportunities are developing but they tend to be in smaller niche-markets such as organic production. Active development of new and existing markets, and innovative value added products, as well as initiatives to encourage expansion of the vegetable processing sector, would have a positive effect on the BC potato industry.

FURTHER INFORMATION SOURCES

Publications

- *BC Vegetable Production Guide for Commercial Growers, BCMAFF*
- *Planning for Profit - Enterprise Budgets, BCMAFF, available online: http://www.agf.gov.bc.ca/busmgmt/budgets/potato.htm*
- *An Overview of the BC Field Vegetable Industry, BCMAFF*
- *Potato Health Management* - Randall C. Rowe (1993)
  Commercial Potato Production in North America - Potato Association of America Handbook (1993)
- *Guide to Commercial Potato Production on the Canadian Prairies* – Western Potato Council, Portage la Prairie, Manitoba (204-239-6932)
- *Integrated Pest Management for Potato Production* – available from Prince Edward Island Agriculture, Fisheries, Aquaculture, and Forestry (1-866-734-3276), or email slmacneil@gov.pe.ca

Newsletters

- *North American Potato Market News* – Idaho Falls, Idaho (208-525-8397)
- *Spud Topics* – Moses Lake, Washington (509-765-8845)

Websites

- **InfoBasket**
  A portal to agricultural information on the internet including production, new business start-up, business management, marketing & trade, regulations, directories, statistics and data.
  http://infobasket.gov.bc.ca
- **BC Vegetable Marketing Commission**
  Veggie Times newsletter, information on the BCVMC mandate, quota, and industry issues, and food safety checklists.
  http://www.bcveg.com
- **Canadian Horticultural Council**
  On-Farm Food Safety Guidelines for Fresh Fruit and Vegetables.
  http://www.hortcouncil.ca/offs.htm
- **Canadian Farm Business Management Council**
  http://farmcentre.com/english/index.htm
- **Canadian Food Inspection Agency**
  Certified Seed Potato Program.
  http://www.inspection.gc.ca/english/plaveg/potpom/potpome.shtml
- **Ontario Ministry of Agriculture and Food**
  Potato Information
  http://www.gov.on.ca/OMAFRA/english/crops/hort/potatoes.html
- **Oregon State University**
  Commercial Vegetable Production Guides
  http://www.orst.edu/Dept/NWREC/vegindex.html
- **Washington State Potato Commission**
  http://www.potatoes.com

- **Colorado Potato Administrative Committee**
  http://www.coloradopotato.org
- **Nebraska Potato Eyes newsletter**
  http://www.panhandle.unl.edu/peyes.htm
- **Idaho Potato Commission**
  http://www.famouspotatoes.org/
  http://www.idahopotato.com
- **British Potato Council**
  http://www.potato.org.uk
- **World Potato Congress**
  http://www.potatocongress.org/

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[vi] Statistics Canada, Trade Data.

[vii] BC Vegetable Marketing Commission. Online. Available: http://www.bcveg.com.

[viii] Canadian Food Inspection Agency, Plant Health Division.

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[x] BC Ministry of Agriculture, Food and Fisheries. *Planning for Profit – Enterprise Budgets* (various).Online. Available: http://www.agf.gov.bc.ca/busmgmt/budgets/potato.htm.

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[xii] BC Ministry of Agriculture, Food and Fisheries, Risk Management Branch. *Agricultural Risk Management and the Vegetable Industry: Document 5 Final Report*, Murray Swan, (Kelowna, BC, July 9, 1999), 12.

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[xiv] BC Ministry of Agriculture, Food and Fisheries, Risk Management Branch. *Agricultural Risk Management and the Vegetable Industry: Document 5 Final Report*, Murray Swan, (Kelowna, BC, July 9, 1999), 8.

[xv] *Field Vegetables - Legislative and Regulatory Risks*. Online, InfoBasket, Field Vegetables, Frequently Asked Question. Available: http://infobasket.gov.bc.ca/infoman/mypage/gadgets/FieldVegetables/EditedContent/legislation.asp.

[xvi]*Farm Practice: Field Vegetables*. Online, BC Ministry of Agriculture, Food and Fisheries. Available: http://www.agf.gov.bc.ca/resmgmt/fppa/refguide/commodity/fieldveg.htm.