Vegetable crops

ORGANIC ADVANTAGE

Transition to higher profits

October 2014

Organic advantage

Transition to higher profits

Are you a vegetable producer looking for a new business opportunity? No matter what crops you grow, there is an opportunity for you to gain a market and business advantage by switching your conventional acres into organic production. Making the transition can be easily navigated with support from organic experts.

Market advantage – Consumer demand for organic food products is outpacing Canadian production capacity.

Business advantage – Vegetable producers who transition from conventional to organic production are rewarded with increased profitability.

Transition advantage – There is a significant knowledge base and numerous resources available to navigate a smooth transition from conventional to organic production.

Opportunities in Canada's organic sector

The Canadian organic sector has experienced rapid growth for the past decade and is well positioned for continued expansion. To meet growing consumer demand with Canadian supply, however, the sector needs to significantly increase production capacity. The Canada Organic Trade Association estimates that about 75% of all organic retail sales consist of imported products. Substantial transition of conventionally farmed lands and processing facilities to organic practices is required to supply both the quantity and variety of products that are demanded by consumers in both the domestic and international markets.

This brochure is intended to highlight the business case for organic vegetable production. It will provide conventional producers with a better understanding of the market opportunity, economic benefits, investment requirement, marketing possibilities, and available resources and expertise to support a successful transition into the sector.

Photos courtesy of the Certified Organic Associations of British Columbia

Organic Value Chain Roundtable

The Organic Value Chain Roundtable (OVCRT) is an industry-led partnership working collaboratively with government on strategies to address regulations, increase Canadian organic capacity, support development of markets and help guide research and innovation for Canada's organic sector. Increasing the organic share of domestic retail sales from 1.7% to 5% by 2018 is a key strategic priority for the OVCRT. This will be accomplished through increased production, improved production efficiencies and greater economies of scale.

ORGANIC ADVANTAGE

Transition to higher profits

North America
global organic
7.5% of the g

50% Demand

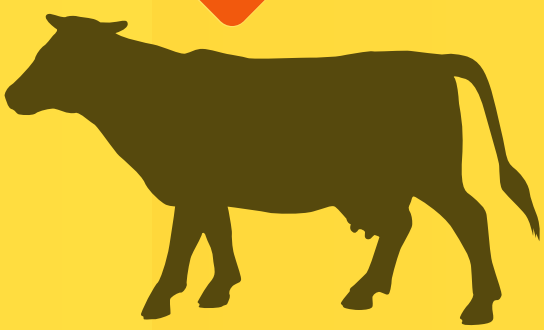
Organic producers' input costs are about half of their conventional counterparts

More than 20 m
Canadians buy o
products weekly

ORGANIC CONSUM

For every **$100** earned per acre an organic farmer keeps **$58** while a conventional farmer keeps **$31**

There is significant room for growth in organic beef – only 0.4% of the U.S. cow herd is certified organic



Demand for organic has increased 170% since 2002 in Canada

a accounts for 50% of the
c demand but only produces
global organic production

7.5% Supply

illion (60%)
rganic

Canadian organic
exports are valued at
$458 million

MER 2002

ORGANIC CONSUMER 2013

There are nearly 5,000 certified
organic farms, processors and
handlers in Canada

Canadian organic
food sales are
$2.8 billion

Market advantage

Strong consumer demand for organic products

Sales of organic food and beverages in Canada increased from $2 billion in 2008 to $3 billion in 2012. Since 2006, the value of the Canadian organic food market has tripled, far exceeding the growth rate of other agri-food sectors. The significant increase in industry value is driven by consumers – more than 58% of Canadians buy organic products on a weekly basis.

Consumer demand for organic food products is outpacing Canadian production capacity. This gap in supply and demand offers producers the opportunity to convert conventional acres to organic and benefit from an untapped market.

On track to triple market share

While organic sales in Canada are growing much faster than food sales in general, they still account for only a 1.7% share of total food sales. In comparison, U.S. organic market share is 5% and Germany's is 8%. The OVCRT's goal is to grow the organic share of food sales in Canada to 5% by 2018, tripling its current market share.

Opportunity to grow domestic organic vegetable market

Currently, Canadian producers fill less than 25% of the domestic demand for organic vegetables (see Figure 1). And demand is growing – organic tomato sales, for example, increased from $7 million in 2008 to $11 million in 2012 (see Figure 2). Canadian consumers are increasingly looking for locally grown organic produce. This growing demand confirms there is a significant opportunity to grow the domestic market share for organic vegetables, a category worth $205 million annually in Canada.

Figure 1

Imports of Selected Organic Vegetables

Sold Through Mainstream Retail Channels (2011, 2012)

Source: Statistics Canada and US For. Ag. Service, compiled by the OVCRT

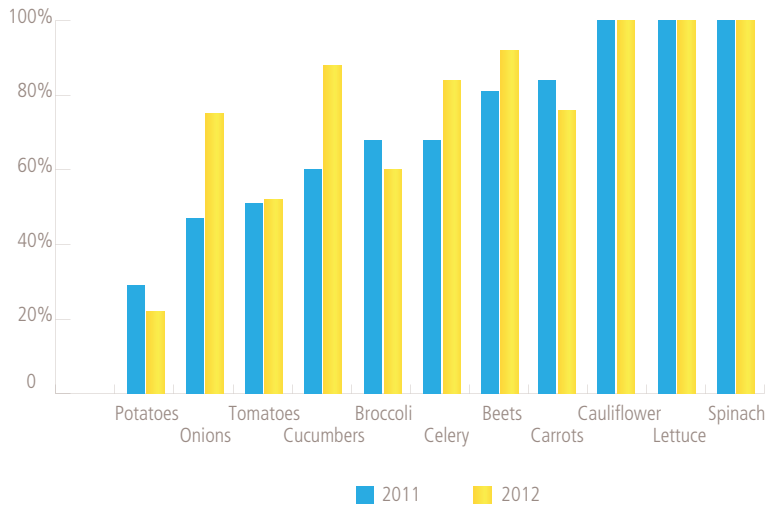
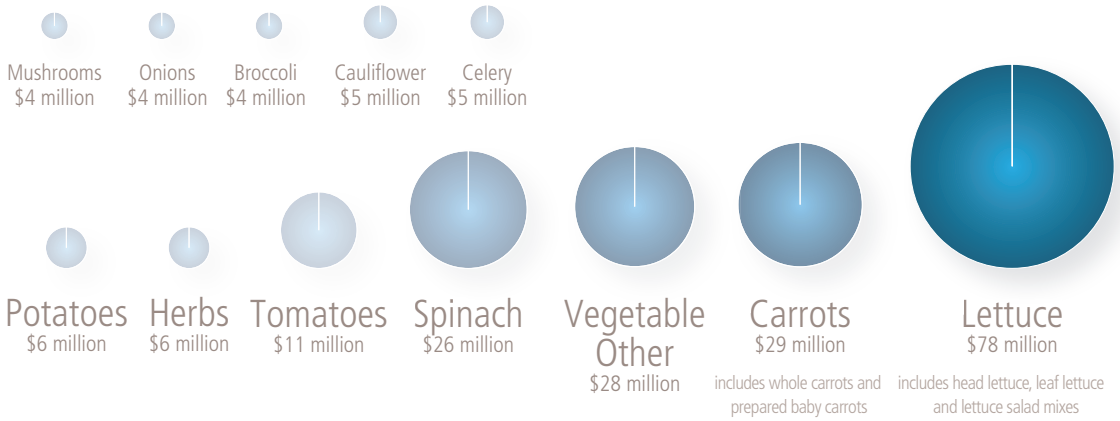


Figure 2

Sales of Organic Vegetables

Sold Through Mainstream Canadian Retail Channels (Canada , 2012)

Source: Statistics Canada and US For. Ag. Service, compiled by the OVCRT



Access to 96% of the global organic market

Organic food demand is also on the rise globally. North America represents nearly half (48%) of this global demand (see Figure 3). The reduction of trade impediments puts the Canadian organic sector in an ideal position for growth. Canada currently has five equivalency arrangements in place with the United States, Europe, Costa Rica, Japan and Switzerland, and more in development. These arrangements recognize the Canadian organic standard and help facilitate trade. As a result of these arrangements, Canada has access to 96% of the current global organic market, valued at $US63 billion annually.

In fact, many Canadian organic vegetable growers are successfully establishing a presence in export markets, especially in the U.S.

Figure 3

Global Market: Distribution of Total Retail Sales Value by Country

Source: FiBL-AMI-IFOAM Survey 2013

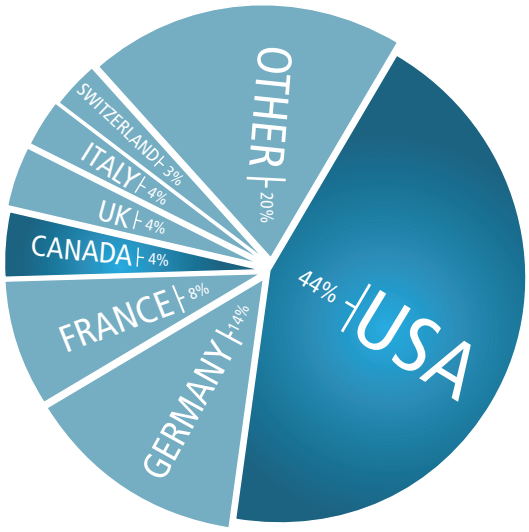
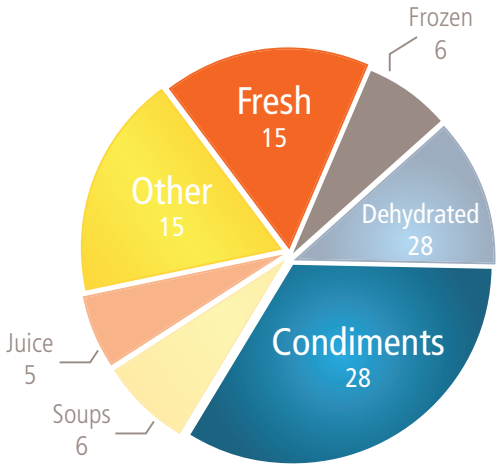


Figure 4

Canadian Organic Vegetable Processors by Product Type

Source: Data from certification bodies, compiled by the OVCRT



Condiments include: ketchup, salsas, pickles, sauces

Firms processing more than one product were counted in each applicable category

Building on a solid foundation

An established base of organic production and processing also positions Canada well for growth. The country is home to 3,732 organic farms, 870 organic processors and 245 organic handlers.

Between 2001 and 2011, the Census of Agriculture shows Canadian organic operations increased by 66.5% and the number of certified organic processors and handlers increased by 194%.

There are at least 84 vegetable processors across Canada operating in a number of categories (see Figure 4).

Business advantage

Lower costs, increased profitability

Best management practices associated with producing an organic crop can significantly reduce cost of production as compared to a conventional crop. For instance, inputs such as synthetic fertilizer and pesticides are not relied upon in this crop production system. In other words, less investment is required per acre to grow an organic crop. And while yields may be lower than conventional crops, better prices are generally offered for organic crops, resulting in higher margins. When you combine lower costs with price premiums, the result is a healthier bottom line.

Vegetable producers who transition from conventional to organic production are rewarded with increased profitability.

Table 1. Returns to Organic Vegetable Production (Wisconsin, 2005)

	Market gardens under 3 acres			Market farms 3-12 acres			Vegetable farms over 12 acres*		
	Low	High	Average	Low	High	Average	Low	High	Average
Gross sales/acre	$8,888	$25,605	$15,623	$6,267	$15,276	$11,121	$6,750	$14,466	$10,810
Net cash income/acre**	$1,892	$9,487	$5,664	$1,331	$8,547	$4,679	$1,103	$7,430	$3,757

Source: Grower to Grower: Creating a livelihood on a fresh market vegetable farm. University of Wisconsin-Madison College of Agricultural and Life Sciences

*largest was 70 acres

**Net cash income is a farm's gross sales minus all current year cash expenses. Factors such as prescribed machinery use and land costs, depreciation and opportunity costs were not included.

Price premiums for organic produce

Organic vegetables are often priced at a premium as compared to conventionally grown crops. Tools are available to help organic producers price their crop competitively. Access to price information is available at:

- www.OrganicPriceTracker.ca
- www.rodaleinstitute.org/farm/organic-price-report/
- Cyber-Help for Organic Farmers: www.certifiedorganic.bc.ca/rcbtoa/services/prices.html

These tools allow producers to track price trends over time, understand the true cost of their crops, and determine production budgets based on organic sale prices.

Price trends over time

Figures 5 through 8 compare wholesale prices for four organic and conventional vegetables in three major Canadian wholesale markets. While organic vegetable prices tend to be higher than conventional, it is not guaranteed that there is always a premium for specific produce items – prices are based on supply and demand and can fluctuate widely over a period of weeks. Quality and attention to detail are rewarded.

Figure 5

Organic vs. Conventional Cauliflower Prices

Source: AAFC

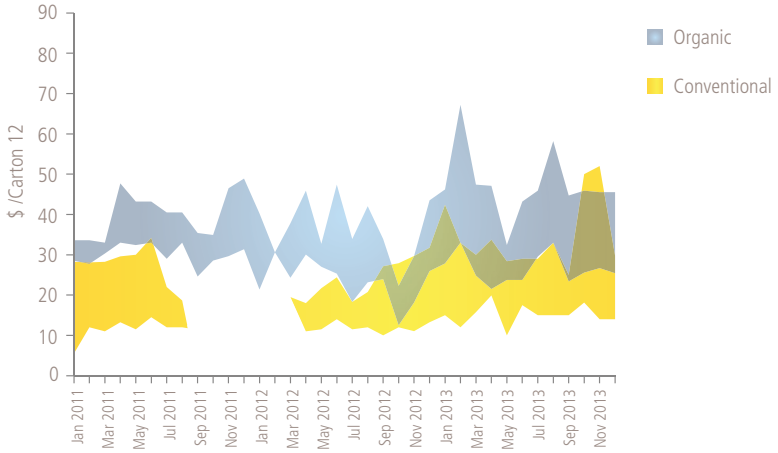


Figure 6

Organic vs. Conventional Iceberg Head Lettuce Prices

Source: AAFC

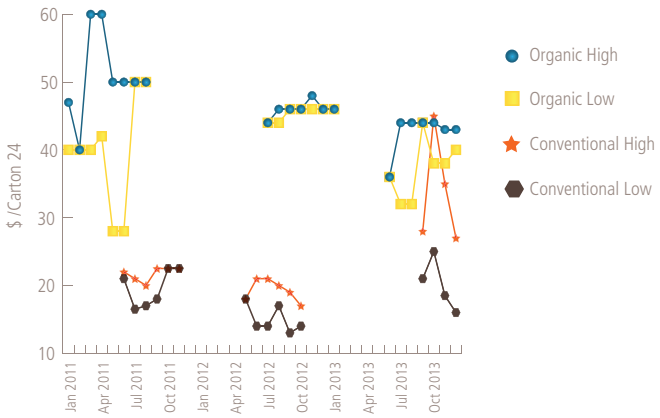


Figure 7

Organic vs. Conventional Yellow Onion Prices

Source: AAFC

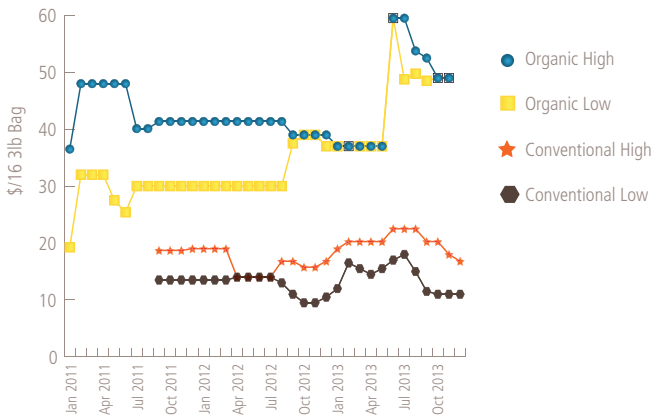
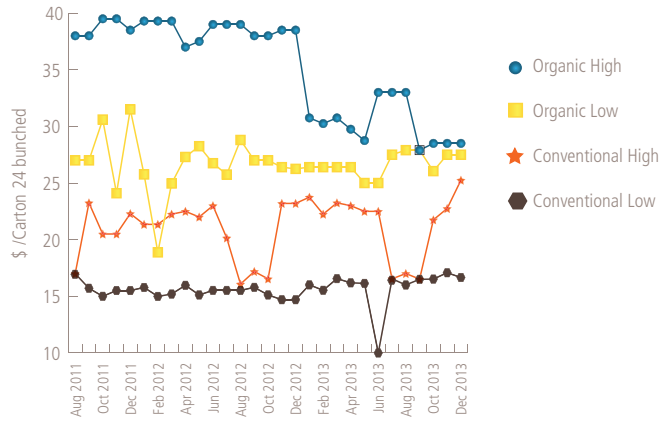


Figure 8

Organic vs. Conventional Carrot Prices

Source: AAFC



Setting yield expectations

Organic vegetable yields can be quite variable depending on the skill of the grower, the background fertility of the land and the intensity of the production system. While yields are often lower during the transition period, over time, as soil health and fertility improve, yields typically increase and can approach conventional.

Organic greenhouse yields on par with conventional

Organic greenhouse vegetable yields are generally very similar to conventional yields. One study compared six organic tomato growing systems and found that they not only had a higher total yield than the conventional control but also had a higher yield of number one fruit.[1] (All treatments were grown using the bag culture method. The conventional control was a mix of peat, perlite and vermiculite.)

Unique marketing opportunities

There are several direct and indirect marketing techniques and opportunities for organic crops. Organic vegetable growers exist at scales ranging from an acre to hundreds of acres. For larger growers there is an established wholesale market with similar warehousing and distribution services to what one would find in the conventional market, along with the same expectation for grading and standard count packaging. However, many smaller growers primarily sell through farmers' market stands, on-farm retail, and through Community Supported Agriculture (CSA) programs.

1. Rippy, Janet F.M. et al. Plant Development and Harvest Yields of Greenhouse Tomatoes in Six Organic Growing Systems. HortScience, Vol. 39(2), April 2004, pp 223-229.

Increasing organic crop research

A significant investment in organic research will have an impact on the sector's profitability, sustainability and competitiveness. The Organic Science Cluster II (OSCII) was announced in 2014 with support of up to $8 million from Agriculture and Agri-Food Canada (AAFC) under its Growing Forward 2 AgriInnovation Program, $2.4 million from industry, and in-kind contributions of $346,000. This follows on the heels of OSCI, which provided $8 million and funded 28 organic research activities and one communication activity.

Managed by the Organic Federation of Canada, and administered by the Organic Agriculture Centre of Canada, OSCII is supported by over 75 contributing partners on 37 research activities. OSCII includes nearly 200 collaborating researchers and institutions across Canada.

OSCII numbers at a glance

- $10,705,908 total funding
- Over 200 collaborating scientists, including graduate students
- 36 research institutions/facilities
  - 15 AAFC research centres
  - 15 university/educational institutions
  - 6 others
- Over 70 industry partners committed to cash or in-kind contributions

OSCII consists of industry-led research and development, and its outcomes are centred on competitiveness, market growth, adaptability and sustainability. This will be accomplished by using innovation to drive 'ecological intensification' through the following:

A. Field crops: Optimizing productivity and competitiveness through adaptable systems for field crops
B. Horticultural crops: Advancing the science of vegetable, fruit and novel horticultural crops
C. Crop pests: Innovation in sustainable pest management strategies
D. Livestock: Optimizing animal health and welfare for productivity and quality
E. Value Adding: Adding value to capture markets through innovative processing solutions

OSCII includes a number of examples of innovation that will help the organic crop sector grow and prosper. This includes: breeding for improved cultivars; reduced tillage systems under organic management; use of biological soil amendments to improve plant health; development of new management products and practices for crops pests (insects, diseases and weeds) in field and storage; technological advances in greenhouse production; management targeting optimization of the nutritional value of crops; and utilizing advanced processing techniques to develop value-added products.

OSCII, which continues until March 2018, will help producers capture opportunities by supporting the development of emerging organic production in Canada that is responding to market demand.

Transition advantage

Strategies for a successful transition

The transition period is 36 months from the last application of a prohibited substance until a certified organic crop can be harvested. This can mean either two or three years of transitional crops between the last conventional crop and the first certified organic crop depending on when during the growing season the prohibited substances were last applied. This is the most challenging period in organic production. However, there are effective transition strategies.

The organic sector is well established in Canada. There is a significant knowledge base and numerous resources available to navigate a smooth transition from conventional to organic production.

While the economics of various crops during transition vary from region to region, one of the best options for maintaining positive returns through this period is a perennial hay crop. Not only does it provide a positive economic return during transition, it also sets the farm up for success in the first years of certified organic production – it builds soil nitrogen levels, assists with weed control, and increases soil biological activity. Another strategy is a gradual transition into organic production, which can offset the transition costs. As current Canadian organic regulations do not require immediate total conversion, a conventional operation can diversify into organic production over time.

With the recent advances in biological controls for integrated pest management in greenhouse production, organic greenhouse production is feasible. The primary difference between organic and conventional greenhouse production is the requirement to grow in soil rather than using a sterile substrate and hydroponic production.

Transition resources

There are several Canadian resources for helping in the transition from conventional to organic agriculture:

- Transition to Organic Crop Production, Ontario Ministry of Agriculture and Food (OMAF) Factsheet: www.omafra.gov.on.ca/english/crops/facts/10-001.pdf
- Crop Planning for Organic Vegetable Growers, Frederic Theriault and Daniel Brisbois, published by Canadian Organic Growers, 2010
- Growing Potatoes Organically, Maureen Bostock, published by Canadian Organic Growers, 2008
- Culture biologique des legumes 2nd ed. Denis La France, published by Editions Berger, 2010
- The Market Gardener: A Successful Grower's Handbook for Small-Scale Organic Farming, Jean Martin-Fortier, published by New Society Publishers, 2014
- Western Canadian Organic Business Directory: www.organicalberta.org/business-to-business

Certified organic

Your decision to certify will depend on marketing plans and the crops you produce. Many organic growers sell their crops to buyers or processors that require certification. This process involves contracting with a third-party certifier to provide the official certification that your farm and its products are in compliance with the Canada Organic Regime. The Canadian Food Inspection Agency maintains a list of accredited certifying bodies in Canada at: **www.inspection.gc.ca**

Organic agronomics 101

Organic agriculture has the same primary goal as conventional agriculture – create the best possible conditions for a crop to thrive. Much of the knowledge and techniques from conventional agriculture apply. Proper seedbed preparation, timing of seeding, crop monitoring and harvest are all key practices. While well-planned crop rotations are a beneficial management practice in conventional production, they are critical to success in organic production. Using legumes to fix nitrogen is a method of increasing margins in conventional agriculture; it is essential to supplying the nitrogen needs of crops in organic agriculture.

Thinking differently about inputs

In organic agriculture, inputs tend to have longer-term impact – there aren't any quick fixes. Of the three macronutrients, phosphorus is generally the most challenging to adequately supply under organic cropping systems. However, a combination of judicious use of phosphorus sources (including animal manure, compost and mineral phosphate) and improved soil biological activity has proven successful. The following chart shows the key sources of organic phosphorus:

Table 2. Available Phosphorus in Organic Fertilizer

Sources	Pounds of Fertilizer/acre to provide X pounds of P_2O_5 per acre				
	20	**40**	**60**	**80**	**100**
Bonemeal 15% P_2O_5	130	270	400	530	670
Rock Phosphate 30% total P_2O_5 (X4 because of slow release)	270	530	800	1100	1300
Fish Meal, 6% P_2O_5 (also contains 9% N)	330	670	1000	1330	1670

Source: Cornell University Cooperative Extension, NYS IPM Publication No. 133. 2013.

It's important to remember that all inputs have to be approved under organic regulations. The list of approved brand name products for use in organic agriculture is growing; a database is maintained at: www.organicinputs.ca.

Increasing organic seed supply

Organic seed breeding trials are being conducted across the country. Funded by the W. Garfield Weston Foundation, USC Canada's Bauta Family Initiative on Canadian Seed Security is conducting seed trials across the country to determine whether organically adapted seeds perform better in organic systems than conventionally bred seeds.

The organic seed supply in Canada is growing. Provincial organic associations include lists of organic seed suppliers on their websites.

Success Story

Pfenning's Organics

Baden, Ontario

Pfenning's Organics was founded in 1981 when Wilhelm and Barnhild Pfenning and their four children immigrated to Canada from Germany. While the Pfennings are probably best known for their carrots, they grow a wide range of vegetables including potatoes, beets, radishes, turnips, lettuce, chard, spinach, beans, broccoli, herbs and peas.

Pfenning's Organics has grown along with the demand for organic food – slowly through the 1980s and then increasing dramatically through the 1990s to the point where they now farm 600 acres and distribute crops for 20 to 50 other organic growers. Including family members, Pfenning's employs up to 100 people in season – utilizing a mix of migrant and Canadian workers.

Today, three generations of Pfennings are involved in businesses that include growing organic vegetables on the original farm, a vegetable packing line, an import and wholesale distribution business as well as a retail store and an organic products home delivery business covering four counties in south central Ontario.

Success Stories

Fraserland Organics

Delta, B.C.

Fraserland Organics is a group of three family farms working cooperatively to farm organically certified land in Delta, B.C. In 1994, Fraserland started experimenting with 10 acres in organic production – they now have 1,600 acres in full organic production with more in transition to become certified.

The company's organic production incorporates fundamental principles used by previous generations before the advent of chemical agriculture. Fraserland combines those principles with high-tech organic farming methods incorporating what they learn through their on-farm research projects. According to owner Shelly Harris, they've learned that organic production is much more than substituting organic inputs for conventional products. Each field has become its own ecosystem with beneficial plants, microorganisms and insects working in balance.

Along with third-party organic certification, Fraserland also participates in the Salmon Safe Program, Canadian Horticultural Council, On-Farm Food Safety and has an Environmental Farm Plan.

It has taken many years for Fraserland to build markets for its rotation of crops. The business has cultivated strong relationships with buyers of both its fresh and value-added products that are sold locally and across North America.

Fraserland Farms places transitional land in the Grassland Set-aside Stewardship Program, which encourages farmers to plant fields with grasses and clover to restore the soil. The fields are "fallowed" for up to four years to provide habitats for wildlife including grassland raptors, wading birds, songbirds, small mammals and pollinating insects. As well, fertility is improved by increasing organic matter in the soil.

Origin Organics

Ladner, B.C.

Origin Organics (OriginO) was founded in 1997 with the intent to grow the best-tasting greenhouse vegetables of the highest quality. In 2005, OriginO received its first organic certification to produce consistent high-quality and great-tasting organic vegetables for the North American market.

OriginO was the first large-scale commercial organic certified greenhouse in Canada. The company currently has a total of 23 acres under glass at two greenhouses located in Langley and Delta, B.C., growing certified organic tomatoes, English cucumbers and coloured sweet bell peppers for sale in Canada and the U.S.

OriginO's farming objective is to be sustainable in an environmentally friendly manner. The company creates its own blend of soil and compost-growing media. The proprietary organic fertilizer mix is made of all-natural, raw materials. All drainage is collected and irrigation is applied to ensure minimum waste. Pest and disease control is achieved through careful attention to the growing environment and health of the plants along with the strategic release of beneficial insects.

It's time to grow organic

Consider switching your conventional vegetable acres to organic and gain several advantages:

Market advantage – Tap into a market with outstanding potential.

Business advantage – Get rewarded with lower expenses, price premiums and increased profitability.

Transition advantage – Gain knowledge from numerous resources for a smooth transition.

To start your transition to higher profits,

contact one of the following organizations for more information on organic crop production:

National

Agriculture and Agri-Food Canada (AAFC)
1-855-773-0241
info@agr.gc.ca
www.agr.gc.ca/organic

Canadian Organic Growers (COG)
1-888-375-7383
office@cog.ca
www.cog.ca

Canada Organic Trade Association (COTA)
East: 613-482-1717
West: 250-335-3423
otacanada@ota.com
www.ota.com

Organic Agriculture Centre of Canada (OACC)
902-893-7256
oacc@dal.ca
www.oacc.info

British Columbia

Certified Organic Associations of B.C. (COABC)
250-260-4429
office@certifiedorganic.bc.ca
www.certifiedorganic.bc.ca

British Columbia Ministry of Agriculture (BCMAGRI)
Susan Smith, Industry Specialist, Vegetables and Organics
604-556-3087
Susan.L.Smith@gov.bc.ca
www.agf.gov.bc.ca/organics

Alberta

Organic Alberta
1-855-521-2400
info@organicalberta.org
www.organicalberta.org

Alberta Agriculture and Rural Development
Keri Sharpe, Organic Business Development Specialist
403-556-4218
keri.sharpe@gov.ab.ca

Saskatchewan

Saskatchewan Organic Directorate
Marla Carlson, Administrator
306-535-2710
admin@saskorganic.com

Organic Connections
Marion McBride, Coordinator
306-543-8732
b.mcbride@sasktel.net

Saskatchewan Agriculture
Chantal Jacobs, Provincial Specialist: Alternative Cropping Systems
306-798-0945
chantal.jacobs@gov.sk.ca

Manitoba

Manitoba Organic Alliance (MOA)
(204) 546-2099
info@manitobaorganicalliance.com
www.manitobaorganicalliance.com

Manitoba Agriculture, Food and Rural Development (MAFRD)
Laura Telford, Business Development Specialist, Organic Marketing
204-871-6600
Laura.Telford@gov.mb.ca

Ontario

Organic Council of Ontario (OCO)
519-827-1221
info@organiccouncil.ca
www.organiccouncil.ca

Ecological Farmers of Ontario (EFAO)
1-877-822-8606
info@efao.ca
www.efao.ca

Ontario Ministry of Agriculture and Food (OMAF)
Agriculture Development Branch
519-826-4587
www.ontario.ca/organic

Québec

L'Union des producteurs agricoles (UPA)
450-679-0530
upa@upa.qc.ca
www.upa.qc.ca

La Filière biologique du Québec
418-838-4747
info@filierebio.qc.ca
www.filierebio.qc.ca

Le ministère de l'Agriculture, des Pêcheries et de l'Atimentation du Québec (MAPAQ)
Nicolas Turgeon, Organic Consultant
418-380-2100, ex 3801
nicolas.turgeon@mapaq.gouv.qc.ca

New Brunswick

Atlantic Canadian Organic Regional Network (ACORN)
1-866-32-ACORN
admin@acornorganic.org
www.acornorganic.org

New Brunswick Department of Agriculture Fisheries and Aquaculture
Claude Berthélémé, Organic Production Specialist
506 453-3046
claude.bertheleme@gnb.ca

Prince Edward Island

Atlantic Canadian Organic Regional Network (ACORN)
1-866-32-ACORN
admin@acornorganic.org
www.acornorganic.org

PEI Certified Organic Producers Co-Operative (PEI COPC)
902-894-9999
www.organicpei.com

PEI Department of Agriculture and Forestry
Susan MacKinnon, Organic Development Officer
902-314-0825
sdmackinnon@gov.pe.ca

Nova Scotia

Atlantic Canadian Organic Regional Network (ACORN)
1-866-32-ACORN
admin@acornorganic.org
www.acornorganic.org

Perennia Food & Agriculture Inc.
Av Singh, Organic & Rural Infrastructure Specialist
902-896-0277, ex 228
asingh@perennia.ca
www.perennia.ca

Newfoundland and Labrador

Atlantic Canadian Organic Regional Network (ACORN)
1-866-32-ACORN
admin@acornorganic.org
www.acornorganic.org

Newfoundland Department of Natural Resources, Agrifoods Development Branch
Jane White, Industry Development Officer (Crops)
709-729-6867
janewhite@gov.nl.ca