



Catalogue no. 21-004-XIE

September 2002

Organic fruit and vegetable production: Is it for you?

By William Parsons

Responding to a niche market

Although more and more consumers have come to believe in the perceived value and quality available in organic foods, organic farming still occupies only a small niche in Canada's agricultural sector.

The organic fruit and vegetable industry is located mainly in British Columbia, Ontario and Quebec, and is not particularly showing signs of increased producer participation. Still, supermarkets across the country are setting aside ever-larger portions of their produce sections for organic produce, and natural food stores are expanding rapidly. Obviously, there is a niche market driven by consumers concerned with maintaining a healthy lifestyle.

Note to readers

Data for this article came from the Fall Survey of Fruit and Vegetables, conducted in November and December by telephone. This survey covered about 11,000 fruit and vegetable farmers of more than two acres.

To understand the organic fruit and vegetable industry in a general sense, the Canada level was adopted as the primary focus of data analysis and publication. Due to the relative small size of the organic fruit and vegetable industry, results at the provincial level had to be suppressed in order to generate consistent and publishable Canada level information.

As a result, all findings presented here will be very general in nature as Canada is a large country with a diversity of niche markets and micro climates which will have a significant impact on individual production and revenue prospects experienced by individual producers.

General definition of organic

To be certified organic, the grower must make no use of chemical fertilizers or herbicides and submit their land and produce to strict testing to meet the requirements of the Canadian General Standards Board, which sets standards for many types of industries.

Principles of organic production as stated by the Canadian General Standards Board are as follows:

- *Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.*
- *Replenish and maintain long-term soil fertility by optimizing conditions for biological activity within the soil.*
- *Maintain diversity within and surrounding the enterprise and protect and enhance the biological diversity of native plants and wildlife.*
- *Recycle materials and resources to the greatest extent possible within the enterprise.*
- *Provide attentive care that promotes the health and behavioral needs of livestock.*
- *Maintain the integrity of organic food and processed products from initial handling to point of sale.*

Other general practices of organic farming are: No genetically modified seeds or plants; no irradiation of the produce during the processing to kill bacteria; no irrigation with sewage sludge. Any manure that is used for fertilizer must first be composted according to strict standards, including a cover for the manure pile so rain doesn't wash away the nutrients as it blends in with the soil.

For two years, Statistics Canada has attempted to measure the contribution of the small proportion of Canadian farmers who have adopted organic production methods to address this emerging consumer preference for organic food. Through the Fruits and Vegetables Survey, the Agency has tracked plantings, harvests, production and farm-gate value for certain fruit and vegetable crops to answer several key questions.

Among them: Does the use of organic production methods result in a lower yield compared with mainstream production practices? Does the farmer receive a price premium for produce grown organically? Does the combination of yield and price for organic produce result in greater or lower gross revenues per acre compared with mainstream practices? This paper puts the issue of organic fruit and vegetable production into perspective.

Findings: Organic fruit and vegetable industry has remained relatively stable.

Two years of investigation have revealed some interesting results:

- The organic production industry for fruits and vegetables is very small, and does not appear to be expanding. For example, total organic fruit area in Canada accounts for only 0.8% of the total fruit area. Organic vegetables account for only 0.6% of total vegetable area. Apples comprise the largest organic crop, with about 845 acres across Canada, while the largest organic vegetable crop is sweet corn, at about 345 acres.
- The yields for organically grown fruits and vegetables are generally inferior compared with those grown with mainstream production methods. For example, organically grown raspberries and strawberries incurred a decreased yield of around 10%, whereas the average yield reduction for asparagus and lettuce was around 55%.
- Organically grown fruits and vegetables are generally able to command a price premium. For example, prices for organically grown apples were 73% higher than prices for those grown with conventional methods. Prices for organically grown lettuce were 33% higher.
- And finally, the combination of price and yield indicates that about one-half of the organically grown crops generate a gross return per acre greater than conventional methods. For example, the gross return per acre of organically grown apples was \$4,000 in 2000/2001, compared with \$3,000 for an acre of conventionally grown apples.

The survey results show great variation between years for the planted area, yields, prices and individual producer participation. Some of this variation is expected and can be directly attributed to the nature of the product produced. The length of time required to build up a body of knowledge to produce consistent quality organic crops may be a factor in limiting the number of entrants to the industry as well as encouraging those already in to revert back to conventional production practices.

Many of the techniques used to produce organic crops must be learned by the producer through experimentation and trial and error. The conventional production methods are well understood and are relatively easily implemented. Also by adopting organic growing methods the farmer loses the chemical

edge and growing boost that chemical fertilizers, insecticides and herbicides provide.

The fight against disease and insect infestation is more problematic for the organic producer and requires early identification, sophisticated often-innovative solutions and if not implemented correctly shows up directly in the yield and quality of the product.

Added to the technical considerations of organic production is the complication of marketing the product. The organic market is not well defined in Canada thus the producer must also develop a marketing plan and market for their product. Depending on crop quality, geographic location and success of the marketing program, the producer may or may not receive a price premium for the product and it is apparent that the price is not uniform for all producers.

Most crops had reduced yields when organic production methods were used (see tables). However the yield reduction varied depending on the crop grown.

For example raspberries and strawberries averaged a yield decrease of around 10% where as crops like asparagus and lettuce showed an average reduction of around 55% when compared to conventional production yields.

For those situations where organic yields out-performed conventional methods, the crops may be responding to the closer attention paid by the producer. With the smaller areas usually cultivated by the organic producer, more care and attention can be paid to the crops and preventative measures implemented in a more timely fashion to avoid yield-reducing problems.

Comparison of fruit produced with organic vs. conventional methods Canada 2000/2001				
Fruit	Comparison of organic vs. conventional methods		Gross return per acre	Gross return per acre
	Organic Yield (%)	Organic Price (%)	Organic (\$)	Conventional (\$)
Apples	-21	73	4,000	3,000
Blueberries	38	41	5,800	3,100
Cranberries	30	112	17,900	7,700
Nectarines	-48	37	4,300	6,100
Peaches	-30	5	3,400	4,600
Pears	22	62	6,400	3,300
Raspberries	-9	-16	2,300	3,300
Strawberries	-9	-1	4,000	4,700

The organic production for most crops suffers a yield reduction. However, the economic attraction of organic production from a farming perspective is the price premium generated for organic production.

The price premium does exist for most crops grown organically, the exceptions being raspberries and strawberries. Perhaps these crops are not well differentiated in the public perception between organic and conventional production methods.

The adoption of organic production practices does not in itself guarantee a gross return per acre greater than the conventional production methods (see tables). Depending on the balance between yield and price received, organic production may or may not generate greater gross returns.

About half of the crops grown organically generate greater gross returns per acre than conventional methods. Most of the lower returns resulted from the reduced production yielded by the organic growing methods. For the most part organic prices were greater than non-organic but were not sufficient in all cases to overcome the production losses.

Comparison of vegetable produced with organic vs. conventional methods Canada 2000/2001				
Vegetable	Comparison of organic vs. conventional methods		Gross return per acre	Gross return per acre
	Organic Yield (%)	Organic Price (%)	Organic (\$)	Conventional (\$)
Asparagus	-55	0.5	1,300	2,900
Beans	-12	18	1,900	1,800
Beets	-56	229	3,600	2,500
Broccoli	-44	59	2,900	3,300
Sweet Corn	52	5	1,100	900
Cabbage	-37	97	3,500	2,800
Carrots	-40	236	5,400	2,700
Cauliflower	-55	26	2,100	3,800
Garlic	-8	11	2,900	2,900
Lettuce	-52	33	3,000	4,500
Dry Onions	-63	159	3,700	4,200
Pumpkins	-44	9	900	1,300
Turnips	-6	7	3,000	3,200
Squash/Zucchini	-27	14	1,500	2,400
Tomatoes	-23	66	6,300	4,800

The combination of price and yield favours organic production for apples, blueberries, cranberries, pears, beans, beets, sweet corn, cabbage, carrots and tomatoes. The yield and price factors are not strong enough to outperform the more conventional production methods for crops such as peaches, raspberries, strawberries, asparagus broccoli, lettuce and squash/zucchini.

In most cases, the relative differences in gross returns between the two methods is large enough to suggest

that one method is preferred over the other. However, the data presented here does not include the cost of production factors associated with each method of production for each crop.

The fruit and vegetable producers will have to apply their own cost of production factors to determine whether a crop will be profitable to grow in relation to their specific circumstances and with which production method to use.

As with most things connected to agriculture, the findings of the surveys are highly variable from crop to crop and, year to year and are very dependent on those who consider themselves organic one year to the next.

Therefore, the majority of the analysis presented here is based on averages. To simplify the analysis, the yield and price data for the two years were averaged to generate one number for yield and price by crop. Analysis of the two years 2000/2001 of area, production and farm-gate value was performed on the fresh market sales only. While organic production exists for the fruit- and vegetable-processing market, the majority of the organic production is sold on the fresh food market, therefore the results presented here reflect fresh market sales only.

The survey and analysis results presented here do not address the issue of cost of production. The per-acre analysis of gross revenue does not address the issue of input costs nor is it necessarily true that per-acre revenues can be applied equally to small and large farms. However, as a general indicator of potential results, the gross per-acre revenue measure is a good benchmark to gauge expectations and make decisions when deciding which crop to grow and the potential revenues to expect.

The organic industry has remained relatively stable. The expectation of an expanding industry is not indicated by the data for the fruit and vegetable industry. Most organic crops are able to command a price premium due to the perceived health and taste benefits consumers believe they are buying. From an agricultural perspective most organically grown crops have a reduction in yield. Farmers must experiment to determine what the crop requires if chemical inputs are not used. Issues of nutrient uptake and moisture retention by the soil can be affected by what the farmer does and when.

Due to the interaction of price and yield, the farmer must pick which crop to grow if he wishes to out-perform the conventional production methods to generate a greater gross return per acre. As the results show, about half of the crops grown organically will generate greater gross returns per acre than regular methods.

CURRENT CANADIAN AGRICULTURAL INDICATORS

	2001	2002	Percent Change
Crop Production July 31 Estimate (million tonnes)			
Spring Wheat (excluding durum)	16.0	10.2	-57
Durum Wheat	3.0	3.7	19
Oats	2.7	3.0	10
Barley	10.8	7.9	-37
Canola	4.9	3.2	-53
Flaxseed	0.7	0.7	0
Dry Peas	2.0	1.6	-25
Cattle and Calves on Farms (million head)			
Total Cattle and Calves - July 1	15.4	15.3	-1
Calves Born - January-June	4.7	4.6	-2
Pigs on Farms (million head)			
Total Pigs - July 1	14.1	14.6	3
Sows Farrowed January-June	1.5	1.6	6
Sows to Farrow July-December	1.5	1.6	6
Milk Sold Off Farms (million kilolitres)			
January-June	3.8	3.8	0
Chicken Meat Production (thousand tonnes)			
January-June	458	469	2
Egg Production (million dozen)			
January-June	281	287	2
Cultivated Area of Fruit (thousand hectares)			
Apples	25.5	24.2	-5
Strawberries	5.4	5.4	0
Blueberries	40.0	38.3	-4
Grapes	8.7	8.8	1
Planted Area of Vegetables (thousand hectares)			
Field Vegetables	114	107	-7
Potatoes	167	172	3

CURRENT CANADIAN AGRICULTURAL INDICATORS

	2001	2002	Percent Change
International Trade in Agricultural Commodities and Food (billion dollars)			
Exports - January-June	14.6	14.4	-1
Imports - January-June	9.5	10.2	7
Price Indexes			
Consumer Price Index Food Component (1992=100) - July	118.6	120.9	2
Farm Product Price Index (1997=100) - June	103.0	101.0	-2
Farm Cash Receipts (billion dollars)			
January-June	17.9	16.9	-6
Bankruptcies - Agriculture and related service industries (number)			
January-June	138	116	-19
Manufacturing Shipments of Food (billion dollars)			
Total Value - January-June	29.9	30.4	2
Retail Trade in Food Stores (billion dollars)			
Total Value - January-June	30.9	32.2	4
Population (million persons)			
April 1	31.0	31.3	1
Employment (million persons)			
July	15.5	15.8	2
Raw Unemployment Rate (percent)			
July	7.2	7.7	6

Scheduled Releases of Agricultural Information

September 1, 2002 through February 28, 2003

Field Crops

- September 10 - Stocks of Canadian grain at July 31, 2002 (Catalogue no. 22-002-XPB/XIB)
- October 4 - September estimates of production of principal field crops by province for 2002 (Catalogue no. 22-002-XPB/XIB)
- December 5 - November estimates of production of principal field crops by province for 2002 (Catalogue no. 22-002-XPB/XIB)
- January 31 - Stocks of Canadian grain at December 31, 2002 (Catalogue no. 22-002-XPB/XIB)

Grain Markets

- September 26 - Cereals and oilseeds market statistics, monthly (Catalogue no. 22-007-XPB/XIB)
- October 28
- November 27
- December 20
- January 27
- February 28

Horticulture Crops

- November 22 - Area, yield and production of potatoes by province for 2002 (Catalogue no. 23-008-UIB)
- January 17
- February 14 - Area, production and value of fruit and vegetable crops by province for 2002 (Catalogue no. 22-003-XIB)
- November 15 - Production and value of honey and maple products by province for 2001 (Catalogue no. 23-221-XIB)

Food Consumption

- October 17 - Supply, disposition and per capita disappearance of oils, fats, fruits, vegetables, potatoes and fish for 2001 (Catalogue no. 32-230-XIB)

Livestock and Animal Products

- November 13 - Farm sales of milk for fluid and manufacturing purposes, production and stocks of
February 12 creamery butter, cheddar cheese and other dairy products by province, quarterly (Catalogue no. 23-001-XIB)
- October 23 - Inventories of pigs by province on October 1 (Catalogue no. 23-603-XIE)
- February 19 - Inventories of pigs, cattle and sheep by province on January 1 (Catalogue no. 23-603-XIE)
- October 23 - Wool sales and value for 2002 (Catalogue no. 23-603-XIE)

Scheduled Releases of Agricultural Information

September 1, 2002 through February 28, 2003

Livestock and Animal Products

September 26 - Stocks of frozen meat products in Canada by type of meat product and by province, monthly (Catalogue no. 23-009-XIE)

October 31
November 28
December 23
January 30
February 27

Poultry

September 19 - Stocks of frozen poultry meat by province, monthly (Catalogue no. 23-603-XIE)

October 21
November 21
December 18
January 22

September 6 - Egg production and number of laying hens by province, monthly (Catalogue no. 23-003-XIB)

October 8
November 8
December 6
January 8
February 7

Farm Income and Prices

November 26 - Farm cash receipts by province, quarterly (Catalogue no. 21-001-XIB)

February 25

November 26 - Estimates of ten agricultural economic indicators for 2001: farm income, farm cash receipts, farm operating expenses and depreciation charges, the index of farm production, current values of farm capital, farm debt outstanding, the farm product price index, direct program payments, the agriculture production account and balance sheets (Catalogue no. 21-603-UPE)

September 24 - Farm Product Price index, monthly (Catalogue no. 21-007-XIB)

October 22
November 22
December 23
January 22
February 21

Users may obtain these releases on the date of release through the contacts listed on the next page. Much of the data is available in machine readable form in CANSIM at the same time. The publications will be available at a later date.

Vista on the Agri-Food Industry and Farm Community

ISSN 1481-899X

VISTA is a semi-annual newsletter published by the Agriculture Division of Statistics Canada and distributed to users of agriculture, food and rural statistics. Subscriptions are available by mail or FAX from:

Editor - Vista
Agriculture Division
Statistics Canada
12th floor, Jean Talon Building,
Ottawa, Ontario
K1A 0T6

FAX: (613) 951-3868

VISTA is also available on the Internet without charge at <http://www.statcan.ca/english/freepub/21-004-XIE/free.htm>.

Editorial committee: Martin Beaulieu, Lucie Bourque, Robert Koroluk, Les Macartney, Margaret Zafiriou and Mike Trant.

Special thanks to: John Flanders and Josée Bourdeau.

Published by authority of the Minister responsible for Statistics Canada.

© Minister of Industry, 2002

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission from Licence Services, Marketing Division, Statistics Canada, Ottawa, Ontario, Canada, K1A 0T6.

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses and governments. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Contact the Agriculture Division at:

Agriculture Division
Statistics Canada
Ottawa, Ontario
K1A 0T6

Toll free telephone number: 1-800-465-1991

Internet: agriculture@statcan.ca

Fax: (613) 951-3868

Free catalogue of products and services available on request.