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Niche market or an expanding industry? Organic fruit and vegetable production in Canada

By William Parsons

In the late 1990s, media and farming journals were reporting that organic production was the wave of the future. Organic production had the reported positives of being environmentally friendly and producing a higher gross return, and was considered to be of higher quality by the consumer. It was common to hear anecdotal reports that the organic industry was growing by 20% a year and would soon rival conventional food production methods for market dominance.

Through organic production methods, the agricultural producer has tried to address consumer demand for healthy, pesticide-free and ecologically responsible food production. In exchange for this specialized method of food production, the consumer has demonstrated a willingness to pay a premium for organic food in the supermarkets, farmer's markets, and so on.

In 2000, Statistics Canada began tracking the significance of the organic food production industry by exploring organic fruit and vegetable production. This paper will be a descriptive analysis of the organic data collected between 2000 and 2003. The analysis will compare the participation rates, production locations, rates of expansion and revenues generated by organic fruit and vegetable producers to those of conventional producers.

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Symbols

The following standard symbols are used in Statistics Canada publications :

.	not available for any reference period
-	not available for a specific reference period
…	not applicable
^{p}	preliminary
^{r}	revised
x	confidential
A	excellent
B	very good
C	good
D	acceptable
^{E}	use with caution
F	too unreliable to be published

This study challenges the perception that farmers get a premium price for organic produce. The study was limited in scope to the organic producers who sell 100% of their fresh fruit and vegetables directly to the consumer, or – for the analysis of gross revenue – to the general fresh market.

Most organic crops are able to command a price premium from the consumer, probably due in part to the perceived health and taste benefits consumers believe they are buying. From an agricultural perspective, most organically grown crops have reduced yields. Farmers must experiment to determine what the crop needs if chemicals are not used. The 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, farmers must pick which crop to grow if they wish to generate greater gross returns per acre than conventional methods. As the survey results show, about half of the crops grown organically will generate greater gross returns per acre than regular methods.

Indications from the media and other sources show that consumer interest and demand for organic products is still growing. However, sales still represent a niche market in most parts of Canada.

It is clear that the emerging market for organic products is a great deal more complicated than it may first appear. It is also clear that new producers should not expect to automatically receive a premium price for organic fruit and vegetables unless they can produce a premium product and sell it in the right market.

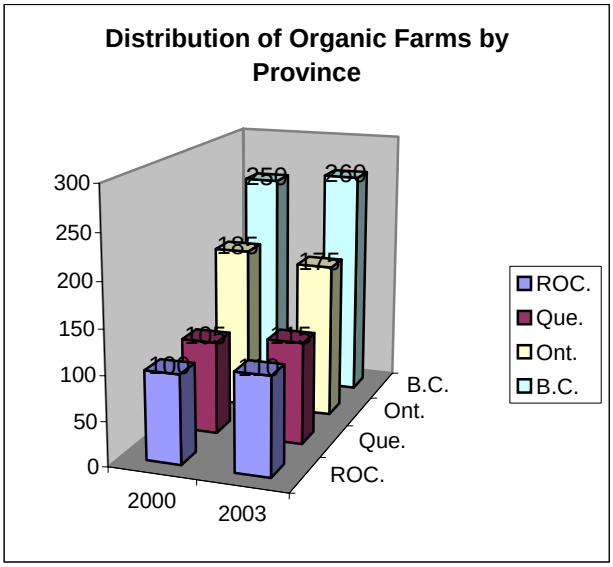
As with most businesses, those producers who have a production plan and a clear idea of their target market have the best chance of capturing the organic price premium that is evident in the market.

Some organic crops generate a greater gross return per acre than conventional crops, and an examination of the direct sale price shows that organic produce captures a price premium for most, but not all, of the commodities grown. One thing we can state with certainty is that the Canadian organic fruit and vegetable industry is expanding, but very slowly.

Size of the organic fruit and vegetable industry

The Fruit and Vegetable Area Survey estimates that almost 5% of the farms reporting consider themselves to be organic producers. The organic farms account for about 1.8% of the commercial fruit area under cultivation and about 1.5% of the commercial vegetable area under cultivation.

The major areas of organic fruit and vegetable production are in British Columbia, Ontario and Quebec. The total organic production for the rest of the country is about equal to that of Quebec. Blueberry production in the Atlantic Provinces accounts for a good portion of the fruit production area outside the three major provinces.



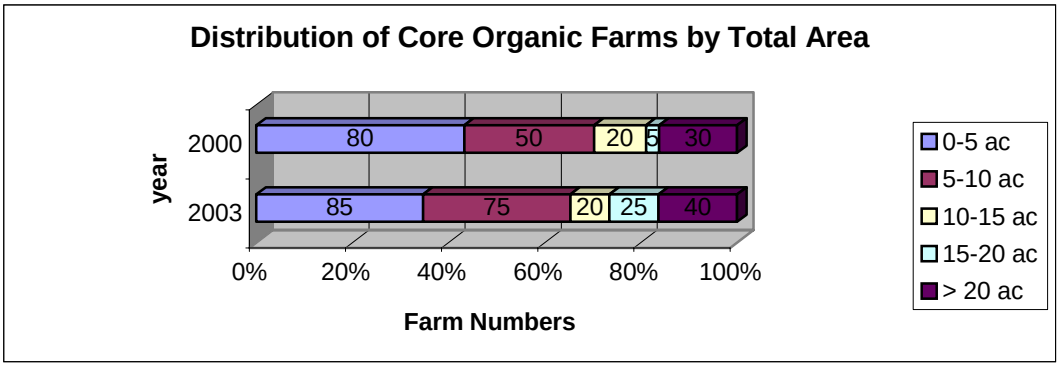
Which province has the most organic production depends on whether you look at the actual acreage or the proportion of land being used. Ontario has the largest total area of land devoted to organic production, followed closely by British Columbia and Quebec.

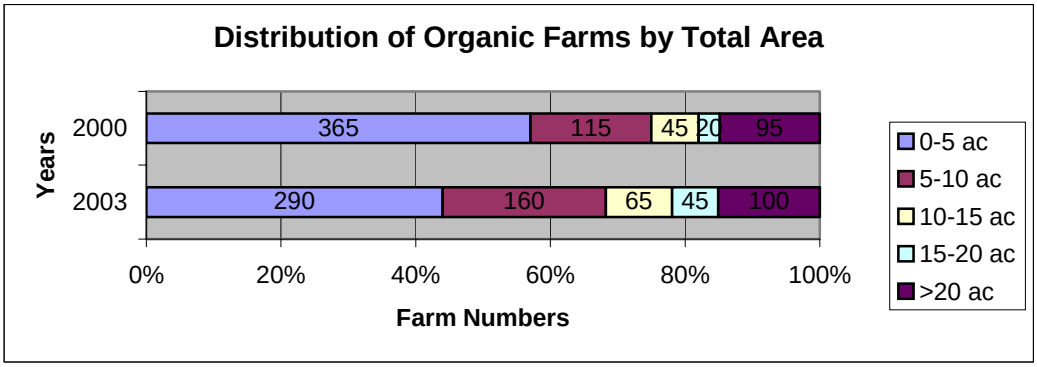
However, British Columbia has the largest proportion of land devoted to organic fruit and vegetable production. In British Columbia, 8.7% of total vegetable area and 3.2% of fruit area is organic, compared to just 1.5% of vegetable area and 1.6% of fruit in Ontario.

Organic farms tend to be smaller than conventional operations, with the majority less than five acres. However, a trend toward larger organic farms has developed over the last four years.

In 2000, nearly 60% of organic farms were less than five acres and 80% were 10 acres or less. Four years later, farms with less than five acres accounted for just 45% of the total number of farms, 70% were 10 acres or less and 80% were 15 acres or less.

The greatest growth took place in the size group of five to 10 acres, suggesting that some farms in the 0- to 5-acre range have expanded. However, a closer look at the data reveals it was not expansion among existing farms but transient newcomers to the industry that caused the growth.





The survey also revealed a turnover among producers who claim to be growing organic fruit and vegetables, as opposed to the expectation that once a farm was organic it stayed organic.

Between 60 and 70% of the respondents claiming organic production for one or two years later quit organic farming and returned to regular production methods. As a result, there is an identified core of organic producers who entered the organic fruit and vegetable market and stayed. The rest are transient organic producers.

That core group consisted of about 185 farms in 2000. By 2003, this had risen to 245 farms, a 32% increase. The increase over the same period for all farms claiming organic production was a much lower 3%. This suggests that while there is a lot of movement into and out of organic production, the core group has either been able to establish for itself a clientele base, a market niche, or both.

The core group of organic producers has also seen a modest increase in farm size over the same four-year period. Most of that growth took place in the 15- to 20-acre size group.

Gross returns: Organic vs. conventional production

The survey results show great variation between years for the area planted, yields, prices and the participation of individual producers.

Some of this variation is expected and can be directly attributed to the nature of the product produced. It takes time to build up the body of knowledge needed to produce organic crops of consistent quality, which may be a factor in limiting the number of entrants to the industry as well as encouraging some organic producers to go back to conventional methods.

The producer must learn many of the techniques used to produce organic crops through trial and error and experimentation. Conventional production methods are already well understood and relatively easily implemented.

Also, by adopting organic growing methods, the farmer lacks the ‘chemical edge’ and growing boost that chemical fertilizers, insecticides and herbicides provide. Fighting disease and insect infestation is a greater problem for the organic producer. It requires early identification as well as sophisticated and often innovative solutions which, if missed or implemented too late, lead directly to lower yields and product quality.

Added to the technical considerations of organic production is the complication of marketing the

product. The organic market in Canada is still being developed, so the producer must create a marketing plan and a market for the product. Producers may or may not receive a price premium for their products depending on crop quality, geographic location and success of the marketing program. It is apparent that prices are not uniform for all producers.

The survey findings vary highly from crop to crop and year to year, and depend on those who consider themselves to be organic producers from one year to the next. Therefore, the majority of this analysis is based on averages. To simplify the analysis, the yield and price data for the four years between 2000 and 2003 were averaged to generate one number for yield and price by crop.

While organic production exists for the fruit and vegetable processing market, a large portion of the organic production is sold on the fresh food market. Therefore, only fresh market sales between 2000 and 2003 were analyzed for area, production and farm gate value.

The survey and analysis results presented here lack the cost of production and input costs that would provide a complete picture of profitability regardless of production method used. However, as a general indicator of potential results, the gross per-acre revenue measure is a good benchmark on which to gauge expectations when deciding which crop to grow and the potential revenues to expect. One would also expect to see differences when applying the analysis to small versus large farms.

Most vegetable and several fruit crops had reduced yields (see tables below) when organic production methods were used. However, the reduction in yield varied depending on the crop grown.

Those crops for which organic yields outperformed conventional methods may have been responding to a greater degree of care and attention from the producer. Because organic producers tend to work within smaller areas, they can sometimes pay closer attention to the crop's condition and more quickly implement preventive measures to avoid yield-reducing problems.

Comparison of yield and gross return per acre Organic vs. conventional production methods Fresh market sales Canada 2000 / 2003				
Fruit	Average Yield Organic lbs./acre	Average Yield Conventional lbs./acre	Gross Sales Organic return per acre	Gross Sales Conventional return per acre
Apples	13150	15500	$4350	$3400
Blueberries	3150	3800	$4600	$4200
Peaches	7000	8750	$4125	$4825*
Pears	14150	11100	$5650	$3450
Raspberries	3025	1750	$3525	$3300
Strawberries	3525	4700	$3850	$4750*
Comparison of yield and gross return per acre Organic vs. conventional production methods Fresh market sales Canada 2000 / 2003				
Vegetable	Average Yield Organic lbs./acre	Average Yield Conventional lbs./acre	Gross Sales Organic return per acre	Gross Sales Conventional return per acre
Asparagus	1125	2075	$2075	$2900*
Beans	2300	7800	$2750	$1625
Beets	7450	13675	$4850	$2675
Broccoli	4750	8325	$3000	$3600*
Sweet Corn	6275	5025	$1550	$1125
Cabbage	11250	20600	$2650	$2900*
Carrots	21450	24800	$6750	$2850
Cauliflower	7900	15075	$3200	$4125*
Garlic	2175	1950	$4025	$3250
Lettuce	7800	22475	$3500	$5450*
Dry Onions	12075	28200	$4925	$3750
Pumpkins	5725	11800	$900	$1575*
Squash/ Zucchini	5875	8600	$2500	$2600*
Tomatoes	9400	12300	$6050	$4100

* indicates gross sales per acre that are larger than organic returns.

However, the economic attraction of organic production from a farming perspective is the price premium it generates. Price premiums exist for most organically grown crops, except raspberries. In some cases, though, the price difference is marginal – less than five cents per pound.

It should be noted that this analysis was based on comparing organic crops that had a relatively large (for organics) number of producers. More than half of the fruit and vegetables grown in Canada do not have many farmers producing an organic equivalent. This strongly suggests that either these crops do not attract a price premium for organic production, or that the profit margin is too low to attract farmers.

Analysis reveals that for about half the crops, organic production resulted in greater gross sales per acre than conventional methods (see tables). The defining factor is the relationship between yield and price.

Most of the lower gross returns for organic crops were the result of lower yields from organic methods. While prices for organic crops were for the most part greater than for non-organic, the difference was not sufficient in all cases to make up for production losses.

The combination of price and yield illustrated in the tables favors organic production for crops such as apples, blueberries, pears, beans, beets, sweet corn, carrots, etc. However, the yield and price factors were not strong enough to outperform conventional methods for other crops such as peaches, strawberries, asparagus, broccoli, etc (see table).

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, it's important to remember the data presented here does not include the production costs associated with each method and crop. Producers would have to factor in their own production costs to determine which crop or method would be profitable for them.

A closer look at price differences: Direct sales only

This portion of our analysis examines only those producers who sold 100% of their produce directly to the public. These include sales from U-picks, farmers' markets, roadside stands, door-to-door campaigns or similar direct marketing programs. Producers who sold produce through wholesale or retail outlets, or through a combination of direct and wholesale sales were excluded.

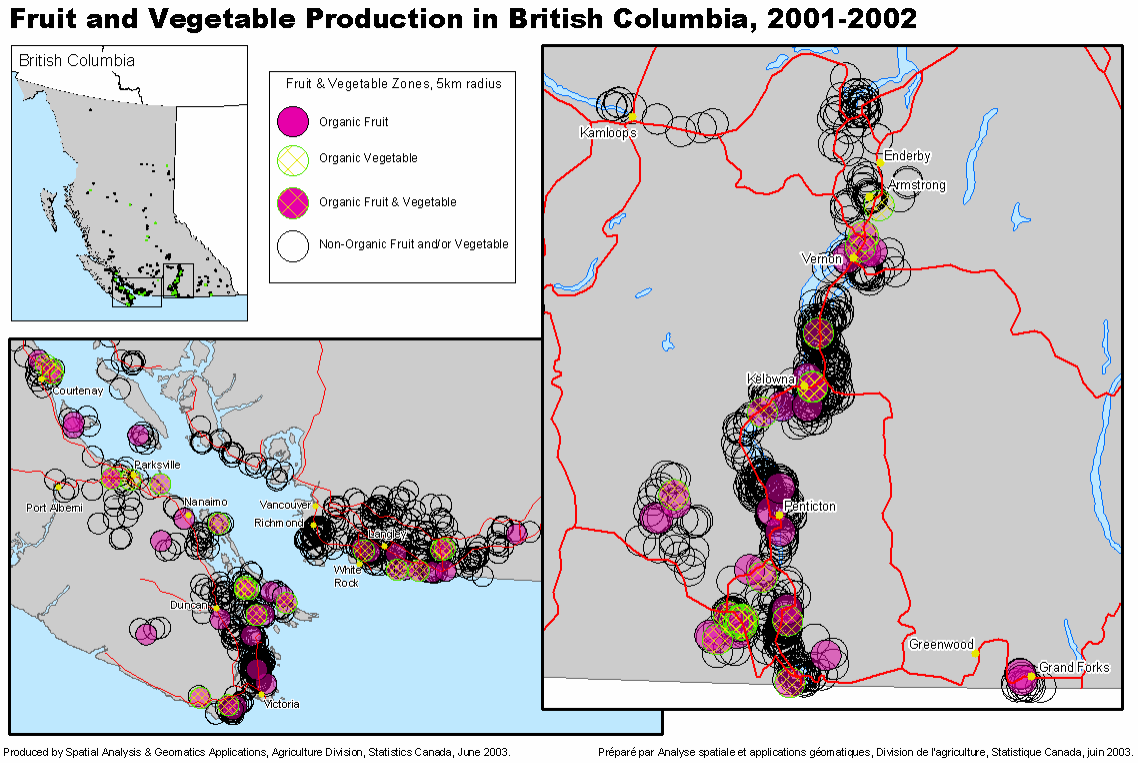
Examining data for direct sales only is an important refinement to the analysis of price differences between organic and conventional products. It allows for a pure comparison of prices while eliminating the sales method itself as a possible reason for price variations.

The direct sales data were sub-divided into organic and non-organic producers. By grouping the data in this fashion, we expected to see producers receiving a clear price premium for organic products over non-organic products sold under similar market conditions.

A map of organic production in British Columbia shows that organic and non-organic farms are interspersed within a geographic location. This is important because it shows that organic production is not clustered, and operates under the same climatic conditions as the non-organic fruit and vegetable production. It also means the resulting produce competes for recognition and market share from within the same potential customer base.

Direct-sales fruit and vegetable farms also tend to cluster around metropolitan centers, thus feeding into existing local markets, reducing transportation costs and building up local networks of customers for their produce. Consequently, the only factor that would account for variation in prices received by producers is the difference between the products themselves as a result of the methods used to grow them.

Map



Do producers really get a premium price for organic crops?

As seen in the gross sales analysis, not all organic production returns larger gross revenue per acre than conventional methods. While price competition, product volume and product quality may have a moderating effect on organic prices, one would expect that the properties of organically grown fruits and vegetables should have produced a clear price premium. However, this does not appear to be true for produce sold directly to consumers by the producers.

This analysis has shown that fresh fruit and vegetables bought directly from the producer do not necessarily provide producers with a premium. Organic fruit and vegetable producers may be encountering some customer resistance to their product, as direct sales consumers seem to be basing their decision to buy on how the produce looks.

According to the study, *"Farmers' markets in Alberta: A direct channel of distribution"*, consumers are looking for freshness and product quality. Organic produce is often less uniform in appearance and size. When organic and conventional stalls in a market are competing head-to-head, the customer's preference may go to the product that looks better, has fewer or smaller blemishes, or is insect-free. In this situation, the organic producer may have to lower prices to move the product.

Figure 1

Retail Food Prices
Four month average Sept. - Dec. 2003

		organic		conventional	
		low	high	low	high
Beans	lbs	4.40	7.97	4.97	7.84
Carrots	lbs	1.37	3.65	0.65	2.25
Cucumbers	each	1.49	4.49	1.02	3.06
Lettuce	each	1.23	4.00	1.14	2.09
Onions	lbs	1.51	4.46	0.82	2.61
Peppers	lbs	2.97	10.05	2.14	5.88
Tomatoes	lbs	2.62	8.91	2.73	7.03

Source: web site, Organic Agriculture Centre of Canada

This table (Figure 1) of average retail vegetable prices for Vancouver, Toronto, Montreal, and Halifax demonstrates clearly the variable nature of prices for organic and conventionally-grown food.

The important point that this table illustrates is the overlapping range of prices between organic and conventional crops. In all cases the high-end organic prices exceeded high-end for conventional products. However, in the case of beans, the low-end organic price was actually less than that received for the conventional product.

It is this point that supports the survey findings. The farm gate product value data derived by the survey show that organic food attracts a premium price in the majority of cases, but there are a few instances where conventional crops generate a greater return.

The table of direct market fresh fruit sales (Figure 2) shows similar results to the retail price table. In British Columbia the average price received for organic fruit was greater than that received for conventionally grown fruit. However, this was not always the case in Quebec and Ontario, where organically grown apples, raspberries and strawberries attracted a slightly lower price than conventionally grown.

Figure 2

100% Fresh market direct sales Fruit
2001-2003
Non-Organic

	British Columbia		Ontario		Quebec	
	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.
Apples	400	0.21	340	0.27	150	0.25
Blueberries	140	0.96	****	****	****	****
Sweet cherries	260	1.19	****	****	****	****
Grapes	75	0.85	****	****	****	****
Peaches	175	0.40	****	****	****	****
Pears	170	0.29	****	****	****	****
Plums/ prunes	190	0.44	****	****	****	****
Raspberries	195	1.49	230	2.40	185	1.83
Strawberries	110	1.38	320	1.10	210	0.82

Organic

	British Columbia		Ontario		Quebec	
	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.
Apples	35	0.30	10	0.36	5	0.20
Blueberries	10	1.84	****	****	****	****
Sweet cherries	15	1.78	****	****	****	****
Grapes	10	1.40	****	****	****	****
Peaches	15	0.68	****	****	****	****
Pears	20	0.53	****	****	****	****
Plums/prunes	20	0.58	****	****	****	****
Raspberries	15	2.48	5	2.45	10	1.75
Strawberries	10	1.77	10	1.00	10	1.34

**** not enough organic farms growing that crop to make a comparison

Note: Red shading indicates that the average organic price is less than the average non-organic fresh market price. The yellow shading indicates only a slightly higher average organic price.

Another interesting point is the relative difference in the number of participants in the market. For example, the lowest ratio of organic to conventional producers in British Columbia is one organic producer of grapes for every 7.5 conventional grape producers.

The ratios are even greater in Quebec and Ontario, as demonstrated in Figs. 3.1 and 3.2.

The number of players in the market might be one reason why organic fruit producers in Quebec and Ontario are having difficulty securing an organic price premium. It may also explain why several fruit crops are not grown in any quantities in these provinces, as is demonstrated by the lack of comparable data between organic and conventional fruit.

Figure 3.1

100% fresh market direct sales Vegetable
2001-2003
Non-Organic

	British Columbia		Ontario		Quebec	
	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.
Asparagus	25	1.74	***	***	***	***
Beans	120	0.87	210	0.78	100	0.57
Beets	100	0.40	***	***	50	0.20
Broccoli	60	0.79	***	***	35	0.33
Sweet corn	130	0.32	300	0.31	190	0.26
Cabbage	75	0.24	***	***	65	0.10
Carrots	125	0.35	***	***	70	0.21
Celery	15	0.82	***	***	***	***
Cucumber/gher	90	0.57	***	***	95	0.26
Garlic	70	2.71	70	1.30	***	***
Leeks	40	0.90	***	***	40	0.77
Lettuce	100	0.41	***	***	50	0.22
Dry onions	60	0.19	125	0.13	65	0.16
Green onions	45	0.81	70	1.22	***	***
Parsley	30	1.77	***	***	***	***
Green peas	75	1.02	130	1.18	***	***
Peppers	60	0.75	180	0.33	***	***
Pumpkins	70	0.12	300	0.26	80	0.11
Radish	35	0.58	***	***	***	***
Rhubarb	60	0.63	***	***	***	***
Spinach	45	0.89	***	***	***	***
Squash/zucc	130	0.42	240	0.37	65	0.36
Tomatoes	125	0.42	330	0.50	140	0.32

**** not enough organic farms growing that crop
to make a comparison

Figure 3.2

100% fresh market direct sales Vegetable
2001-2003
Organic

	British Columbia		Ontario		Quebec	
	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.	Ave. # farms	Ave. price $/lb.
Asparagus	5	1.43	***	***	***	***
Beans	20	1.54	10	1.00	10	1.24
Beets	15	0.68	***	***	10	0.47
Broccoli	15	1.22	***	***	10	0.51
Sweet corn	10	0.60	10	0.37	10	0.38
Cabbage	10	0.32	***	***	10	0.24
Carrots	20	0.84	***	***	15	0.35
Celery	5	0.80	***	***	***	***
Cucumber/gher	15	0.75	***	***	5	0.40
Garlic	15	3.99	10	2.35	***	***
Leeks	10	0.77	***	***	10	0.77
Lettuce	20	0.47	***	***	10	0.44
Dry onions	15	0.79	10	0.23	10	0.29
Green onions	10	0.80	5	0.96	***	***
Parsley	10	0.88	***	***	***	***
Green peas	15	1.57	5	1.22	***	***
Peppers	15	0.81	5	0.39	***	***
Pumpkins	10	0.16	10	0.36	5	0.14
Radish	10	0.72	***	***	***	***
Rhubarb	10	0.87	***	***	***	***
Spinach	10	1.38	***	***	***	***
Squash/zucc	20	0.67	15	0.52	10	0.58
Tomatoes	20	0.99	15	0.43	10	0.61

*** not enough organic farms growing that crop to make a comparison

Note: Red shading indicates that the average organic price is less than the average non-organic fresh market price. The yellow shading indicates only a slightly higher average organic price.

In stark contrast to the findings for fruit, the organic vegetables showed a little more difficulty in attracting the price premium. For instance, in British Columbia, where all organic fruit had a price premium, we see several organic vegetables that were not able to get the premium. Again, the ratios between organic and conventional producers are quite high, which indicates a much lower participation rate in the market by organic producers.

Whether the organic fruit and vegetable production industry in Canada is a niche, a specialized but profitable corner of the market, or an expanding industry is difficult to say without further study. We do know there were 640 producers in Canada who claimed to be using organic production methods in 2000, and by 2003 that number had risen to 660 producers, an increase of 3% over four years.

If 'niche' is defined as being small in number, than the 5% of the fruit and vegetable growers who use organic methods would qualify as niche, but do they make a profit? We do not have enough data to provide a definitive answer to that question, but the data we do have does point to a strong maybe.