

Ontario Goes Organic: How to Access Canada’s Growing Billion Dollar Market for Organic Food

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Executive Summary

Ontario is missing out on a major market opportunity for farmers – organic farming processing and food distribution.

- Canadians spent \$1.3 billion on organic food last year, with most supply coming from the United States.
- The estimate is that we only produce about 15% of what we consume.
- Demand is growing at 15-25% per year, the fastest growing segment in a relatively stagnant food industry
- Supply, especially domestic supply, is unable to keep up with demand. Ontario has less than one percent of agricultural acreage in organic production and around 500 certified organic farmers.
- There are few certified organic processing facilities available within reasonable shipping distance for Ontario farmers

The reasons for this lack of uptake are numerous and were well articulated in 2002's National Organic Strategic Plan¹. Barriers include:

- Limited organic extension services, especially compared to other jurisdictions
- Organic farmers don't have access to many approved organic inputs available elsewhere
- Processing and distribution infrastructure is weak
- Limited research infrastructure in many commodities

The costs of not pursuing an organic course are very significant. Extrapolating from conservative US studies, our current approaches to agriculture in Ontario are costing at least \$145 million dollars annually in environmental damage and human health problems. These are problems that organic agriculture can go a long way to solving, including biodiversity enhancement, reduction of greenhouse gas emissions, carbon sequestration, and water quality improvements. It's a win-win scenario – economic opportunities and environmental and health improvements at the same time.

This report sets out a 2-phase, 32-point plan to help Ontario farmers supply over 50% of Ontario's organic consumption, up from the currently estimated 15%. This measured approach is designed to allow for gradual but sustained growth that coordinates supply and demand expansion so that infrastructure is effectively built and farm gate prices do not swing wildly. This approach anticipates that most growth will occur in small to medium sized farms and processing operations. After this 15-year period, 10% of cropped acres would be in organic production, and organic sales would represent 5.3% of the provincial food and beverage retail market. Most of these plan elements have been successfully tested elsewhere and would be adapted to Ontario conditions.

Government intervention is justified for many reasons. Organic is an immature industry and the plan laid out here is consistent with how governments have supported infant industries in the past. As with other government efforts, the objective is to get organic

production over the hump, so that it runs largely on its own after 15 years. These government investments would progressively correct serious market failure – that current approaches to production, processing and distribution do not reflect real costs, generating significant long-term externalized costs that private landowners, the general public and governments have to pay for later. As the social and environmental benefits grow with organic farming adoption, government liabilities for these unfunded externalized costs would decline. After 15 years, much of the market failure would be corrected.

Phase I (5 years) would be concerned with building the information, R&D, market development and technology transfer infrastructure, following an implementation model similar to the Soy 20/20 initiative, but for an immature market. After 5 years, organic food and farming would:

- move from 15% of consumption met by domestic production to 30%
- represent double its percentage of the total food and beverage market, from roughly 1% to nearly 2%
- experience a doubling of crop acres in organic
- experience a doubling of animals in organic production
- witness a doubling of processing capacity (by number of certified processors)

Supply increases would come from a combination of new organic farms and expansion of scale among existing organic operations. For example, organic field crop producers might certify an existing conventional beef herd, or a producer whose home farm is certified organic might subsequently certify another farm within the total operation. On the processing side, increased capacity would come largely from conventional processors being certified to operate limited organic lines. Regarding new organic operations, many farms are already organic but not certified, or in the process of transition, and many companies are working with conventional producers to gradually bring them into their organic supply chain. Additionally, some new entrants to farming would enter organic production directly.

Phase II (years 6-15) would build upon the basic infrastructure put in place in Phase I and focus particularly on supports for the transition period for conventional operations. The implementation model would be determined in the course of Phase I implementation.

After Phases I and II, the following would have been achieved:

- About 5343 organic farmers would be producing organically in all major commodities, including 4254 converting farmers entering the organic sector and 600 new entrants to farming². The 489 organic farms reported in 2004 would be included in this total of 5343 because we assume they all make modest additions over this time period to their existing operations.
- Based on comparisons of the financial performance of organic vs. conventional operations, most of these farmers would do better financially in organic production.

- Organic production would occur on about 900,000 acres of land (about 367,000 ha), and some 1.4 million animals would be reared organically
- These farmers would reduce fertilizer applications by about 43 million kg, pesticide applications by about 296000 kg active ingredient, and 7079 kg of growth promoting antibiotics/medications consumed in animal feed
- Financial savings for farmers would amount to about \$18.4 million in saved fertilizer applications and \$9.1 million for pesticides per year after 15 years
- Organic farming would be making significant contributions to environmental improvements, including reducing agricultural pollution to water bodies and improving nutrient management.
- Based on US studies of communities with significant percentages of sustainable producers, at 10% of the landscape, organic farming could also be making significant contributions to rural community revitalization
- A significant increase in new processing capacity would be achieved and since food processing has one of the highest economic multipliers among industrial sectors³, this would contribute significantly to Ontario economic activity
- It is clear from the evolution of environmental stewardship in farming, that once certified organic production reached 10% of the landscape, many important environmental practices will also have been progressively implemented on non-organic operations. In this sense, organic producers contribute to “raising the bar” across all farming sectors. Indirect environmental benefits of organic adoption will likely equal or exceed direct ones.

This programme would require new money and cost the provincial government about \$50.3 million over 15 years. Phase I (5 years) costs total \$6.4 million and Phase II costs \$43.9 million. Annual costs will vary, but will average about \$1.3 million in Phase I and \$4.4 million in Phase II. The net total programme costs would be significantly lower than \$50.3 million since farmers would have saved almost \$28 million in synthetic chemical inputs and received premium organic prices for most of their goods sold. This will unavoidably reduce pressures on the farm financial safety net system and government costs⁴. Other governments, organizations and farmers would contribute an additional estimated \$5-10 million to the programme.

Additionally, this programme contributes significantly to eliminating the externalized costs of current approaches to agriculture, conservatively estimated at \$145 million annually or \$2.18 billion over the 15- year life of the programme. Not all those costs will be saved within 15 years, but this exceedingly modest investment in organic production, representing only 2.3% of these externalized costs, will generate savings in externalized costs far beyond this one-time investment.

1. Introduction

“Nobody succeeds **beyond** his or her wildest expectations unless he or she begins with some wild expectations” ~ Ralph Charell on the Soy 20/20 web site, www.soy2020.ca

The Canadian food and agriculture sector is facing some significant environmental, food safety and financial difficulties. These difficulties are affecting perceptions of Canadian food, both domestically and internationally. These realities explain, in part, the development of the new Agricultural Policy Framework (APF), being implemented by the federal, provincial and territorial governments.

To date, with the possible exception of Quebec, Canadian governments have treated organic food and farming as a niche market to be supported in limited ways. In most of parts of the world, organic farming has been approached in this manner, but rapid growth rates this past decade suggest that providing policy supports on this basis would be misplaced. In several European countries, the sector has become a significant percentage of the agrifood economy and rural landscape, with attendant environmental, economic and social benefits (see Appendix 1 for an overview of organic growth rates in other jurisdictions).

With growth in retail sales estimated at 15-25% / year, organic food represents the only significant growth sector in Canada's food system. This explains the recent waves of acquisitions by conventional food companies.

But Ontario farmers are missing out on this opportunity, at a time when farm finances have rarely been worse. By industry estimates, only about 15% of the organic food consumed in the province is produced domestically. The rest is imported, primarily from the United States (perhaps 70-75%) and Europe. In 2004, Ontario only had about 489 certified organic producers covering about 24000 ha of cropland. Farm gate receipts were thought to exceed \$25 million. Organic processors only numbered in the hundreds.⁵

Without domestic production to match demand, Ontario is also missing out on the significant environmental, health and social benefits associated with organic food production, processing and distribution (see section 3). Those benefits are accruing elsewhere. Trade in organic food is also contributing to greenhouse gas emissions, causing many in the sector to question an export – oriented organic agricultural strategy.

This report sets out how the provincial government can proactively accelerate the adoption of organic farming and food processing, to address these, to this point, lost opportunities. It provides details of a two-phase, 30 point plan to boost organic production to 10% of agricultural acreage within 15 years and to capture 54% of Ontario's organic consumption, up from the currently estimated 15%. Most of these plan elements have been successfully tested elsewhere and could readily be adapted to Ontario conditions.

Government intervention is justified for many reasons. Organic agriculture is an immature industry and the plan laid out here is consistent with how governments have supported infant industries in the past. As with other government efforts, the objective is to get organic production over the hump, so that sufficient size and momentum allows it to evolve on its own after 15 years. These government investments progressively correct some serious market failures – that current approaches to production, processing and

distribution do not reflect real costs, generating significant externalized costs that private landowners, the general public and governments have to pay for later. As the social and environmental benefits grow with organic farming adoption, government liabilities for these unfunded externalized costs will decline. After 15 years, many of these market failures will have been corrected.

2. The costs of conventional agriculture

Agriculture as practiced in Canada, despite many positive features, has on balance reduced biodiversity and generated environmental pollutants. This has happened as a result of numerous activities:

1. The destruction of native habitat when farmland is created. For example, 93% of Prairie ecozones are in agriculture and only 1% of the tall grass prairie, 19% of the mixed grass prairie and 16% of aspen parkland remain⁶. One of the likely impacts is that over half of bird species in the Breeding Bird Survey are in decline on the prairies, particularly grassland species⁷.
2. The destruction of corridors and habitat adjacent to farmed fields. Agriculture is a major cause of habitat fragmentation, with disconnected parcels of woodlots across the landscape, and the elimination of field borders that serve as corridors for wildlife movement.
3. Pollution from agricultural practices (e.g., synthetic pesticides, synthetic fertilizers, soil and manure runoff associated with poor management) disrupts terrestrial and aquatic ecosystems and changes wildlife populations. Pesticides kill many non-target organisms, especially birds and insects.
4. Simplification of agroecosystems (e.g., very limited crop rotations that result in vast acreages in only 2 or 3 crops, and poor range management). removing habitat and food sources.
5. Weed management practices (excessive tillage, herbicides, HT - tolerant crops) that eliminate food sources and disturb ground habitats
6. Poor management of wetlands, streams and riparian zones on farm properties, including excessive access to these areas by grazing animals.
7. Introduction of exotic species (e.g., new plants, new pests).

Agriculture is a significant contributor to water quality problems, both acute ones associated with spills and more chronic ones, such as excess nutrient runoff into streams from regular farm practices. Farming in Canada contributed (with fossil fuel use included) about 13% of total 1996 Canadian greenhouse gas emissions, up 4% from 1986⁸. Energy costs are high, and energy efficiency remains low. Pesticides have occupational health impacts.

Many of these costs are not paid by the people who produce them, but rather by the public at large, private landowners and sometimes governments.. These are labeled externalized costs because they are not paid (or internalized) by the unit producing them. These costs are long-term, even perpetual costs because they are continuously produced until the systems are changed. Canadian studies of the full costs of Canadian agriculture

are lacking, but US and British studies attempting to account for a relatively full suite of costs have recently been completed⁹. Of these, the most pertinent is a US study. It builds upon methodologies used in other research, and its extensive agriculture is closer to Canadian realities than those in Britain. The authors concluded that US externalized costs of conventional agriculture ranged from CDN\$39.73/ha to \$112.56/ha¹⁰. See Table 1 for a summary accounting. We conservatively use the low end range of their costs for two main reasons. The intensity of production in Canada is generally lower and government programme expenditures are lower on a farm area basis. However, just because Canadian governments chose to allocate fewer resources to solving agricultural problems does not mean that they do not exist at a comparable level. For example, pesticide contamination of surface waters is largely viewed as a localized problem, but our monitoring capacity remains limited¹¹. Given our limited knowledge in this area, it is not clear that water treatment facilities allocate sufficient resources to address what problems may exist.

At \$39.73/ha, Ontario cropland is generating (to make it comparable with US estimates which assigned costs to cropland only) \$145.28 million¹² in annual environmental and health costs, many of which are avoidable. These costs are spread amongst 3 levels of government and private landowners. Ultimately, all governments will need to address these costs, but our focus in this report is on the provincial level.

3. How organic agriculture avoids costs

The scientific basis for organic agriculture

Organic agriculture is evolving with the science of Agroecology. Agroecology is concerned about the relationships between organisms, and their associated nutrient, energy and water flows. It is concerned about systems and their dynamics. Agroecology believes in multiple causes and multiple effects. This is a relatively new science. Although ecology is over 100 years old, agroecology is perhaps a 50-60 year old discipline, still in many ways on the margins of agricultural science.

Using the agroecological paradigm, four essential system properties of agroecosystems have been determined: productivity (level of output); stability (constancy or persistence of output over time); sustainability (recovery from stress, disruptions); equitability (evenness of distribution among various groups)¹³. Agroecology has identified a number of “laws” of agroecosystem behaviour¹⁴. These “laws” direct how agroecologists interpret the behaviour of agroecosystems and the strategies they feel will enhance sustainable production. Resolving problems involves mimicking the functions within natural ecosystems¹⁵. Put another way, employing production practices that a) promote community stability; b) optimise the rate of turnover and recycling of organic matter and nutrients; c) optimise multiple use of the landscape; d) optimise energy flow efficiency, are most likely to ensure sustainability¹⁶.

Sustainable approaches, consequently, use design and management procedures that work with natural processes to conserve all resources and minimize waste and environmental

damage, while maintaining or improving farm profitability. Working with natural soil processes is of particular importance. In this view, sustainable agriculture systems are designed to take maximum advantage of existing soil nutrient and water cycles, energy flows, beneficial soil organisms, and natural pest controls. By capitalizing on existing cycles and flows, environmental damage can be avoided or minimized. Such systems also aim to ensure the humane treatment of animals, the well being of rural communities, and food that is nutritious and uncontaminated with products that might harm human and livestock health¹⁷.

The multiple benefits of organic agriculture

A recent paper for the Organic Agriculture Centre of Canada summarized the state of the science documenting the multiple policy dilemmas addressed by organic food and farming¹⁸. These are quickly reviewed here.

Regarding environmental degradation:

1. Adopting organic farming helps governments address pollution problems and their costs.
2. Adopting organic farming can reduce Canada's greenhouse gas emissions and helps farmers adapted to the negative effects of climate change.
3. Organic farming can improve biodiversity relative to conventional farming

Regarding the need to build consumer confidence in the food supply:

4. Adopting organic farming builds consumer confidence by not using products, practices and processes seen to be controversial by some consumers
5. Organic farming can improve animal welfare
6. Organic foods may be nutritionally superior to conventional foods.

Regarding the farm financial crisis:

7. Adopting organic farming can reduce financial pressures on farmers
8. Adopting organic farming can decrease the need for government farm payments.
9. Organic food prices reflect internalization of historically externalized costs
10. Adopting organic farming can help with rural community revitalization

Based on the Tegtmeier and Duffy analysis (see Table 1), we estimate that with widespread adoption, organic farming can avoid 56% of these costs, or \$22.25/ha. As shown in Table 1, we estimate that organic farming can reduce from 0-100% of specific externalized costs, depending on the element. This interpretation is based on extensive reading in the comparative studies literature. To produce useful comparisons, it is important to focus on the entire farming system or larger food system dynamics as opposed to examining specific elements outside of their larger operating context. It is also important to compare systems that have common components, including comparable management capacities. Clearly poorly managed organic and conventional systems generate problems. A poorly managed organic system compared to a well managed conventional one may reveal more about the management capacity of the farmer than the way the farming system behaves. We're interested in structural comparisons, so we

assume good management in systems being compared¹⁹. In doing so, we are attempting to analyze how the structure of organic farming offers benefits that are not necessarily associated with conventional farming. We also take account of the strength of the current literature, which results, for example, in an assignment of zero reductions to human health costs associated with agricultural pathogens.

Table 1: Analysis of conventional agriculture costs (as identified by Tegtmeier and Duffy²⁰): how much does organic production save?²¹

Damage category	Rationale for level of avoided costs associated with organic adoption	US conventional cost (low estimates only) (US\$/ha) Cdn\$/ha ²²	Organic avoided costs in Ontario (Cdn\$/ha)
1. Damage to water resources			
1a. Treatment of surface water for microbial pathogens	Dramatically lower pathogen loads in compost than slurry, reduce by 50%	(0.70) 0.83	0.41
1b. Treatment for nitrate	Organic does not eliminate nitrate leaching, but in most studies reduces it by 40%	(1.12) 1.32	0.53
1c. Treatment for pesticides	Since organic standards do not permit most synthetically compounded pesticides, especially those with persistence, this need for treatment is eliminated.	(0.66) 0.78	0.78
2. Damage to soil resources	Organic farming reduces soil erosion by 40%	(13.29) 15.68	6.27
3. Damage to air resources			
3a. GHG emissions from crops	Erosion rates reduced by 40%; CO ² emissions net 50% lower in organic systems due to no emissions from manufacture of synthetic N fertilizers; methane losses comparable; N ₂ O losses at 20% below conventional production. Net reduction of 50%	(1.68) 1.98	0.99
3b. GHG emissions from livestock	CAFOs are effectively not permitted in organic production because such operations can not meet organic requirements; Composting significantly reduces total GHG emissions. Lower stocking rates and different diets also contribute. Reduction of 40%	(0.99) 1.17	0.47
4. Damage to wildlife and biodiversity			
4a. Honey and pollinator losses	Significantly higher populations in almost all comparative studies; Since T&D focus on pesticide-related losses, reduce costs by 90%	(2.43) 2.87	2.58
4b. Loss of beneficial	Significantly higher populations in	(3.95) 4.66	4.12

predators	almost all comparative studies; Since US study focuses on pesticide-related losses, reduce costs by 90%		
4c. Fish kills from pesticides	Since no synthetically compounded pesticides are used, there would be limited fish kills, although a few permitted biologicals are toxic to fish, so we apply a 90% reduction.	(0.13) 0.15	0.14
4d. Fish kills from manure	Since liquid manure is rarely used in organic production, especially in large storage facilities, such kills would be dramatically reduced. However, there is some possibility of water contamination from organic operations, so this is reduced by 90%.	(0.07) 0.08	0.07
4e. Bird kills from pesticides	Since no synthetic pesticides are used, and biologicals are not associated with bird mortalities, this problem is eliminated.	(0.20) 0.24	0.24
5. Damage to human health; pathogens	Although there is some evidence pathogen loads can be reduced in organic production, this is an insufficiently studied area to warrant a reduction in costs.	(2.47) 2.91	0
6. Damage to human health: pesticides	Because there can occasionally be occupational exposure problems associated with a limited number of biological pesticides, we reduce this cost by only 80%.	(5.98) 7.06	5.65
Summary of costs and avoided costs		\$39.73 \$145.28 million total in Ontario	\$22.25

4. Setting targets for organic farming and processing

With 15-year objectives of 50% of organic consumption produced domestically, and 10% of crop acres in organic production, specific targets for different commodity areas must be identified. To do this, we used the targets set out in the National Organic Strategic Plan and then adapted them to take account of current levels of organic adoption in Ontario, the size range of conventional farms in different commodity areas, and balancing of requirements among different crops that commonly appear in rotation, and different crop / animal feed combinations. Go to http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet1_june26-06.pdf for a full assessment, but a summary is provided here.

Table 2 – 5 and 15 year organic conversion targets²³

Production	5-year target, 2x current, in acres)	15-year target (fraction of conventional)	Acres to be converted (ac)	New organic farms needed
Crop				
Pasture	25220	0.08	154357	With hay
Hay	28246	0.08	173076	3411 ²⁴
Spring wheat	1010	0.12	13900	With w. wheat
Winter wheat	6302	0.12	86806	2933 ²⁵
Barley	3792	0.10	23594	575
Fall rye	1886	0.15	8801	419
Oats	5220	0.15	13136	597
Buckwheat	2444	1.00	4719	152
Corn (grain)	6788	0.05	81574	With silage
Corn (silage)	1198	0.05	14394	2341 ²⁶
Soybeans	35744	0.10	219545	2410
Flax	894	1.00	1536	37
Edible beans	152	0.10	5926	100
Mixed grains	5206	0.15	20627	665
Potatoes	498	0.10	3647	281
Vegetables	2454	0.10	15788	1754
Apples	1746	0.25	3476	79
Grapes	84	0.05	759	108
Peaches	100	0.10	570	36
Strawberries	16	0.10	302	50
Sour cherries	20	0.05	105	9
Pears	2	0.05	92	23
Raspberries	6	0.10	92	46
Crop totals	129028	0.10	846823	5343 ²⁷
Animal	Head		Head to be converted	
Dairy	6882	0.10	31959	432
Beef	5046	0.02	43637	1148
Sheep	1206	0.10	33397	726
Pork	26400	0.03	97500	89
Broilers	11504	0.003	606239	909
Turkeys	100	0.01	83590	7
Layers	25918	0.05	468041	904
Animal totals	77056	0.006	1364363	4215 ²⁸

In Phase I, Supply increases would come from a combination of new organic farms and expansion of scale and/or enterprises among existing organic operations. For example, organic field crop producers might certify an existing conventional beef herd, or a

producer whose home farm is certified organic might subsequently certify another farm within the total operation. On the processing side, increased capacity would come largely from conventional processors being certified to operate limited organic lines. Regarding new organic operations, many farms are already organic but not certified, or in the process of transition, and many companies are working with conventional producers to gradually bring them into their organic supply chain. Additionally, some new entrants to farming would enter organic production directly.

By the end of Phase II, about 5343 organic farmers would be producing organically in all major commodities. Organic production would occur on about 900,000 acres of land (about 10% of current crop acres), and some 1.4 million animals would be reared organically.

Note that for lack of data and resources, we did not undertake an analysis of many specialty markets, even though such markets often do very well in organic production.

Although regional activity is also difficult to predict, some estimates of the counties that might experience high conversion rates for different commodities is provided in Appendix 2.

Processing targets are more difficult to establish because of the very limited current data on organic processing. Of the conservatively estimated 64 certified processors and handlers in 2003²⁹, the majority fell into the following categories: 5 in dairy, 4 in bakery, 2 in flax, 3 in fruit, 2 in nuts, 5 providing meat processing, 3 doing beverages, 14 considered packers and handlers, and 4 animal feed. How many were exclusively organic, versus processing both conventional and organic foods, is unclear from the data. In 2003, there were a total of 2,300 Ontario processors of all kinds with registered employees and an additional approximately 800, solely operated by the owner and/or their family members and/or contract employees. The total estimated value of shipments (2001) was \$24.5 billion³⁰. Organic processors would represent around 2% of the total by number, and even less by value of shipments. Given that, doubling the number of firms processing organic food within 5 years would be a suitable target. Sub-sector targets 15 years out are impossible to determine at this point.

A key question is from where organic processors are likely to come. In most food sub-sectors, smaller firms represent the majority, with over half the firms having 20 registered employees or less³¹. Smaller processors tend to focus on local markets, which is the objective of the organic strategies set out in this report. However, to optimize production costs, many processors find they must serve local markets but do so across the country. This often requires a shift to medium scale³², or the firm may move to larger markets to accommodate a larger local market when product is perishable. This type of scaling up often has investment challenges.

Plants with lower scale are often more flexible and accommodate a wider product range, with better capacity for new product introductions. Countering this, smaller firms often face cost effectiveness challenges and often do not have the resources to invest in new

products while running day to day operations³³. Despite these challenges, it is likely that organic processing capacity will come from existing small operations, perhaps many without registered employees, and new small firms that start out as exclusively organic processors. Given that there are five main areas of processing activity in the province - SW near Windsor, Grand River Region, Niagara, Toronto, Quinte area – organic firms will likely similarly concentrate.

5. Programmes to support the transition

Introduction

Given the savings in externalized costs identified in section 3, government intervention to advance organic food and farming is warranted. The programmes proposed below meet the following criteria:

- they have been shown to work elsewhere and can be adapted to Ontario;
- they strike a balance between cost and positive effects
- they are relatively straightforward to implement
- most have significant cost-sharing opportunities with other levels of government, industry and NGOs
- most have the potential for third party delivery which reduces government overhead costs.

We make a number of assumptions:

1. Ontario participates in the federal programme of standards development and accreditation and does not set up its own system as has been done Quebec.
2. Ontario also participates in a national organic logo and associated publicity campaign initiated at a federal level and that Ontario does not develop its own logo.
3. For most food safety and quality programming, the organic sector takes advantage of existing federal funding programmes and develops a national food safety and quality improvement plan for the sector.
4. Similarly, the strategy assumes that additional elements will be added as existing organizations identify suitable grant programmes to provide funding. Consumer education is one area in which such opportunities can be explored, especially in Phase II.
5. Organic farmers participate in EFP programmes consistent with the existing programme.
6. Forthcoming rules for nutrient management and source water protection may require technical adjustments as it relates to organic producers, but these do not impose additional costs for government.
7. Although the programmes proposed below are designed to accommodate all farmers, we assume that it will tend to be small to medium sized farms that participate because their transition challenges may be lower relative to large operations

Elements

The plan is organized into 2 phases. Phase I (a 5-year phase) involves building information, R&D, market development and technology transfer infrastructure. Phase II (years 6-15) focuses on active supports for the process of converting from conventional to organic production. Some Phase I elements will continue into Phase II. In total, the plan comprises 32 elements.

Phase I elements

5.1. Structures for organic plan implementation

5.1.1 Establish an implementation model similar to Soy 20/20

Soy 20/20 has successfully advanced the development of new markets for soy products. Although soy, in contrast to organic, is a relatively mature market, there is much in this model that could advance Phase I objectives.

The key participants in this model will likely include: the Premier's Summit Advisory Committee on Agriculture, the Ontario Organic Council, OMAFRA, AAFC, University of Guelph, OACC, the Ontario Co-operative Association, and selected organic sector organizations not currently participating in the Organic Council. Given numerous unknowns regarding the functions of the Premier's Summit Advisory Committee and the Organic Council, a precise organization form is difficult to propose, but such a model could function as a subcommittee of the Premier's Summit Advisory Committee or the Organic Council.

Purpose: to guide implementation of these strategy elements, plus identify additional opportunities as they arise

Meetings: 4 times annually, 3 by conference call, one face to face meeting

Supplemental budget for operating the initiative beyond existing organization allocations: \$30,000 annually

5.1.2 Establish an interdepartmental committee within the provincial government to support Phase I implementation

Purpose: to coordinate actions across departments affecting organic production

Structure: Chaired by OMAFRA, director level

Meetings: 4 times annually

Membership: OMAFRA, MOE, MNR, Health, Finance

Budget: \$10,000

5.2 Market data collection

Background:

Market data on organic foods is quite limited, except that held by certifiers and private firms.

Proposal:

Buy data from AC Nielsen which carries out annual surveys of stores – what's being sold, what's domestic, what's imported, how much of total sales is in supermarkets. Additionally a wholesaler survey is required and regular surveying of Certification Bodies (CBs) by Canadian Organic Growers must continue. This data will help identify import substitution opportunities for Ontario farmers.

Cost:

\$15,000 annually from Ontario, a contribution to a national initiative for data collection being coordinated by the OACC, with additional funding from the federal government and other provinces (project expenses total: \$125,000).

Outcome:

A much fuller set of data on organic retail sales, to assist with targeting strategies for organic development, and to help private firms identify market niches.

5.3 Research and development

Background:

Although there are significant research needs in all areas of organic agriculture, the three most critical are in horticulture, animal production and food processing. Consequently, we focus our proposals on these areas, knowing, however, that additional support is still needed for field crop research. We propose to follow the Danish model of using a few organic specialists who focus on organic issues while drawing on the best experts in other sectors, as required. The organic field is wide open for scientific inquiry, the application of sound methods, market analysis and policy development. These researchers, based at the University of Guelph, would also teach, thereby enhancing the organic degree programme.

5.3.1 Organic horticulture research programme

Proposal:

A 5 - year programme of support for a research coordinator, one PhD student and one post-doctoral fellow from the Ontario government, after which other research funding sources provide base support.

Cost:

The programme includes:

- One Horticultural Research Coordinator who works with scientists at U. Guelph and OASSC, and producers on organic horticulture issues. \$100,000 / yr
- One PhD student: \$25000 / year
- One Post doctoral fellowship: 45k / year with \$25000 / year for operating expenses. Additional money would be found through regular research grants.

Total: \$195,000 / year x 5 years.

5.3.2 Organic animal production research programme

Proposal

Dairying is more advanced than other areas with building capacity at Alfred and existing researchers are addressing some of the needs, so we would recommend a focus on poultry, swine and beef. These would primarily be on-farm research programmes to avoid expensive infrastructure alterations to existing research farm facilities. These positions might be able to, on a limited basis, take advantage of existing research sites and labs.

A huge research programme is required, including breed selection for organic operations, many aspects of animal nutrition and health, optimizing animal health during the transition, barn designs, welfare standards, behavioural needs and long-term performance³⁴, and in some cases pasture management.

Organic poultry researcher – new position year 2

Costs:

1 professor/researcher – \$90,000 annually

Research farm costs - \$25,000 / yr as contribution to base operations

Stipends for cooperating producers - \$10,000 / yr

Organic beef/ sheep – new position year 4

Alfred College is unable at this time to accommodate beef production as it develops its organic dairy herd, so an on-farm focus is required here as well.

Costs:

1 professor/researcher – \$90,000 annually

Research farm costs - \$25,000 / yr as contribution to base operations

Stipends for cooperating producers - \$10,000 / yr

Organic swine – new position year 6

Costs:

1 professor/researcher – \$90,000 annually

Research farm costs - \$25,000 / yr as contribution to base operations
Stipends for cooperating producers - \$10,000 / yr

5.3.3 Social studies

Costs:

1 professor/researcher – \$90,000 annually, starting in year 1

5.3.4 Food processing

Background:

Organic food processing remains limited in Canada, with most firms involved in primary processing, such as seed cleaning. Those interested in secondary processing often face significant research, development, regulatory and testing costs.

There are many food scientists in the province, so the challenge is to find ways of linking them with organic processors and projects of significant interest to the organic sector. A Food Science Coordinator will facilitate collaboration in the food processing sector to identify opportunities and constraints for adding value to organic products while adhering to organic standards (in addition to provincial and federal standards). To compete with farmers in other countries who are meeting the growing organic market, Canadian farmers deserve the option of being fully linked and integrated along the complete value chain, across Canada as part of a strategy to develop branding for healthy, Canadian, organic food products. A Food Science Coordinator, in particular, will advance value added opportunities for organic food and products.

Proposal:

The Food Science Coordinator will be affiliated as a Research Associate in the Department of Food Science, U of Guelph. An advisory committee will include representatives of the U of Guelph, consumer groups, EFAO, COG, OMAF, AAFC, Canadian Council of Food and Nutrition, health professionals, processors and farmers.. The Coordinator will contact processors, retailers, consumer groups and others to determine which organic products are marketable and can be developed and produced in Canada. He/she will also collaborate closely with researchers in the Food Science Dept. and health professionals to initiate research that is required. This is a 4 year programme, following which links and coordination will be well established. Subsequently, the position will be funded through existing quality and business development programmes for processors.

Costs (over 4 years):

For staffing, research projects, and coordination:

OMAFRA \$276,500

ACAAF \$347,500

Industry \$71,000

Total: \$695,000

5.3.5 Organic farm business management programme

Proposal:

Develop production budgets in major commodity areas, including transition budgets to support the transition planning services.

Costs:

Specific grants to existing U. Guelph agricultural economics staff. \$10000 / budget x 2 / year for 5 years covering off major commodities. Stipends to participating farmers: \$500 / farm = \$5000 Total: \$105,000

Outcomes:

Full research programmes in areas where organic research is particularly weak at present.

5.4 Training

As discussed above, our estimate is that Ontario will require an additional 500 or so organic farmers in Phase I and a total of 4854 farmers converting from conventional production or starting directly in organic over 15 years. To that end, training programmes are required for new and converting farmers.

5.4.1 Internship programmes for urban youth interested in organic farming

Background:

Anecdotal evidence suggest, that urban and suburban young people are attracted to small scale organic agriculture and are seeking mentoring and apprenticeship programmes that help them develop skills. Our estimate is that, in Phase I, Ontario will have 120 new entrants to farming going directly to organic production with 600 new farmers in total after 15 years³⁵.

Governments do not appear to have realized this potential and so NGOs, using a combination of private money and grants from non-agricultural departments, have stepped into the vacuum³⁶. One of the more developed programmes, Everdale Learning Centre, has had significant success with 20/26 interns now owning or managing farms. Ten apply for each accepted application, which provides some indication of demand. This programme is part of the CRAFT farm apprentice network³⁷, focusing primarily on smaller scale horticultural, animal and field crop operations. Their success reflects in part their educational mandate, and may not be directly applicable to other farms in the CRAFT network. Interns receive training, room and board and sometimes a small \$100/mo. stipend and provide labour in exchange. Typically, about 40% of the apprenticeship time is devoted to training, and the other 60% is more traditional farm work, so each apprentice is roughly a half-time worker.

Proposal:

Create a fund that supports apprenticeship networks in programme delivery. The fund would support 3 networks in formation, but seriously under-funded (Central/East, South/SW and North) and provide grants for some apprenticeship expenses. Funds would be allocated to the network organizations, which in turn would run grant programmes, on an application basis, with participating farms. This programme would have formal linkages with the training programmes described below.

Costs:

Estimated annual cost for administering network (20 weeks/year): \$40,000 / network x 3 = \$120,000.

Plus 50% of intern costs would be provided as a grant to be distributed by network administrators to eligible farms. Eligible costs to network members would include: food, housing, small stipend (\$100/month), utilities, transportation, organizing training sessions and field trips: 50% x \$5,000.00 / intern / 6.5 month season x 30 interns / year = \$75,000

This would be a 5-year programme, so total programme cost is \$195,000 / year x 5 years = \$975,000.

Outcomes:

60 farm interns annually (300 total), with 25% successfully owning or managing organic farms within 5 years (75). Most new farmers would be in horticulture and small livestock production.

5.4.2 Incubator farming programme

Background

Based on other incubator models, the concept is to establish a farm facility that allows new entrants to rent space to start their operation and earn some revenue, following which they are better positioned financially to strike out on their own. This approach has worked successful in food processing and catering. It builds up on the Ignatius Jesuit Centre FarmStart Programme and is very similar to the successful establish a farm incubator programme in outside Burlington Vermont³⁸.

Proposal

In this model, land owners rent land to third party agencies who organize groups of beginning farmers. The farm(s) provide support services and cooperative sharing of equipment, marketing support and training. This approach works well for speciality and vegetable production as plots in the market garden range are usually most viable. This pilot proposal calls for creation of 3 sites across the province, Ignatius Jesuit Centre FarmStart programme, and two other locations to be determined in other regions of the province (the National Capital Commission Greenbelt lands are one possibility, with a third location in the Southwest). The best locations are near larger urban areas. Farmers pay a rental fee below market value. Training is arranged through other proposals in this package.

Costs:

Programme costs support staffing and administrative infrastructure for the programme. Sponsoring organization and farmers cost-share expenses: \$50,000 annually x 3 sites x 3 years = \$450,000.

Outcomes:

The pilot programme supports 15 incubator farmers / site for 3 years: 45 farmers primarily in horticulture. These farmers will likely be new entrants to farming, some possibly graduating from internship programmes. After 3 years, it's expected that some of the farmers will have gained sufficient experience to strike out on their own, others may remain on-site for longer, but paying full costs. A post-pilot evaluation would determine the future of this initiative.

5.4.3 Universities and colleges degree / diploma programmes

Background:

The University of Guelph has a Bachelor's level programme in organic agriculture, with 5 core organic courses in a typical 30 course programme. As well, elements of many other courses are highly pertinent to organic agriculture, and a number of faculty members can make specialized contributions on organic production within more conventional course offerings. To meet the targets of this strategy, however, some additional elements must be implemented.

Proposal - New tenure track positions

New positions must be created with a focus on both research and teaching (see research section). These positions will be in the areas of organic animal production, horticulture, and social science. At least 5 more courses will be required, with gradual implementation over a 6 year period.

Timing of new course introductions:

Social science (2 courses) – year 1
Organic poultry (1 course) – year 2
Organic beef/sheep (1 course) – year 4
Organic swine (1 course) – year 6

Costs:

For academic positions, see research section. Whether such positions would be entirely new costs depends on retiring rates and faculty priority setting, but we assume for our purposes that these are new expenditures. Course development costs would primarily be covered by new faculty. We assume each course requires average annually operating costs (both equipment costs spread out over 5-10 year periods and annual operating costs) of \$1000 each. Total cost over 10 year initiative: \$41000.

Proposal - Practical learning option

To bring courses to life, it is usually important to have nearby organic farms, or organic farming research plots and animal husbandry facilities on campus or nearby. The university Bachelor's programme could be linked more closely to the mentoring and beginner farming programmes proposed earlier. A 2 year certificate programme could replace the second 2 years of the current programme, a pragmatic stream for those who would want to farm³⁹.

Cost

Depending on the size of this programme, a placement coordinator position might be required. We assume, however, that it will be relatively small and placement coordination can be handled by other newly created positions.

Outcome:

A fully developed organic agriculture Bachelor's degree, the most advanced in Canada. We project 25-30 graduates per year by the end of the 10 year support period.

5.4.4 Short – courses

Background

Currently, a number of short courses targeted to farmers are offered. Topics are both introductory and advanced. Several NGOs currently offer courses (including COG and EFAO) and could also lead development and delivery of new ones.

Additionally, organic agriculture literacy remains low in government circles. Agricultural professionals need extensive continuing education opportunities through associations of professional agrologists.

These training proposals are all based on a cost-shared model in which NGOs should continue to develop (sometimes in partnership) and offer courses, with government providing modest support to facilitate course development, promotion, and farmer and processor attendance.

Proposal - Farmer courses:

The Introduction to Ecological Agriculture course offered by EFAO typically attracts around 60 farmers / year. Usually offered over 2 days with 2 instructors, this course is often the first intensive introduction to organic agriculture for farmers considering conversion. At this point, given the lack of other transition supports, a relatively small percentage of participants fully convert within a short period of time, but many integrate organic concepts and practices into their conventional farm operation.

Organizers believe course enrolment could be doubled without unduly stretching existing infrastructure. There are sufficient numbers of trainers available to expand course offerings. A higher percentage of attending farmers would also fully adopt organic

production if the training courses were suitably integrated into the suite of supports outlined here.

A Transition to Organic course is nearing completion by Canadian Organic Growers, for delivery during winter 06/07. The course is designed to be complemented with mentoring support, post-course, we would suggest integrated with the existing EFAO Advisory Service, though this is still under discussion among sponsoring organizations. This initiative sets the stage nicely for the Phase II transition planning service. This course will require modification in Phase II to better integrate it with the Transition Planning services proposed for that phase.

A number of 1-day Advanced courses are regularly offered, including Field Crop Rotation, Market Garden Crop Rotation, Finding the Balance - Interpreting Soil Tests for Organic Farmers, Direct Marketing, and Composting. In addition more advanced courses will be required to support farmers in transition or attempting to expand and improve their operations.

Train the trainers/mentors courses are already offered and these would need to continue as the range of training expands. These courses need to be fully funded to attract suitable instructor/mentoring candidates. After 5 years, a sufficient pool would be created.

Costs:

Introductory course – There are no development costs for this course. Farmers are responsible for course fees, accommodation and food. We propose that the course fee be increased to \$150 from the current \$100, with the provincial government providing a \$75 reimbursement allotment to farmers completing the course. This fee increase permits increased promotion and should facilitate farmer attendance. Assuming a 20 person attendance / course, sufficient revenues should be generated to cover costs of trainers, mileage and accommodation, course materials, administration and facility rental. Government costs would be $\$75 / \text{participant} \times 20 \text{ participants} \times 6 \text{ courses} / \text{year} \times 5 \text{ years} = \45000 .

Transitions course – Course development costs have been covered by other funders. Course fees will need to be higher, let's assume \$200 / course, with government providing \$100 as a reimbursement allotment to completing farmers who have subsequently signed up with a mentor. Assuming attendance annually of 40, government costs would total $\$4000 \times 15 \text{ years} = \60000 . Mentoring costs could currently be supported through EFAO's existing service, however, an additional \$20,000 is required in 2007 and 2008 to fully operationalize the service. EFAO will be seeking additional private and public support from 2008 to 2010.

Advanced courses - Starting from year 3, development or redevelopment of 2 specialized courses / year would be supported @ \$7500 / course, for a three year period = \$45,000. Course fees would be \$80 / course, with government providing \$40. Assuming annual attendance at advanced courses of 60. Governments would be providing $\$2400 \times 10 \text{ years} = \24000 .

Train the trainers/mentors - \$10,000 / course / year x 5 years = \$50,000

Total government support: \$203200

Outcomes:

175-225 farmer annually taking dedicated organic courses

Proposal - Processor short-course

Some processors have been talking inspection courses as a substitute for a dedicated processor short course. We propose the development of a two-day short course for processors, that builds from existing HACCP style courses to integrate organic practices and record keeping. The course could be developed by an existing NGO or a certifier with extensive experience with processor certification and a willingness to train to general requirements of the industry (as opposed to the specific requirements of that agency).

The course could be offered in association with a processor association or could be tailored to individual firms.

Cost:

Development of course: \$7500

Course fees set to cover costs of delivery.

Proposal - Professional courses

These are required for extension personnel, policy makers and academics. Associations of these professionals are often accredited by the Agricultural Institute of Canada (AIC)⁴⁰, so AIC would need to view this as a priority. Starting from year 2, 1-2 day short courses and farm tours for policy makers and extensionists would be offered with accreditation through the Ontario Institute of Agrologists. Courses could be developed by existing NGOs in association with the OIA.

Cost:

Development of 2 new specialized courses / year would be supported by the provincial government @ \$7500 / course, for a three year period = \$45,000.

Outcomes:

60 farmers, 5 processors and 30 professionals per year in specialized courses.

5.5 Certification assistance

Background

Anecdotal evidence suggests that many farms could be certified fairly readily. These producers do not feel they need certification to meet their market and environmental objectives. At this time, however, given supply chain requirements, there is value in the

authentication that certification provides. Supply could quickly be increased if a number of farmers and processors, never previously certified, came forward.

Proposal:

A 2-year “quick start” certification subsidy for farms and processors that have never previously been certified. Government would pay 50% of the standard certification fee for the first certification.

Cost:

The fees would be payable to certification agencies, who would handle much of the paper work. Assume an average farm certification fee of \$500, government would provide \$250 per certified farm, plus an additional \$25 administrative allotment to the certifier. Assuming this initiative attracted 50 farmers, the cost would be: \$13750.

For processing, we assume 5 processors take advantage, with average certification costs of \$1500. Government would provide \$750 plus an administrative allotment of \$75. Total cost would be: \$4125.

Total: \$17,875

Outcome:

50 farms and 5 processors certified.

5.6 Production Safety Nets

Background:

Three types of programmes are currently in place: crop insurance, the Canadian Agricultural Income Stabilization Programme (CAISP)⁴¹, and emergency payments. The first two programmes require financial contributions from farmers, provincial/territorial governments and the federal government (tripartite funding).

Organic farmers are able to participate in these programmes, but they are not designed to recognize the risk reduction features common to organic, nor the features that distinguish organic from conventional production. Because organic farms are more diversified, in general, than conventional ones at both biological and market levels, they are usually less susceptible to the vagaries of market and environmental conditions. It is rumoured that organic farmers tend to participate less in these programmes because the costs are too high for the relative protection they provide. When organic farmers receiving premium prices do suffer significant losses, they may, however, be relatively more acute than conventional growers. The riskiest period is the transition one, where biological fluctuations and the lack of market rewards often mean reduced revenue.

5.6.1 Fund an analysis of organic farmer participation in business risk management programmes

Proposal:

As a first step, a study of how organic farmers participate in BRM programmes is required.

Cost:

\$30,000 to a contractor.

5.6.2 Expand the emerging Ontario production insurance programme

Background:

Ontario is developing a production insurance programme for organic producers, similar to the Canada-Saskatchewan Crop Insurance programme⁴² which currently supports organic hard red spring wheat, extra strong spring wheat, Canada Prairie spring wheat, winter wheat, durum, barley, oats, flax, canola, spring and fall rye, sunflowers, field peas, canary seed, triticale, fababeans, mustard (yellow, brown and oriental), lentils (large green, red and other) and Khorasan wheat. The Saskatchewan programme offers higher payments for insured claims based on organic premium prices and requires higher insurance premiums from growers as a result of added risk for the insurer. The programme also offers a re-seeding benefit to deal with weed problems during crop establishment. A similar programme is available in Manitoba. Ontario currently offers an organic crop option for processed sweet corn with a fixed claim price (likely above the conventional price) and 11% higher premiums. Agricorp has a new programme for organic soy, with corn and wheat likely additions in 2007.

Proposal:

To expand coverage over the next 4 years to cover all major organic commodities.

Costs:

In production insurance programmes, farmers pay 40% of insurance premiums, 36% is covered by the federal government, and 24% by the provincial government. The governments also pay the administrative costs. Organic production insurance products would likely require higher insurance premiums, since premium prices are often available. The provincial government would, thus, have to pay 24% of those increased insurance premiums. However, the literature suggests that organic crops are more resilient in the face of poor weather, especially both excess and insufficient moisture. These conditions comprise about 2/3 of claims⁴³. So, payouts for organic producers may be less frequent than for conventional ones. Given these uncertainties, we assume no net increased costs for Agricorp relative to conventional producers.

Outcome:

A full organic production insurance programme, with relatively equivalent coverage to that available for organic producers. The number of producers to take advantage of this would be better known following the study proposed in 5.5.1. There is anecdotal evidence that insured crops are viewed more favourably by credit institutions and organic crop insurance may in some cases facilitate access to credit.

5.7. Marketing boards

Background:

Despite all their positive features, marketing boards continue to present obstacles to the evolution of organic agriculture in dairy, chicken, egg and turkey production. Access to quota adds substantial start up costs and organic farmers often feel they receive limited services for their commodity check-off contributions.

5.7.1 Temporary quota and loan programmes

Proposal:

All supply managed commodities should have either temporary quota or small farmer licensing programmes to encourage new organic entrants that do not already have quota. These temporary programmes are already used in dairy and loan programmes have been used in organic egg production. For example, the Manitoba Dairy Farmers loan quota to new entrants for 5 years. Usually the total loan is below the industry farm average for quota, but it helps new entrants. The loan is interest free, but an equivalent amount has to be purchased from the quota exchange. Then after 5 years the loan gets progressively recalled⁴⁴. This programme should also include chicken processor slaughter quota loans.

Costs:

No direct expense for provincial government but administrative costs absorbed by marketing board and members

5.7.2 Small organic flock licensing programmes⁴⁵

Proposal:

For chicken, egg and turkey production, creating provisions for small organic flock direct to consumer sales would increase the availability of organic products, without compromising supply management. These are specialty markets to which conventional producers generally pay little attention. Rather than requiring quota, a permit system with fees that compensated for costs would be installed. For each production, an upper limit of annual production would be established (500 birds annually is proposed for chicken). Products would have to be sold directly from the farm gate or at Farmers' Markets. Market vendors would have to be the producer.

Cost:

No cost to the provincial government. Licensing fees cover costs of running the programme.

5.7.3 Check-off changes

Proposal:

One option to increase organic research is to establish an organic commission that collects dues by type of production rather than commodity. This is currently being explored in Saskatchewan⁴⁶. Some of the dues going to commodity groups would be redirected to the organic commission resulting in no dues increases for organic farmers already paying dues. This likely requires changes to the OFPMA and possibly associated commodity group regulations. Another option is to have Ontario's existing Organic Research Committee make recommendations to the individual commodity groups. The next step is to commission a feasibility study of the merits of this approach, including a survey of growers and commodity organizations, a review of legislative and regulatory changes required, and revenue forecasts.

Cost:

\$25000

Outcomes:

These initiatives would permit 50-75 new entrants to organic production in supply managed commodities and shift particularly research priority spending.

5.8 Collaborations to advance food safety

Background:

The federal and provincial food safety grant programmes present opportunities for sectors to organize for collective advancement of food safety. To this point, the organic sector has not taken advantage of such funding opportunities. It is important that the organic sector propose cross-commodity organic strategies if it wishes to cement the view that organic production represents unique food safety challenges and opportunities.

Proposal:

Federal and provincial food safety programme staff actively work with the organic sector, especially the new Organic Council, to help implement sector wide food safety initiatives. The key challenge is to write the grant proposals in ways that cover most of the core costs of programme implementation. However, there are limitations to current food safety programmes, in that individual producers are often on the hook for implementation of sector-wide strategies. Consequently, the linkage of food safety improvements to new market opportunities is essential to uptake, and sponsors of food safety programmes must identify these opportunities as a key part of the strategy.

Cost:

This activity would not require additional funding, as funding would come from existing food safety and quality grant programmes.

Outcome:

Sector-wide food safety plans that would enhance organic food safety.

5.9 Animating non-retail food distribution channels

Background:

Consumers are increasingly interested in non-retail shopping experiences, e.g., farmers' markets, buying groups, community-supported agriculture, U-pick operations, street-side food stands, farm shops, internet sales. There is significant support for farmers' markets through Farmers' Markets Ontario, but most other forms of non-retail food distribution lack coordination between buyers and seller⁴⁷. There have been periodic community based efforts to facilitate linkages between local buyers and sellers in non-retail settings⁴⁸, with mixed success, in part because of challenges related to market skills and longer-term sustainability.

5.9.1 Animators for non-retail distribution

Proposal:

Using existing grant programmes (e.g., CanAdvance), an existing organization would apply for a three-year project to develop non-retail distribution infrastructure. Given the number of organizations with some experience of this process, possible project leads include the Ontario Healthy Communities Coalition, the Ontario Public Health Association, or an existing general farm organization.

Costs:

No additional costs to the province, since the project would make use of existing grant funds.

5.9.2 Expanding access to organic food in low-income markets

Background:

Low-income people are often very interested in organic foods, but find it difficult to participate in this market without significant investments of time and energy (e.g., comparison shopping, joining buying clubs, etc). The organic sector believes it must become accessible across the full economic spectrum.

5.9.2.1 Special diet allowance

Proposal:

In Ontario, welfare recipients have in the past received additional benefits for medically-recommended diets. In such a system, the welfare recipient receives extra funds to accommodate a special diet, including organic food, up to \$250/month per welfare recipient, depending on the nature of the condition. A nurse practitioner, midwife, dietician or doctor must approve the special diets before welfare recipients qualify for the extra supplement. An organic diet has been one of the special diet options⁴⁹. Recent changes to the programme may now exclude organic foods. The key next step is to reinstate and make visible this option and to make the approval process less dependent on health need, and more on dietary preference. A research study designed to follow difficulties faced by low income people in using this programme and acquiring organic food would be useful for identifying programme enhancements. This study could also examine the option of receiving such funds as organic food coupons.

Cost:

\$20000 for the study

5.9.2.2 Buying club supports

Background:

Buying clubs (BCs) have proven to be an effective way for people of modest means to acquire a significant portion of their diet in organic food. An average household will purchase about \$600 / yr in natural and organic foods through buying clubs. For an average family of 4, this might represent about 33% of their annual food expenditures. Although data is limited, about 2500 Ontario households likely participate in buying clubs with natural and organic foods as a main focus.

Proposal:

Internal motivation of buying club members is essential to success, but insufficient animation may also be a key stumbling block to expansion. The proposal is to try a one year pilot in three low income communities with dedicated animators to test whether there is sufficient interest in BCs in low income communities. One pilot should be in a rural community with only one supermarket. In this case, the supermarket would have a pre-order club and serve as a drop off point. The advantages to the supermarket are that it helps with cash flow and gets people into the store, but doesn't compromise their role in the community.

Costs:

Animators working half time are supported by the initiative. All other costs are paid by buying club participants. The three pilots could be included in the proposal outlined in 5.9.1 and be of no new cost to the provincial government.

Outcomes:

Add 2500 low income households to the ranks of those buying organic food regularly with the potential to produce an additional \$1.5 million in annual demand from a community that has traditionally had difficulty participating in organic markets.

5.10 Processor supports

Background:

Food processing remains limited in Ontario, especially further processing⁵⁰. The top areas are dairy and cereal milling and baking-related enterprises⁵¹. Processors face numerous financial, technological, volume and regulatory challenges⁵². These are limiting the number of new entrants to processing and also the number of conventional processors willing to do organic batches.

5.10.1 Organic business development expertise

Proposal:

OMAFRA staff do currently support processors, including small scale processors, but no individual is dedicated to the organic file. We propose that one full-time equivalent be made available to potential organic processors within the Investment Development Unit of the Food Industry Competitiveness Branch.

Costs:

This proposal does not necessarily require new staff, but could be considered an opportunity cost, as staff would be less available to work on other projects, so we assign it a salary and benefits cost of: \$70,000

5.10.2 Resurrecting orphaned small-scale facilities

Proposal:

Finding new entrants for some processing areas does not necessarily mean having to build new plants, since some analysts believe there are a considerable number of “orphaned” facilities out there, small plants that have been mothballed and could be retrofitted by new owners for related processing operations. Capital intensive processing commodities and those facing significant food safety regulations (e.g., dairy, meat) are unlikely to take advantage of this, as changes in equipment the past decade make resurrecting mothballed facilities an unrealistic proposition. An inventory of orphaned facilities in other commodity areas (e.g., horticulture, field crops) should, however, be

worthwhile.

Costs:

Part I – research programme to identify suitable orphaned facilities: \$40,000

Part II – identification of most suitable for resurrection; feasibility study: \$80,000

Part III – identification of potential investors: \$40,000

5.10.3 Incubator processing facility

Proposal:

Some organic processors are realizing the value of collaboration. Some urban planners and economic development specialists are promoting eco-industrial parks, a development model that fits nicely with small and medium scale organic processing⁵³. This option needs further study to determine its feasibility in Ontario.

Costs:

Part I – feasibility study, \$75,000

Part II – if feasibility study looks promising, a detailed business plan, \$150,000

Part III – Plan gets shopped to investors and municipal governments in which it would be located

5.10.4 Explore the potential to create a capital fund for SME processing and handling

Background:

There are many technical and business planning supports for small processors, though most focus on conventional food product niches (See for example the federal programme Planning and Assessment for Value – added Enterprises (PAVE)

http://www.agr.gc.ca/progser/ps_pavepepva_e.phtml). The larger challenge facing organic processors is venture capital and credit. A traditional government response is to provide loan guarantees and some programmes exist (see, for example, Manitoba - <http://www.gov.mb.ca/agriculture/financial/farm/caf27s02.html>). Whether organic farmers are able to take advantage of such programmes is an open question.

Proposal:

Study the feasibility of establishing, on a one-time funding basis, a \$20 million capital fund at market rates for organic processors in the \$0.5-\$10 million sales range⁵⁴. Ideally, such a fund could be administered by a third party, but that would be part of the feasibility assessment.

Costs:

\$40,000

Outcomes:

Dependent on feasibility assessment.

5.11 Support for cooperative production, processing, distribution and marketing

Background:

Organic farming has some history of cooperative development, and the philosophy of organic production lends itself well to collaboration amongst farmers and other market players. Some ecologists argue that there is as much mutualism in natural ecosystems as competition and cooperatives represent a human organizational form of such mutualism. In a food system in which size and volume usually determine market power, many believe organic producers, processors, distributors and retailers have to work cooperatively in order to compete with mainstream food companies and fulfill growing demand at affordable prices.

The federal government has recently recognized (again) the value of cooperatives for agricultural and rural development and invested money in a number of programmes⁵⁵. Unfortunately, organic farmers and processors will have trouble taking advantage of many of these programmes for the following reasons⁵⁶:

1. Emphasis on the New Generation Coop model: This model is being promoted for value-added enterprises with significant technological investment required (e.g. beef processing for the domestic market). Coop owners have to invest a significant amount themselves, often in the \$50-200,000 range because of the expense of setting up the operation. Farmer members sign contracts for supply minimum at agreed upon quality requirements. If they are unable to meet those contracted minimums they have to go out and buy supply elsewhere and pay for it themselves. Not many organic producers are of sufficient size and resources to participate.
2. Lack of venture capital for cooperatives: There is money available for technical assistance, research and business plan development. Cooperative advocates pressed the federal government to establish a cooperative venture capital fund as well, but it was not set up with the other programme elements. Advocates believe that cooperatives in need of \$100,000 to a \$1 million often have great difficulty attracting capital and such a fund would have helped with establishment. This is a typical size range for organic operations.
3. Established coops are best able to take advantage of these programmes, but new emerging organic cooperatives will have more difficulty. Management capacity is often a big issue for organizations starting out and there's not sufficient money in the system to provide proper training and mentoring of new managers.

Proposal - implement recommendations of the Ontario Co-operative Association's White Paper on Cooperative Development⁵⁷:

The white paper proposes a number of regulatory, programmatic and funding initiatives that would also address many of the challenges facing organic co-operatives.

Costs:

No additional costs beyond those provided to implement the white paper.

Proposal - assessment of regulatory challenges

The regulatory hurdles to food cooperatives have not been fully assessed, but include elements related to financial and food safety regulation. A full accounting of these is a priority, with appropriate proposals to resolve them.

Cost:

\$20,000 study of regulatory challenges in year 1 of programme.

Outcomes:

Difficult to predict until OCA White Paper is implemented.

5.12 Institutional procurement programmes

Background:

Much of Ontario's local distribution infrastructure has decayed over the past 30 years with a food system focus on export and global markets. Interestingly, universities and schools are leading a movement to increase consumption of local foods. Facilitated by a new NGO, Local Flavour Plus, requirements for specified percentages of local food are being written into food service contracts. However, there are considerable challenges in this enterprise, particularly for local producers attempting to meet the terms of food service vendor protocols.

Proposal:

Start up grants for groups of Ontario farmers (and processors) attempting to meet institutional food service requirements. These grants for existing collaborations (e.g., coops, small companies with a number of producers and formal relations with a processor, integrators) could cover a variety of expenses, including capital and labour associated with food quality and safety improvements and other infrastructure that needs to be put in place. Grants average \$30,000 / group. This programme could be administered by existing organizations, such as the Agricultural Adaptation Council.

Costs and outcomes:

Grant programme \$30000 on average per group.

Year 1 – 5 approved applications – programme budget \$150,000

Year 2 – 10 approved applications – budget \$300,000

Year 3 – 15 approved applications – budget \$450,000

Total: \$900,000, plus administrative fee to programme delivery agent of 90,000

Phase II elements (years 6-15)

5.13 Transition advisory services

Background:

Many conventional farmers are interested in organic, but reluctant to begin because of this risky transition period. That has inspired several jurisdictions in Europe to create organic transition advisory services and financial instruments (see discussion below on transition risk offset programme) to support particularly the transition period. Although OMAF has an organic extension specialist, this person is unable to cover off the full range of demands or organic commodities being produced in their province. Organic farmers often remain the best source of information in many cases. In response to this reality, the Ecological Farmers Association of Ontario (EFAO) has been operating an organic advisory program, with support from private foundations.

Conventional processors might also benefit from a processors organic advisory service, one that would be linked with the processors organic short course outlined in 5.4.4

These problems highlight the need for dedicated transition advisory services. Personal assistance from trained experts (often farmers and former inspectors) is needed to help farmers and processors explore problems and possible options they might otherwise not be aware of. U.S. surveys have found that a strong majority of farmers believe that farm planning requires more information than most farmers have at their fingertips, and that advisory services help farmers explore problems and unfamiliar options. Access to advisors should be easy, and the help they provide should be easily understandable without having the advisor take over the process. When farmers want to acquire a new skill themselves, training should be available to transfer the needed information from experts to the farmer. Networking with other farmers is particularly beneficial for many farmers.

Government has a role to play because there are significant market failures in the supply of and demand for advice and information⁵⁸. The boundaries between public and private goods, and between public and private interests, are not as clear-cut in practice as in theory. Yet it is clear that land managers face significant transaction costs, risk and uncertainty in accessing and evaluating information, particularly where complex change and environmental issues are involved. Reducing these costs is likely to bring benefits to society as a whole.

Proposal:

The collaborators would include: OMAFRA, EFAO, Canadian Organic Growers (COG), private foundations, possibly the Association of Ontario Food Processors, and AAFC (through the National Farm Stewardship Programme). This programme requires a

transition planning centre that serves as the administration coordination point, liaising with interesting farmers, processors and transition planners across the province.

The centre would have three coordinators responsible for different regions of the province who sets up programming for individuals and groups and links farmers to training opportunities. This coordinator would also link individuals or groups of farmers and processors to transition planners. Farm group initiatives, especially in environmentally sensitive areas, have the potential to be co-funded by private foundations and NGOs (e.g., funding to the NFSP provided by two foundations with interests in the Greenbelt).

This element would also need to be linked to the Training the Trainers/Mentors element outlined in 5.4.4. Once trained, transition planners (most of whom would be farmers or former inspectors) would likely to do this as part time work during the winter. Most farmers would pay for their services through the IPM Consultant option of the National Farm Stewardship Programme (NFSP). NFSP must recognize organic transition planning under its IPM consultant category. Processors might also be able to receive support through business development programmes.

The NFSP could also potentially be used by farmers (working with transition planners) to fund some of the capital transition costs. For example, a livestock producer may require, as part of the transition to organic, modifications to his/her manure management system which could be partly financed by NFSP features.

Cost:

\$200,000 for the transition coordinating centre (coordinators and office expenses).

\$20,000 to make modifications to existing transition and train the trainers/mentors courses with development of related materials.

Course costs for planners / mentors / trainers would be fully covered (see section 5.4.4)

Transition planners (farmers) would be paid out of NFSP funds, private foundations (for groups), NGOs and farmers who pay the cost-share portion of NFSP contribution.

Transition planners (processors) would be paid directly by processing enterprises, in some cases with support from business development funds.

Outcomes:

The planning centre supports about 450 new actively transitioning farmers / year (courses, plan development). European data suggest that about 10% of those who engage with the transition centre will actually convert within a 5-year period⁵⁹, so some 4500 farmers annually would be interacting with the transition centre. The largest percentage of these contacts (phone, mail and internet) would be for simple requests for information, with a smaller percentage involved in courses and mentoring⁶⁰. Requests from processors are harder to predict but we would speculate that 10-20 / year would enlist the services of a transition planner. These would mostly be smaller enterprises, lacking the internal resources to plan new product lines while running their existing business. Many medium to larger processors would not likely take advantage of this services, believing that the planning could be carried out internally.

5.14 Transition risk offset and environmental services payments

Background:

The objective of this initiative is to pay farmers some of the revenue lost during the transition period, typically the most difficult period for organic farmers. In addition, this initiative provides a one time payment for environmental services, an amount that recognizes the farmers' contributions to internalizing some of the costs of conventional production.

Proposal:

1. Government payments during the 3 year transition period⁶¹. For this, the payments are set at 10% of the gross revenue loss associated with average yield declines during the transition (see appendix 2 for estimated average yield declines in organic commodities). This level was chosen to be slightly lower than Europe, where such payments range from 15-20% of foregone revenue⁶², but at a base minimum suggested for improving adoption of other low input systems in US studies.⁶³ In this analysis, annual payment levels varied from 0 - \$883/ha, depending on commodity and transition year.
2. Payments to animal production are on a per animal basis, assuming the same conditions of yield loss and compensation.
3. To receive payments, farmers would have to belong to a certification agency, be actively committed to the transition process, and to be participating in mentoring and training programmes. Since this programme kicks in for Phase II, farmers who convert in the first 5 years of this strategy would be eligible to receive payments retroactively, based on record keeping provided by the certification agencies.
4. Payment for avoided environmental costs. This payment would be delivered 3 years after full certification (and assuming no intervening loss of certification status following the transition period). Following on the analysis provided in Table 1, this payment is set at \$22.25 for all crops and animals, except pasture. The benefits of transition, as defined in the Tegtmeier and Duffy study, are much lower for pasture (and in fact they did not include pasture lands in their analysis), so we have set the level at \$0.5 / ha, largely to recognize the potential for lower GHG emissions on organically managed pasture. No per head payments are provided for animals, as is assumed that all converting animal producers have a cropping base for their farm.
5. We assume a 30% reduction in CAISP payouts based on historical payment patterns of net new programme costs⁶⁴, and assume that the province saves 12% on other costs once making payments for this programme.
6. We assume that programme delivery is carried out by existing agencies involved in farm financial safety nets, with additional administrative costs of \$200,000 annually. Additionally, to support record keeping, each certification agency would receive a one-time administrative payment per certified farm of \$100, for a total of $4854 \times \$100 = \485400 .

Costs:

We assume an uneven distribution of costs for each year of the 15 year programme (years 1-5 retroactive, years 6-15 of the strategy active), based on staggered transition across farms and commodities. The total gross costs of this element for crop production over 10 years are \$32 million, with net programme costs set at \$28 million. Payments per animal head would total \$8.5 million. Additional administrative costs would be \$2.49 million. Total net cost of this element would be: \$39.1 million. Details can be found at http://www.oacc.info/Docs/OntarioOrgStrategy/TransitionPayments_june26-06.pdf.

Farm revenues associated with the programme:

We also worked up some case studies to provide a picture of how much some typical farms might receive from these payments. (See appendix 3 for details). Of the 4 case studies presented, total payments to farmers would range from \$13,000 - \$25,000 spread out over 4 years.

5.15. Consumer and public education campaigns

Background:

Although demand currently outstrips supply, there is variability by region and by product category. Additionally, over time, supply-side supports will increase supply sufficiently to soak up existing demand. Consequently, programmes to drive demand increases in a coordinated fashion are important.

5.15.1 Organic information hot line and web site

Proposal:

Primarily for processors and retailers who are responsible for advertising it, through in-store promotions and possibly product labels.

Cost:

Cost shared 50/50 government, retailers, manufacturers. 5 yr programme starting in year 6. Government contribution is \$200,000 annually.

5.15.2 Generic Point of Sale material (POS) for retail

Proposal:

Since some studies suggest in-store POS material is the most effective at generating changes in consumer purchasing patterns, a generic shelf-talker and in-store promotion programme is proposed. Government would pay for the development of the materials. Industry would buy them at cost.

Cost:

\$75000 for development of materials.

Summary of programme expenses:

The 32 elements of the plan will cost \$50.3million over 15 years. Phase I (5 years) costs total \$6.4 million and Phase II costs \$43.9 million. Costs will vary year to year, but will average about \$1.3million in Phase I and \$4.4 million in Phase II. For details, go to http://www.oacc.info/Docs/OntarioOrgStrategy/ProgrammeExpenditureSummary_june26-06.pdf.

6. 15-year Outcomes

- About 5343 organic farmers would be producing organically in all major commodities (go to http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet1_june26-06.pdf for details)
- Based on comparisons of the financial performance of organic vs. conventional operations⁶⁵, most of these farmers would do better financially in organic production.
- Organic production would occur on about 900,000 acres of land, and some 1.4 million animals would be reared organically (go to http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet1_june26-06.pdf for details)
- These farmers would reduce fertilizer applications by about 43 million kg⁶⁶, pesticide applications by about 296000 kg active ingredient⁶⁷ (8% of pesticides applied on studied crops in 2003), and 7079 kg of antibiotics consumed in animal feed (for details, go to: fertilizers http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet2_june26-06.pdf; pesticides http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet3_june26-06.pdf Antibiotics <http://www.oacc.info/Docs/OntarioOrgStrategy/AvoidedMedicatedFeed.pdf>⁶⁸)
- Financial savings would amount to about \$18.3 million in saved fertilizer applications and \$9.1 million for pesticides (see URLs above for details).
- Implementation of this plan would capture 51% of Ontario's organic consumption, up from the currently estimated 15%, and boost organic production to 10% of agricultural acreage within 15 years. Organic retail sales would then comprise 5.3% of the total food and beverage retail market in Ontario (see Appendix 5 for details).
- Organic farming would be making significant contributions to environmental improvements, including reducing agricultural pollution to water bodies and improving nutrient management. The degree to which this would occur in the short term is dependent on the concentration of organic farms within various locales.

- Based on US studies of communities with significant percentages of sustainable producers, at 10% of the landscape, organic farming could also be making significant contributions to rural community revitalization⁶⁹
- A significant increase in new processing capacity would be achieved and since food processing has one of the highest economic multipliers among industrial sectors⁷⁰, this would contribute significantly to Ontario economic activity
- It is clear from the evolution of environmental stewardship in farming that once certified organic production has reached 10% on the landscape, many important environmental practices will also have been progressively implemented on non-organic operations. In this sense, organic producers contribute to “raising the bar” across all farming sectors. Indirect environmental benefits of organic adoption will likely equal or exceed direct ones.

7. Conclusions

To be successful, a full package of initiatives must be implemented. This programme would cost the provincial government about \$50 million over 15 years. The net total programme costs would be significantly lower than \$50 million since farmers would have saved almost \$28 million in synthetic chemical inputs and received premium organic prices for most of their goods sold. This will unavoidably reduce pressures on the farm financial safety net system and government costs⁷¹.

Additionally, this programme contributes significantly to eliminating the long-term externalized costs of current approaches to agriculture, conservatively estimated at \$145 million annually or \$2.18 billion over the 15 year life of the programme. Not all those costs will be saved within 15 years, but this exceedingly modest investment in organic production, representing only 2.3% of these externalized costs, will generate savings in externalized costs far beyond this one-time investment.

Appendices:

Appendix 1 - Growth rates in organic agriculture worldwide⁷²

Jurisdiction	Growth rates	% agric. output	% land area or farms	% food sales	Sales
Global	20% (production) over 10 years ⁷³ 23% (market) in 2000.		0.4% land area ⁷⁴ 23 million ha		\$19 billion US from major markets
OECD	15-30% (market) ⁷⁵	0.08		<2% (2000) ⁷⁶	
US	30% / year (land area certified), 91-97 ⁷⁷ 20%/yr over decade (market)	0.2 ⁷⁸	Area: 0.2%	3% fresh produce sales ⁷⁹	\$9.5 billion (2001)
Mexico	140% (land in production), 96-98 ⁸⁰		Area: 0.1%		\$70 million US, 1999 ⁸¹
Canada	10-20% sales over the next 10 years		0.6%	1.5-2%	\$650 million US

Europe	30%/yr since 1998 (production) Dairy sales 26% in 2001 ⁸² Projected: 10-20% of production by 2010 ⁸³		Farms: 1% ⁸⁴ Area: 3% ⁸⁵		\$9 billion US (2001) 20-30 billion Euro projected retail sales for 2010 ⁸⁶
Austria			Area: 11.3%	2-2.5%	\$325-375 million US
Sweden			Area: 6.3%,	1.5-2%	
Switzerland			Area: 9.7%	3.2-3.7%	
Germany	Fruit sales 8%/annum recent years; vegetable sales 15% ⁸⁷ 16% land area (2001)		Area: 3.7% Target: 20% by 2010 ⁸⁸	1.7-2.2%	
Denmark			Area: 6.5% Target 12% ⁸⁹	2.2-2.7%	
Netherlands			Area: 1.9% (2001) ⁹⁰ Target: 10% by 2010 ⁹¹	1-1.5% Target: 5% of market share by 2004 ⁹²	
France			Area: 1.4%	1-1.5%	

UK	30-50% past few years (market), 29% (area) ⁹³		Area: 3.9% (2001) ⁹⁴	1.5-2%	Imports: 70% of primary produce sales, conventional only 25% ⁹⁵
Japan			Area: 0.9% certified organic ⁹⁶	<0.5%	\$250 million US (2000)
New Zealand			Area: less than 0.5% (2002) ⁹⁷	<0.5%	Exports: less than 1% of total agricultural exports ⁹⁸
Australia			Area: 2.3% Farms: 1.4%	<0.5%	

Appendix 2 - Estimates of regional transition activity

(based on 2005 area seed estimates for field crops, 2004 area harvested estimates for fruit and vegetables, dairy shipments 2005, beef cows 2005, total sheep and lambs 2005, as reported by OMAFRA)

Commodity	Top 3 counties in which farm transitions will likely occur for selected commodities
Field crops	
Hay & alfalfa	Grey, Bruce, Simcoe
S. wheat	Wellington, Stormont-Dundas-Glengarry, Prescott-Russell
W. wheat	Lambton, Chatham-Kent, Huron
Barley	Bruce, Grey, Huron
Oats	Timiskaming, Renfrew, Prescott - Russell
Corn for grain	Huron, Oxford, Stormont-Dundas-Glengarry
Corn for silage	Wellington, Huron, Perth
Soybeans	Lambton, Chatham-Kent, Essex
Edible beans	Huron, Oxford, Middlesex,
Mixed grain	Grey, Perth, Wellington
Vegetables	
Potatoes	Simcoe, Dufferin, Brant
Carrots	Simcoe, York, Kent
Tomatoes, field	Kent, Essex, Haldiman-Norfolk
Beans	Middlesex, Brant, Huron
Sweet corn	Middlesex, Lambton, Perth
Cabbage	Haldiman-Norfolk, Hamilton-Wentworth, Essex
Fruit	
Apples	Grey, Haldiman-Norfolk, Essex
Grapes	Niagara, Essex, Hamilton-Wentworth
Strawberries	Haldiman, Durham Simcoe
Dairy	Oxford, Perth, Wellington
Beef	Grey, Bruce, Renfrew
Sheep	Grey, Bruce, Simcoe

Appendix 3 – Yield reduction averages relative to conventional production during 3-yr transition to organic in Ontario (comparison with a small to medium sized conventional operation)⁹⁹

Commodity	Yr 1	Yr 2	Yr 3	5-10 years
Field crops				
Pasture	0	0	0	same
Hay & alfalfa ¹⁰⁰	0.10	0.05	Same as conv.	Same as conv.
S. wheat	0.30	0.20	0.10	0.05
W. wheat	0.30	0.20	0.10	0.05
Barley	0.30	0.20	0.10	0.05
Fall rye	0.20	0.10	0.05	Same as conv.
Oats	0.20	0.10	0.05	Same as conv.
Buckwheat	0.30	0.20	0.10	0.10
Corn for grain	0.30	0.20	0.15	0.10
Corn for silage	0.20	0.15	0.10	0.05
Canola	0.50	0.40	0.30	0.20
Soybeans	0.30	0.20	0.15	0.10
Flax	0.45	0.30	0.15	0.10
Edible beans	0.30	0.20	0.15	0.10
Other field crops	0.30	0.20	0.10	0.05
Vegetables				
Potatoes	0.40	0.30	0.25	0.20
Other roots	0.40	0.30	0.25	0.20
Tomatoes - field - greenhouse	0.40	0.30	0.25	0.20
Cucumbers - field - greenhouse	0.40	0.30	0.25	0.20
Leguminous	0.40	0.30	0.25	0.20
Sweet corn	0.40	0.30	0.25	0.20
Cole crops	0.40	0.30	0.25	0.20
Leafy vegetables	0.40	0.30	0.25	0.20
Tree fruits	0.50	0.40	0.30	0.25

Small fruits	0.50	0.40	0.30	0.25
Dairy ¹⁰¹	0.20	0.15	0.10	0.10
Beef ¹⁰²	0.20	0.15	0.10	0.10
Chicken ¹⁰³ - meat	0.35	0.30	0.25	0.20
- eggs	0.35	0.30	0.25	Daily wt. gain 20 vs. 25 dz
Turkey	0.40	0.30	0.25	0.20
Pork ¹⁰⁴	0.50	0.45	0.40	0.30
Sheep ¹⁰⁵	0.10	0.05	0	0

Appendix 4 - Case studies of transition risk offset and environmental payments¹⁰⁶

Total estimates for 3 year transition period plus one-time environmental service payment 3 years after certification

Apple production¹⁰⁷

Transition payment

10 ha apple trees x \$1297.99 = 12979.99

Environmental payment

10 ha x \$22.25 = 222.50

Total: \$13202.49

Mixed vegetable production (excluding potatoes)

20 ha operation, 12 ha in vegetables, rest in cover crops

Transition payment

12 ha x 2099.49 = 25193.88

Environmental payment

12 ha x \$22.25 = \$267.00

Total: \$25460.88

Cash cropping

300 ha operation with 63 ha in winter wheat, 114 ha in grain corn and 123 ha in soybeans

Organic conversion:

75 ha in winter wheat x \$37.37 = 2802.75

90 ha in grain corn x \$63.98 = 5758.20

90 ha in soybeans x \$43.20 = 3888.00

45 ha in alfalfa / grass hay¹⁰⁸ x \$6.75 = 303.75

Total: \$12752.70

Environmental payment

300 x \$22.25 = \$6675.00

Total: \$19427.70

Dairy¹⁰⁹

Conventional:

100 ha operation
9 ha in winter wheat
6 ha in barley
17 ha grain corn
10 ha silage
8 ha soybean
42 ha hay
8 ha pasture

63 dairy cows

Alter organic transition¹¹⁰:

100 ha and 57 dairy cows

Transition payment

9 ha winter wheat x \$37.37 = 336.33

6 ha barley x \$25.10 = 150.60

10 ha grain corn x \$63.98 = 639.80

8 ha soybeans x \$43.20 = 345.60

55 ha hay x \$6.75 = 371.25

12 ha pasture x 0 = 0

57 dairy cows x \$214.83 / animal alter 3 years = \$12245.31

Environmental payment

100 ha x \$22.25 = \$2225.00

Total after 3 year transition, plus environmental services payment = \$16313.89

Appendix 5 - Determining the size of the organic market after 5 and 15 years

Pinpointing the size of the organic food market is difficult because of limited data. By looking at the issue from a number of angles, and using what limited numbers are available, we derive some estimates for use in this study.

1. Total organic market - Organic food is an estimated \$1.3 billion market in Canada. If Ontario's percentage of the total food and beverage market holds, then the Ontario organic food market should be about \$270 million. Another way to look at this is to assume that 1% of the Ontario food and non-alcoholic beverage retail market is organic, then the organic portion = 26.5 billion¹¹¹ / 100 = \$265 million. So, these numbers roughly line up.
2. Organic farm gate revenue - Macey (2003) conservatively estimates Ontario farm gate revenue at a minimum of \$25 million, but this is widely viewed as unrealistically low, so we assume a farm gate revenue value of \$30 million.
3. The current ration of organic production for domestic vs. export markets – In the conventional food market, the traditional ratio between farm gate value and retail value is 3.23 (\$26.5 billion / \$8.2 billion). If we take the total organic market size at \$265 million and divide that by 3.23 = \$82 million in domestic farm gate organic sales if the entire market was provided by domestic production. However, the estimate is that only 15% is from domestic production, so that would mean only \$12.3 million in farm gate revenue going towards the Ontario market.. That represents about 40% of current total farm gate revenue (\$30 million), so it would appear that the about 40% of current organic production goes to the domestic market and 60% goes for export..
4. Estimating how much organic farmers contribute to the total organic retail market after 5 and 15 years - This \$8.2 billion in total farm gate revenue comes from about 60,000 farms for an average farm gate receipt / farm of \$137,000 / farm. Since we're projecting lower conversion ratios in livestock and smaller farm operations undertaking the conversion, we'll assume an average farm receipt / farm return for organic producers of \$85,000¹¹². After 5 years, with 978 organic producers, they'd generate \$83.1 million in farm gate sales. Let's assume that the domestic/export production ratio shifts somewhat to 60% domestic / 40% export over this period. This would mean \$49.9 million would be allocated to domestic markets. After multiplying by 3.23, the domestic contribution would be \$161.2 million. If we conservatively assume a 15% growth rate in organic retail sales over the first 10 years of the programme, and 10% in the last 5 years, then the organic market would amount to 533 million after 5 years, so Ontario producers would be providing about 30% of the total. After 15 years, we'd anticipate approximately 5343 organic operations, for farm gate receipts of \$454 million. \$273 million goes for the domestic market (up from \$12.3 million, or roughly a 20 fold increase). Multiplying by the traditional ratio of 3.23 would translate to \$0.88 billion in organic retail sales from Ontario producers. This is feasible, if we project that some significant percentage of organic exports are progressively diverted to the domestic market and that many new organic farms focus on Ontario markets. Using the market growth rates described above,

it then becomes a \$1.73 billion organic market by the end of year 15. So Ontario's share of retail sales would shift from 15% to 51% over this period.

5. Calculating the organic percentage of the total retail market after 5 and 15 years - Assuming growth rates in the overall food market at 1.5%¹¹³, then the entire food market would equal \$28.6 billion after 5 years and \$32.6 billion after 15 years. Organic would represent 1.9% of the total retail market after 5 years 5.3% of the total market after 15 years.

Endnotes

¹ **Error! Main Document Only.** MacRae, R. et al. 2002. **A National Strategic Plan for the Organic Food and Farming Sector.** Report to Agriculture and Agrifood Canada. Organic Agriculture Centre of Canada, Truro, NS. [http:// www.oacc.info/reportfinal.pdf](http://www.oacc.info/reportfinal.pdf)

² In the 1996-2001 period, 50,000 new farms entered (<http://www.statcan.ca/Daily/English/020515/d020515a.htm>). In an average year, then, 10,000 new farms are created. If we assume they are evenly distributed according to farm population ratios, then 24% of those enter in Ontario, meaning 2400 new farms annually. In conventional production there is a significant loss of farms which we would anticipate would be lower in organic farming. If we assume that in the first phase of the plan, 1% of new entrants are organic, then 120 new entrants would be the Phase I target. In Phase II, with a fuller suite of supports in place, we would anticipate a doubling of new entrants to organic or 48 farms / year. This would total 480 farms over 10 years, for a 15 year total of 600.

³ See Bendavid – Val, A. 1991. **Regional and Local Economic Analysis for Practitioners**, 4th edition. Praeger, New York.

⁴ We only account for this in one programme element, the transitions payment programme.

⁵ Macey, A. 2004. **“Certified Organic”: the state of the Canadian organic market in 2003.** Report to AAFC, Ottawa. Sept. 2004.

⁶ McRae, T.A. et al. (eds.). 2000. **Environmental Sustainability of Canadian Agriculture: report of the agri-environmental indicator project.** AAFC, Ottawa.

⁷ Sauer, J. R., J. E. Hines, G. Gough, I. Thomas, and B. G. Peterjohn. 1997. **The North American Breeding Bird Survey Results and Analysis. Version 96.4.** Patuxent Wildlife Research Center, Laurel, MD

⁸ McRae, T. et al. (eds.) 2000. **Environmental Sustainability in Canadian Agriculture: report of the agri-environmental indicator project.** AAFC, Ottawa.

⁹ Pretty, J. et al., 2000. An assessment of the total external costs of UK agriculture. **Agricultural Systems** 65:113-136; Tegtmeier, E.M. and Duffy, M.D. 2004. External costs of agricultural production in the United States. **International Journal of Agricultural Sustainability**.2:1-20.

¹⁰ Assumes \$Canadian = \$0.85 US. No inflationary correction for the difference in 2002 US and 2006 Canadian dollars. Estimates compiled by : Tegtmeier, E.M. and Duffy, M. 2004. External costs of agricultural production in the US. **International Journal of Sustainable Agriculture** 2(1):1-20.

¹¹ A national indicator is currently under development. See Cessna, A. et al. 2005. Pesticides. In: Lefebvre, A., W. Eilers, et B. Chunn (eds.), 2005. **Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #2.** Agriculture and Agri-Food Canada, Ottawa. Pp. 136-137.

¹² Based on 2001 Census of Agriculture data for Ontario cropland.

¹³ Conway, G.R. 1985. Agroecosystem analysis. **Agricultural Administration** 20:31-55.

14 Commoner, B. 1970. The ecological facts of life. In: H.D. Johnson (ed.). **No Deposit No Return: man and his environment: a view toward survival**. Addison-Wesley, Don Mills, ON. Pp. 18-35.

15 Hendrix, P.F. 1987. Strategies for research and management in reduced-input agroecosystems. **American J. of Alternative Agriculture** 2:166-172.

16 Altieri, M.A. 1987. **Agroecology: the scientific basis of alternative agriculture**. 2nd edition. Westview Press, Boulder, CO.

17 MacRae, R.J. et al. 1990. Farm-scale agronomic and economic transition to sustainable agriculture. **Advances in Agronomy** 43:155-198.

¹⁸ MacRae, R. et al. 2004. **How Governments in Other Jurisdictions Successfully Support the Development of Organic Food and Farming**. Report funded by the Canadian Agriculture and Rural Develop (CARD) Program of Agriculture and AgriFood Canada. Organic Agriculture Centre of Canada, Truro, NS.

19 It is worth noting that such an approach may actually favour conventional over organic farming systems. Organic farming is generally more demanding of ecological knowledge and management skills. Consequently, within the spectrum of organic farming, although as wide as conventional, there is likely a different dispersal of management skills than in conventional farming. It is unlikely that badly managed organic systems generate the same levels of problems as badly managed conventional farms due to scale and structure.

²⁰ Tegtmeier, E.M. and Duffy, M.D. 2004. External costs of agricultural production in the United States. **International Journal of Agricultural Sustainability**.2:1-20.

²¹ Assumptions: 1) that organic adoption is sufficiently widespread to have an impact in an area; 2) that the comparison is between well run organic and conventional operations; 3) that the averages are blended across a variety of production systems; 4) that when speculation is required, we speculate on the conservative side.

²² Assumes \$1 Cdn = \$0.85 US

²³ For details on calculations and assumptions, go to http://www.oacc.info/Docs/OntarioOrgStrategy/TargetOOS_Statistics_sheet1_june26-06.pdf:

²⁴ Farmers reporting pasture and hay are reported together

²⁵ Farmers reporting spring and winter wheat are reported together

²⁶ Farmers reporting grain and silage corn are reported together

²⁷ Since most farms report multiple crops, we divide the total of farmers reporting for each crop by 3. This is higher than the Statistics Canada 2001 Census which reports a 2.5 ratio, but since farmers diversify in organic production relative to conventional, we divide by 3.

²⁸ Farms reporting animals are not added to the crop total since it is assumed that all farms reporting animals would also report crops. The ratio of farms reporting animals to crops is slightly higher than the 2001 Census of Agriculture, but this is sensible given that organic producers tend to report livestock to higher degrees.

²⁹ Macey, A. 2004. **“Certified Organic”: the state of the Canadian organic market in 2003**. Report to AAFC, Ottawa. Sept. 2004.

³⁰ E-Conomics Consulting and Jayeff Partners. Undated. Work Force Ahead: a labour study of Ontario's food processing industry. Report for the Alliance of Ontario Food Processors.
<http://www.aofp.ca/Workforce%20Ahead%20Full%20Report%202005-04%20.pdf>

³¹ E-Conomics Consulting and Jayeff Partners. Undated. Work Force Ahead: a labour study of Ontario's food processing industry. Report for the Alliance of Ontario Food Processors.
<http://www.aofp.ca/Workforce%20Ahead%20Full%20Report%202005-04%20.pdf>

³² According to OMAFRA's categorization, small firms have less than \$10 million in annual sales while medium ones have up to \$200 million

³³ WCM Consulting. 2004. Eastern Ontario Food-processing Sector Competitiveness Study. Report to the Ontario East Economic Development Commission.
http://www.brockville.com/UploadedFiles/linktofile_377.pdf

³⁴ Based on recommendations from the Organic Research Advisory Committee, 2005.

³⁵ In the 1996-2001 period, 50,000 new farms entered (<http://www.statcan.ca/Daily/English/020515/d020515a.htm>). In an average year, then, 10,000 new farms are created. If we assume they are evenly distributed according to provincial farm ratios, then 24% of those enter in Ontario, meaning 2400 new farms annually. If we assume annually that 1% of those new entrants are organic, then we have 120 new farm entrants. In Phase II, with a fuller suite of supports in place, we would anticipate a doubling of new entrants to organic or 48 farms / year. This would total 480 farms over 10 years, for a 15 year total of 600.

³⁶ See, for example, the programme offered by Everdale Environmental Learning Centre.
http://www.everdale.org/farm_apprentice.html.

³⁷ The CRAFT network includes 7 farms and 25-30 apprentices annually. CRAFT East was recently launched and there have been discussions about a Northern Network (possibly in collaboration with FEDNOR).

³⁸ Similar to the Intervale programme in Burlington, VT <http://www.intervale.org/FarmsProgram.htm>

³⁹ Several people at the University of Guelph are working on this proposal. Contact:
Alexandra.english@elf.mcgill.ca

⁴⁰ <http://www.aic.ca>

⁴¹ Note that there is some question about whether CAISP will survive in its current form.

⁴² <http://www.saskcropinsurance.com/pdf/2005/2005OrganicGuide.pdf>

⁴³ Agricorps. 2005. Annual Report, 2004-05.

⁴⁴ Rance, L. 2005. Dairy farmers offer a hand up to new entrants. *Farmers Independently Weekly*. 01/12/05

⁴⁵ Adapted from a joint NFU, CFFO and EFAO proposal to the Chicken Farmers of Ontario, March 23, 2006.

⁴⁶ Pratt, S. 2006. Redirect check-off to organics? **Western Producer** 2006-01-19

⁴⁷ Note that the Ontario Farm Fresh Marketing Organization provides some related services.

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- ⁴⁸ A current example is Local Flavours in Brockville,
http://www.healthycommunities.on.ca/community_stories/east/local_flavours.htm
- ⁴⁹ http://www.ocap.ca/files/ODSP_Special_Diet_Form.pdf
- ⁵⁰ Note that a 155% increase in certified organic processors and handlers reporting from 2003-04 in Ontario is likely due to underreporting of processors in 2003.
- ⁵¹ Macey , A. 2004. **“Certified Organic”**: the state of the Canadian organic market in 2003. Report to AAFC, Ottawa. Sept. 2004
- ⁵² For an overview of processor challenges see MacRae, R. et al. 2002. **A National Strategic Plan for the Organic Food and Farming Sector**. Report to Agriculture and Agrifood Canada. Organic Agriculture Centre of Canada, Truro, NS.
- ⁵³ For more on these models, see: Flexible marketing/manufacturing network
http://www.ssfpa.net/documents/pdf/flex_network.pdf;
Error! Main Document Only.Local Solutions, with the Toronto Food Policy Council and Bridgit Haworth. 1999. Supporting Green Business Sectors Through Community Economic Development. **Report to the City of Toronto Environmental Task Force, Green Economy Workgroup**. Part III. Local Solutions, Toronto. p. 12-14 <http://www.city.toronto.on.ca/council/oct215.pdf>
- ⁵⁴ For ideas on financing processors, see:
http://www.ssfpa.net/documents/pdf/sound_bites/vol2_issue10_access_fin.pdf; FCC ventures
http://www.fcc-fac.ca/en/aboutus/profile/fcc_ventures_e.asp; Labour-sponsored venture capital funds; Credit union venture capital (e.g., VanCity)
- ⁵⁵ See for example, Marketing Coops Loans Act http://www.agr.gc.ca/progser/fimcl_e.phtml; Cooperative Development Institute http://www.agr.gc.ca/progser/cdi_e.phtml; Cooperative Secretariat grants http://www.agr.gc.ca/policy/coop/projects_e.phtml
- ⁵⁶ Analysis provided by Russ Christianson, organic coop developer
- ⁵⁷ http://www.ontario.coop/pages/index.php?main_id=179
- ⁵⁸ Garforth, C, et al. 2003. Fragmentation or creative diversity? Options in the provision of land management advisory services. **Land Use Policy**, 20:323-333.
- ⁵⁹ **Error! Main Document Only.**Organic Centre Wales. 2001. **A review of the Organic Conversion Information Service in Wales (1996-2001)**. University of Aberystwyth, Wales.
- ⁶⁰ Note that annually, many of these would be repeat requests.
- ⁶¹ Although many farmers take longer than 3 years to convert, this is usually the minimum required by certification agencies.
- ⁶² **Error! Main Document Only.**World Wildlife Fund Canada. 2000. **Making Pesticide Reduction a Reality in Canada: funding programs to advance biointensive IPM and organic farming**. World Wildlife Fund Canada, Toronto.
- ⁶³ Fernandez-Cornejo, J. and Castaldo, C. 1998. The diffusion of IPM techniques among fruit growers in the USA. **Journal Production Agriculture** 11: 497-506.
- ⁶⁴ Friesen, B. 2006. Presentation to the Ecological Goods and Services Workshop, Winnipeg, Feb 13-16, 2006.

⁶⁵ For reviews of the economics of organic production, see **Error! Main Document Only**. MacRae, R.J. *et al.* 1990. Farm-scale agronomic and economic conversion to sustainable agriculture. **Advances in Agronomy** 43:155-198; Stanhill, G. 1990. The comparative productivity of organic agriculture. **Agriculture, Ecosystems and Environment** 30:1-26; Lampkin, N.H. and Padel, S. (eds.). 1994. **The Economics of Organic Farming: An international perspective**. CAB International, Wallingford, Oxon, UK.; Pretty, J.M. 1995. **Regenerative Agriculture**. IISD, London; Stockdale, E.A. *et al.* 2001. Agronomic and environmental implications of organic farming systems. **Advances in Agronomy** 70:261-327; Lotter, D.W. 2003. Organic agriculture. **J. Sustainable Agriculture** 21:59-128

⁶⁶ Fertilizer estimates are derived primarily from OMFRA recommendations for medium soil test results. Fertilizer prices are based on the **Ontario Farm Input Monitoring Project Survey # 4 - October 5, 2005** Economics And Business Section, Ridgetown College

⁶⁷ Pesticide savings are derived primarily from McGee, B. *et al.* 2004. **Survey Of Pesticide Use In Ontario, 2003 Estimates of Pesticides Used on Field Crops, Fruit and Vegetable Crops, and Other Agricultural Crops** (<http://www.agcare.org/uploadattachments/pesticide%20survey%202003%20final%20report.pdf>), with corrections for pesticides permitted in organic production such as sulphur and Bt. Pesticide costs are provided on a use weighted basis, using data from the **Ontario Farm Input Monitoring Project Survey # 4 - October 5, 2005** Economics and Business Section, Ridgetown College. Since not all pesticides are listed in that survey, we used the ones available which generally accounted for 80% of the AI applied, except for fruits and vegetables where they accounted for more like 66%.

⁶⁸ Canadian data derived from a US study (Benbrook, C. *et al.*, 2003. **Hogging it: estimates of antimicrobial abuse in livestock**. Union of Concerned Scientists, Washington, DC) where we compared feed regulations in Canada and the US and made adjustments for antibiotics not permitted in Canada, or differences in permitted rates. We assumed US numbers for percent of animals treated, but substituted Ontario numbers of animals as per transition targets.

⁶⁹ See summaries of US studies in **Error! Main Document Only**. MacRae, R. *et al.* 2004. **Does the adoption of organic food and farming systems solve multiple policy problems? A review of the existing literature**. Report funded by the Canadian Agriculture and Rural Develop (CARD) Program of Agriculture and Agrifood Canada. Organic Agriculture Centre of Canada, Truro, NS.

⁷⁰ See Bendavid – Val, A. 1991. **Regional and Local Economic Analysis for Practitioners**, 4th edition. Praeger, New York.

⁷¹ We only account for this in one programme element, the transition risk offset programme.

⁷² Source (unless otherwise indicated): Youssefi, M and Willer, H. (Ed.). 2003. **The World of Organic Agriculture: statistics and future prospects**. SOL and FiBl, Germany and Switzerland. http://www.soel.de/inhalte/publikationen/s/s_74.pdf

⁷³ Jones, D. 2003. Organic agriculture, sustainability and policy. In: OECD (ed.). **Organic Agriculture: sustainability, markets and policies**. CABI Publishing, Wallingford, UK. Pp. 17-30.

⁷⁴ Vetterli, W. *et al.* 2003. Organic farming and biological conservation. In: OECD (ed.). **Organic Agriculture: sustainability, markets and policies**. CABI Publishing, Wallingford, UK. Pp. 65-76.

⁷⁵ Hallam, D. 2003. The organic market in OECD countries: past growth, current status and future potential. In: OECD (ed.). **Organic Agriculture: sustainability, markets and policies**. CABI Publishing, Wallingford, UK. Pp. 179-186.

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⁹⁹ For most field crops, the assumption is that the transition does not start from a forage crop

¹⁰⁰ Assumes that conventional farmer managed pasture without excess fertilization

¹⁰¹ Assumes herd reduction and increased acres to accommodate increased pasture and hay production

¹⁰² Assumes integrated operation, birth to slaughter, no feedlots, major yield declines are associated with reduced weigh gain. [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3458/\\$file/420_830-3.pdf?OpenElement](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3458/$file/420_830-3.pdf?OpenElement)

¹⁰³ Assumes floor operations. <http://www.acornorganic.org/pdf/poultryeggsprofile.pdf>

¹⁰⁴ Most difficult comparison: assumes small independent hog operation with most feed produced on the farm. Assumes that 100 sows/1000 market hogs vs. 100 sows/ 2000 market hogs in conventional operation. Transition focuses on 6.5% of Ontario operators roughly in this size range. Farrow to finish

¹⁰⁵ Assumes most conventional sheep operations are low input, so differences largely due to stocking rates and yield reductions from changes in de-worming agents. Meat only.

¹⁰⁶ Derived primarily from Statistics Canada, 2001 Census of Agriculture data

¹⁰⁷ Derived from OMAFRA data on the apple industry

¹⁰⁸ Sold to livestock operations

¹⁰⁹ Derived from CDC, DFO, UGuelph. 2005. Ontario Farm Dairy Accounting Project (OFDAP): Annual Report 2004. http://www.milk.org/pdf/publications-odfap_report.pdf and Statistics Canada 2001 Census of Agriculture.

¹¹⁰ Derived from **Error! Main Document Only**.Ogini, Y. et al.. 1999. Comparison of organic and conventional dairy farms in Ontario. **American J. Alternative Agriculture** 14:122-134.

¹¹¹ McGee, B. 2004. Selected Ontario Economic Indicators in Current Dollars, 2004. <http://www.omafr.gov.on.ca/english/stats/food/indicators.html>

¹¹² With 487 current organic farmers, the average farm gate receipts would be about \$76000.

¹¹³ http://www.agr.gc.ca/spb/rad-dra/publications/effexp/effexp_e.pdf