



Government  
of Canada

Gouvernement  
du Canada

# **COST-BENEFIT ANALYSIS OF THE EFFECTS OF FEDERAL REGULATION FOR ORGANIC PRODUCTS**

## Final Report

### TDV Global Inc.

Prepared For:

Government of Canada's Organic Production System Task Force

By:

TDV Global Inc.

May 27<sup>th</sup>, 2005

Disclaimer: The Government of Canada funded the production of this report but takes no responsibility for the accuracy of the data presented. The analysis, interpretation, recommendations and conclusions are those of the author and do not represent the policies, programs or activities of the Government of Canada.

**Canada** 

## Table of Contents

Section	Page
<b>EXECUTIVE SUMMARY</b> .....	<b>VI</b>
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
1.1 Purpose of This Benefit/Cost Analysis .....	1
1.1.1 Consumer Protection .....	1
1.1.2 Export Market Access .....	2
1.1.3 Environmental Issues .....	2
1.1.4 Agricultural Sustainability .....	2
1.1.5 Equity in Trading Environments .....	2
1.1.6 Consumer Confusion and Potential for Fraud .....	2
1.2 Purpose and Scope of the Social Benefit/Cost Analysis .....	2
1.2.1 Scope of Study .....	2
1.3 Options For Regulation .....	3
1.3.1 Option 1: Status Quo .....	3
1.3.2 Option 2: Federal Regulations with 3rd Party Delivery .....	3
1.3.3 Option 3: Federal Regulations Fully Delivered by the Government of Canada .....	3
<b>2.0 STRUCTURE OF THE ORGANIC FOOD PRODUCTS SECTOR IN CANADA</b> .....	<b>4</b>
2.1 Growers and Producers .....	4
2.1.1 Canada .....	4
2.1.2 The Provinces .....	8
2.1.3 The Potential For Increased Production .....	9
2.2 Processors .....	11
2.3 International Trade .....	11
2.3.1 Exporters .....	11
2.3.2 Importers .....	11
2.4 Domestic Trade .....	12
2.4.1 Wholesale .....	12
2.4.2 Retail .....	12
2.4.3 Processing, Transportation and Distribution, Wholesale and Retail Margins .....	15
2.4.4 The Consumer .....	15
2.4.5 European and North American Trade .....	18
2.5 Accreditation Agencies .....	18
2.6 Certification Bodies .....	19
2.7 Targets and Challenges .....	20
2.8 Trans Border Conditions and Issues .....	20
2.8.1 Standards and Regulations by Region .....	20
2.9 Projection of the Status Quo .....	21
2.9.1 Exporters .....	21
2.9.2 Importers .....	23
2.9.3 Domestic Trade .....	23
<b>3.0 STATEMENT OF NEED FOR REGULATORY CHANGE</b> .....	<b>25</b>
3.1 Current Situation .....	25
3.2 Problem Definition .....	26

<b>Section</b>	<b>Page</b>
3.2.1 Trade in Organic Products	26
3.2.2 Domestic Market for Organics	26
3.2.3 Consumers	27
3.2.4 Environmental Issues	27
3.3 Need for Federal Action .....	28
3.3.1 Fair and Efficient Marketplace for Industry	28
3.3.2 Fair and Efficient Marketplace for Consumers	28
3.3.3 Trade	28
<b>4.0 REGULATORY OPTIONS .....</b>	<b>29</b>
4.1 Option 1: Status Quo .....	29
4.1.1 Implementation Program	29
4.2 Option 2: Third-Party Delivery .....	29
4.2.1 Implementation Program	29
4.2.2 Public Sector Implementation Costs	30
4.3 Option 3: Full Delivery by the Government of Canada .....	31
4.3.1 Implementation Program	31
4.3.2 Public Sector Implementation Costs	31
<b>5.0 MARKET EFFECTS ASSOCIATED WITH THE REGULATION OPTIONS .....</b>	<b>32</b>
5.1 Growers and Producers .....	32
5.2 Processors .....	33
5.3 International Trade .....	33
5.3.1 Exporters	33
5.3.2 Importers	36
5.4 Domestic Trade .....	36
5.4.1 Wholesale	36
5.4.2 Retailers and Consumers	36
5.5 Accreditation Agencies .....	38
5.6 Certification Bodies .....	38
5.6.1 Option 1: Status Quo	38
5.6.2 Option 2	38
5.6.3 Option 3	39
<b>6.0 NON-MARKET EFFECTS ASSOCIATED WITH THE REGULATION OPTIONS .....</b>	<b>40</b>
6.1 Chemical and Pesticide Production .....	40
6.2 Erosion and Water Pollution Mitigation .....	41
6.3 Greenhouse Gases Emission Reduction .....	41
6.4 Biodiversity Maintenance and Improvements .....	41
6.5 Environmental Services .....	42
6.5.1 Payment for environmental services	42
<b>7.0 BENEFIT/COST ANALYSIS .....</b>	<b>45</b>
7.1 Option 1: The Status Quo .....	46
7.1.1 Growers and Producers	48
7.1.2 Processors	48
7.1.3 Wholesale Services	48

<b>Section</b>	<b>Page</b>
7.1.4 Export / Buying Services	48
7.1.5 Import Services	48
7.1.6 Retail	48
7.1.7 Accreditation Agencies	49
7.1.8 Certification Bodies	49
7.1.9 Society/Consumers	49
7.1.10 Governments	49
7.2 Option 2: Third-Party Delivery .....	50
7.2.1 Growers and Producers	52
7.2.2 Processors	52
7.2.3 Wholesale Services	53
7.2.4 Export / Buying Services	53
7.2.5 Import Services	53
7.2.6 Retail	53
7.2.7 Accreditation Agencies	54
7.2.8 Certification Bodies	54
7.2.9 Society/Consumers	54
7.2.10 Governments	54
7.3 Option 3: Delivery By The Government Of Canada.....	55
7.3.1 Option 3 vs Option 2	55
<b>8.0 SENSITIVITY ANALYSES .....</b>	<b>57</b>
8.1 Option 1 Sensitivity Tests .....	57
8.1.1 Change in the Social Discount Rate	57
8.2 Option 2 Sensitivity Tests .....	57
8.2.1 Change in the Increase in Demand Above Trend and Social Discount Rate	57
8.2.2 Change in the Value of Environmental Services	58
8.3 Option 3 Sensitivity Tests .....	58
8.3.1 Change in the Increase in Demand Above Trend and Social Discount Rate	58
8.3.2 Change in the Value of Environmental Services	58
<b>9.0 EQUITY IMPACT ANALYSIS .....</b>	<b>59</b>
9.1 Option 1, Status Quo .....	59
9.2 Option 2, Third-Party Delivery .....	59
9.3 Option 3, Full Government Delivery .....	60
<b>10.0 CONCLUSION .....</b>	<b>61</b>
<b>APPENDIX 1: ACCREDITATION AGENCIES AND CERTIFICATION BODIES WORKING IN CANADA.....</b>	<b>62</b>
<b>APPENDIX 2: ORGANIC TASK FORCE MEMBERS AND LIST OF INTERVIEWEES.....</b>	<b>63</b>
<b>APPENDIX 3: BIBLIOGRAPHY AND REFERENCES.....</b>	<b>65</b>

## List of Acronyms and Abbreviations

AAFC	Agriculture And Agri-Food Canada
BSE	Bovine Spongiform Encephalopathy
CAAQ	Conseil des appellations agroalimentaires du Quebec
CB	Certification Body
CFIA	Canadian Food Inspection Agency
CGSB	Canadian General Standards Board
CIF	Cost, Insurance, and Freight
COABC	Certified Organic Council of British Columbia
EC	European Commission
ECU	European Currency Unit
EU	European Union
ha	Hectare
IFOAM	International Federation of Organic Agricultural Movement
IOAS	International Organic Accreditation Service
ITCan	International Trade Canada
K	Thousands
NOP	National Organic Program (of the United States Department of Agriculture)
NPV	Net Present Value
OCIA	Organic Crop Improvement Association
OCPRO	Organic Crop Producers and Processors
PSL	Permitted Substances List
SCC	Standards Council of Canada
SLI	Supplementary Labour Income
USD	United States Dollars
USDA	United States Department of Agriculture

## EXECUTIVE SUMMARY

### The Organic Food Sector in Canada

In terms of the global food industry, the organic food market is considered by industry analysts as the most dynamic and rapidly growing sector. Canada has made modest gains in this area in the last two decades but in recent years has seen a dramatic growth of the market spurred by increased consumption. Canadian consumers are turning to these products for a variety of reasons, including dealing with allergies, the raising of young children and a renewed interest in healthy lifestyle choices.

Organic foods are considered to be products which do not employ pesticides or synthetic fertilizers, hormones and antibiotics, and do not involve technologies such as genetic engineering or radiation.

From a statistical point of view, the current state of the organic food sector in Canada is as follows:

- In 2003 Canadian organic retail trade stood at about \$986.0 million, or about 1.6% of total Canadian food purchases (\$1,721.4 million, estimated for 2005). About 25.1% of domestic final demand is supplied by domestic production.
- Domestic consumption, at final demand prices, is estimated to grow by about 20.6% per year, 2006 – 2015.
- Exports in 2003 stood at about \$63.1 million (CIF) was exported (\$71.9 million (CIF) estimated for 2005).
- From 1992 – 2001 the number of organic farms grew 13.7% per year. During 2001 – 2003, growth slowed to 1.3% per year. In 2003, the total number of certified producers was 3,317. They account for 1.3% of all farms in Canada. There were also 248 farms in transition to organic production.
- In 2003 sales at farm gate prices were about \$200.12 million ( \$350.9 million, estimated for 2005)

### Organic Food Products Standards

Organic food production in Canada is currently self-regulated by voluntary national standards, published by the Standards Council of Canada (SCC). The voluntary standards set the minimum criteria for organic:

- agricultural practices;
- food products manufacturing;
- management practices; and
- labelling claims.

Notwithstanding self-regulation, organic food is subject to the same food inspection policies and standards as food produced by the conventional agricultural system.

The primary need for mandatory regulation relates to trade maintenance and growth. This is the case because:

- Canada has been informed that its organic food products will lose access to the European Union market unless Canada has a national regulatory system acceptable to the EU by the end of 2005. There are insufficient export markets to absorb organic production that would be diverted from the European Union without significant price reductions.
- Export markets are not reaching their full potential. The variety of certification requirements combined with voluntary standards limit trade growth. National regulations with the federal government as the competent body would improve the ability of Canada to market its organic products in foreign markets.

The lack of consistent regulations across Canada also has an impact on domestic market maintenance and growth. The current organic regulatory system, characterized by a large number of accreditation agencies and

organic logos, leads to confusion of the customer and the risk of fraud. A lack of mandatory national standards with respect to inter-provincial trade and imports creates the potential for an unfair trading environment.

## Options for Regulation

This social benefit/cost analysis examines the net economic effects of three regulatory options:

- **Option 1: Status Quo:** In the status quo situation Organic food producers continue to self-regulate via a network of independent certification bodies. The voluntary Canadian standard (Canadian National Organic Standard) is maintained by the Canadian General Standards Board.
- **Option 2: Mandatory Regulation and Certification, Third Party Delivery:** A “Canada Organic” mark would be adopted. The organic designation would be protected by a regulatory process delivered via a form of alternate service delivery:
  - The Federal Government is the “competent body.”
  - Accreditation organizations would be approved by the competent body.
  - The bodies of that certify organic producers would be accredited by accreditation organizations approved by the competent body.
  - Imports would be subject to same certification standards.

**Note:** In Option 2 we assume that reciprocity agreements would be immediately (i.e., 2006) negotiated with the European Union and the United States.

- **Option 3: Mandatory Regulation and Certification, Federal Government Delivery:** Option 3 is identical to Option 2 but delivered solely by federal government. In the process of implementing this option all existing accreditation agencies and certification bodies would be phased out and replaced by operations of the federal government.

## Results

### Social Benefit/Cost Analysis

- **Option 1: Status Quo:** The Net Present Value is about -\$490.2 million (2005\$) and the benefit/cost ratio is 0.53.
- **Option 2: Mandatory Regulation and Certification, Third Party Delivery:** The Net Present Value (2005\$) is about \$767.3 million and the benefit/cost ratio is 1.25.

**Note:** Option 2 assumes Canada achieves third country status in the European Union (i.e., maintains market access) and negotiates a reciprocity agreement with the United States. It also maintains its markets in other export destinations. It also assumes that the domestic market expands due to confidence in the “Canada Organic” mark

- **Option 3: Mandatory Regulation and Certification, Federal Government Delivery:** The results for Option 3 are slightly less favourable than those for Option 2. This occurs due to cost increases associated with transition to and implementation by the federal government. These costs outweigh the savings incurred due to the phasing out of third-party accreditation agencies and certification bodies.

### Equity Impact Analysis

- **Option 1: Status Quo:** In Option 1 we find the following net present values for each of the major referent groups:
  - growers and producers, -\$752.3 million;
  - processors, \$4.1 million;
  - wholesale services, \$2.7 million;

- exporters, -\$28.3 million;
- import services, nil;
- retail, \$6.9 million;
- accreditation agencies, -\$0.1 million;
- certification bodies, -\$12.0 million;
- society / consumer, \$288.7 million.

The bulk of the negative impact of the status quo falls on the growers and producers and exporters. The losses stem from the closure of the European Union market and reduced revenue as the producers and exporters sell, what is now an oversupply in Canada of organic products, into other markets. Canadian consumers benefit from the loss of the European Union market because oversupply drives prices down 37.6%. As the overall net present value is strongly negative, the government treasuries would be worse off in the status quo situation.

- **Option 2: Mandatory Regulation and Certification, Third Party Delivery:** Option 2 shows the following net present values for each major referent group:
  - growers and producers, \$112.5 million;
  - processors, \$11.3 million;
  - wholesale services, \$7.1 million;
  - exporters, \$8.2 million;
  - import services, \$155.8 million;
  - retail, \$284.8 million;
  - accreditation agencies, \$0.001 million;
  - certification bodies, \$0.1 million; and
  - society / consumers, \$214.8 million.

The overall net present value for the Canadian economy in Option 2 is \$767.3 million and therefore the net benefit to governments is a likely positive.

- **Option 3: Mandatory Regulation and Certification, Federal Government Delivery:** The equity implications for Option 3 from a broad economy perspective are virtually identical to those of Option 2. The major equity implication associated with this option is the replacement of accreditation agencies and certification bodies by federal government operations. About 22 full-time equivalent jobs with accreditation agencies and certification bodies will be eliminated along with 64 contract inspectors in favour of services delivered by the federal government.

## Conclusion

The net values of Options 2 and 3 are properly judged as the difference between them and the status quo. Taking this as the appropriate comparison point the net value of Options 2 and 3 become readily apparent. As the **Table below** shows, the Canadian economy will be better off, relative to the status quo, by about \$1,257 million (2005\$) should Option 2 be implemented. The net improvement to the economy would be only slightly smaller with Option 3, which shows a net benefit of relative to the status quo of \$1,244 million (2005\$).

<b>Net Present Value of Organic Food Regulation to the Canadian Economy, Relative to the Status Quo (\$ millions, 2005\$)</b>			
	<b>Discount Rate</b>		
<b>Regulation Option:</b>	4.5%	6.8%	9.1%
<b>Option 2: Third Party Delivery</b>	\$2,039	\$1,257	\$880
<b>Option 3: Federal Government Delivery</b>	\$2,018	\$1,244	\$871
Source: TDV Global Inc.			

We conclude that Canada should, as quickly as possible, implement a new regulatory process to protect and guarantee the use of the word organic on Canadian and imported organic food products, as:

- The differences between the Net Present Value of Options 2 and 3 relative to the status quo are large and positive.
- The benefit/cost ratios of Options 2 and 3 are greater than one and the benefit/cost ratio of the Status Quo is less than one.

Option 2, involving delivery by a third party, is marginally preferable from an economic net present value perspective to Option 3, which specifies delivery by the federal government. In addition, third party accreditation agencies and certification bodies should be able to provide equitable and competitively priced services. There does not appear to be a compelling reason for federal government delivery of accreditation or certification services that would justify even this small reduction in efficiency.

We would like to acknowledge the contributions of all stakeholders involved in this project, with particular appreciation for Ralph C. Martin, Ph.D., P.Ag. and Derek Lynch, Ph.D., M.Sc., P.Ag. of the Organic Agriculture Centre of Canada, and Rod MacRae, Ph.D.

## 1.0 INTRODUCTION

The Government of Canada (Agriculture and Agri-Food Canada and the Canadian Food Inspection Agency) has been working with the organic industry to assess options for regulated and non-regulated organic programs. The options range from voluntary organic standards to mandatory organic regulations.

Analysis of the costs and benefits associated with regulatory options is required to help determine an effective and economically efficient approach for regulating this industry.

This study:

- examines options for service delivery;
- estimates and compares the costs and benefits of the options; and
- discusses who would pay the costs and who will receive benefits under the different scenarios.

### 1.1 PURPOSE OF THIS BENEFIT/COST ANALYSIS

The Government of Canada Regulatory Policy requires that regulations result in the greatest net benefit to Canadian society. The Canadian Food Inspection Agency has officially adopted this policy. This policy also requires that when regulations are developed:

1. Canadians are consulted;
2. There must be a demonstrable problem or risk;
3. Federal government intervention must be justified;
4. Regulation must be proven as the best method for federal government intervention;
5. Benefits must outweigh the costs to Canadians, their governments and businesses;
6. Adverse impacts on the economy must be minimized;
7. No unnecessary regulatory burden can be imposed;
8. International and intergovernmental agreements must be respected;
9. Full advantage must be taken of opportunities for coordination with other governments and agencies;
10. Compliance and enforcement policies must be clearly stated;
11. Appropriate resources must be approved and shown to be adequate for enforcement to ensure compliance; and
12. Other directives from Cabinet concerning policy and lawmaking must be followed.

This study addresses requirements 2 to 9, inclusive.

To achieve its purpose the benefit/cost analysis investigates issues and problems related to:

- consumer protection;
- export market access;
- environmental issues;
- agricultural sustainability;
- equity in domestic and international trading environments;
- potential for consumer confusion and fraud, and others.

#### 1.1.1 CONSUMER PROTECTION

There is no federal legal requirement that any organic claim meets the National Standard for Organic Agriculture or be certified by an accredited organization.

Concerns for consumer protection and consistency of information stem from the following conditions:

- There are many certification bodies (~31) operating in Canada<sup>1</sup>, which operate under a diverse set of standards and criteria for certification and labelling; and

---

<sup>1</sup> The Organic Crop Improvement Association International (OCIA) has 18 chapters in Canada. For the purposes of this study the OCIA is treated as one certification body.

- Products may be labelled as organic with limited federal government oversight or minimum requirements.

### **1.1.2 EXPORT MARKET ACCESS**

The National Standard of Canada for Organic Agriculture was published in 1999. It is currently a voluntary standard. The Canadian Organic Industry is concerned that voluntary standards cannot be enforced and there is a lack of consistency in the production and labelling of Canadian organic products.

Moreover, a voluntary standard may not be acceptable to the USA, who recently implemented mandatory organic standards, and will not be acceptable to the European Union after December 31, 2005. Voluntary standards may or may not be acceptable to other trading partners, such as China and Japan.

### **1.1.3 ENVIRONMENTAL ISSUES**

The organic sector believes that the practices associated with producing organic products have far-reaching environmental benefits that accrue to Canadian society at large. This study reviews the latest literature regarding the environmental impacts of organic agriculture and includes those for which there is solid evidence in the social benefit/cost analysis.

### **1.1.4 AGRICULTURAL SUSTAINABILITY**

The study discusses the effect regulation will have on the sustainability of organic agricultural production.

### **1.1.5 EQUITY IN TRADING ENVIRONMENTS**

The lack of controls over imported organic products, which creates potential for an unfair trading environment as some countries have clear requirements while others do not.

Domestically the variety of Accreditation Agencies, CBs and symbols leaves the potential for inconsistency in the Canadian organic regime and hence the potential for unfair inter-provincial trade.

### **1.1.6 CONSUMER CONFUSION AND POTENTIAL FOR FRAUD**

Consumers are at risk of fraud under the current system and are confused by the multitude of organizations and organic logos. A loss of consumer confidence in the system could result in organic market failure.

## **1.2 PURPOSE AND SCOPE OF THE SOCIAL BENEFIT/COST ANALYSIS**

The purpose of this study is to conduct a quantitative analysis of the social and economic costs and benefits of regulatory policy options.

### **1.2.1 SCOPE OF STUDY**

This analysis considers the overall economic relationship of the organic food products sector to the Canadian economy. In doing so, it examines economic impacts and the full range of social and economic effects on Canadian society from these regulations. The effects include the costs and benefits to the industry, sectors of the economy that support the organic industry (distributors, retailers, exporters and so on), consumers, the Canadian public at large and government.

Potential regional differences are examined and, to the extent that they are significant to the decision to change regulatory approaches, are measured.

The study addresses special circumstances faced by small organic producers and processors.

Finally, the social benefit/cost analysis, through analysis of the distribution of benefits and costs to different referent groups in the Canadian economy, explores options for recovery of public sector costs associated with a change in regulatory activities.

The study assumes that there will be a harmonization across Canada with existing regulations in Quebec and British Columbia as well as with trading partner regulations such as the US and EU. The status quo scenario measures the impact of a failure to harmonize regulations.

### **1.3 OPTIONS FOR REGULATION**

This benefit/cost study considers three main options for organic food regulations. There are summarised below and discussed in detail in Section 4.0 Regulatory Options.

#### **1.3.1 OPTION 1: STATUS QUO**

The current system is used as a benchmark to compare the impacts of changes to the regulatory process.

#### **1.3.2 OPTION 2: FEDERAL REGULATIONS WITH 3RD PARTY DELIVERY**

This option results in legal protection of the word "organic." Only those certified by certifying bodies that have been accredited by accreditation agencies audited by the CFIA will have the legal right to call their products organic. The CFIA would be responsible for enforcement. A national organic mark would be adopted.

#### **1.3.3 OPTION 3: FEDERAL REGULATIONS FULLY DELIVERED BY THE GOVERNMENT OF CANADA**

This option results in legal protection of the word "organic." Only those certified by the Government of Canada will have the legal right to call their products organic. No accreditation agencies or certification bodies outside of the Government of Canada would be involved. The CFIA would be responsible for enforcement. A national organic mark would be adopted.

## 2.0 STRUCTURE OF THE ORGANIC FOOD PRODUCTS SECTOR IN CANADA

This section outlines the structure of the organics food products sector from production to final demand in Canada and its regions. The purpose of this baseline description is to establish the current structure and operation of the sector to be used as a benchmark to judge changes caused by the implementation of the proposed regulatory options.

We use the baseline as a guide to specifying the structure, scope and depth of the economic benefit/cost model that can be effectively used in the context of the organic food products sector. The measurements taken against the baseline describe the relative positive, negative and net economic effects of alternative regulation regimes.

In this section, we discuss growers and producers, processors, international trade, domestic trade, Accreditation Agencies, and Certification Bodies. In addition, we discuss some of the targets and challenges of the industry and trans-border conditions and issues. Finally, this section outlines a projection of the status quo in terms of domestic trade, imports and exports; assuming Canada maintains its market share and growth rates.

### 2.1 GROWERS AND PRODUCERS

#### 2.1.1 CANADA<sup>2</sup>

The sector is made up of a wide variety of producers ranging from small vegetable and fruit producers to medium sized dairy and crop producers in Québec and Ontario, to specialized maple syrup producers in Québec to large grain farms on the Prairies. Further details are provided below.

**Farms, Acreage and Products Produced:** From 1992 – 2001 the number of organic farms grew 13.7% per year. During 2001 – 2003, growth slowed to 1.3% per year.<sup>3</sup> In 2003, the total number of certified producers was 3,317. They account for 1.3% of all farms in Canada. There were 248 farms in transition to organic production. The **table below** describes the number of certified organic farms in Canada, their geographic distribution and size distribution.

---

<sup>2</sup> The summary description for Canada was based on data drawn from:

- "Certified Organic: the Status of the Canadian Organic Market in 2003," Macy, Anne, September 2004;
- "Organic Market Research and Action Plan," Atlantic Canadian Organic Regional Network, January 2003; and
- "The World of Organic Agriculture: Statistics and Emerging Trends 2004," Willer, Helga and Yussefi, Minou, Eds., International Federation of Organic Agriculture Movements, 2004.

<sup>3</sup> "Certified Organic: The Status of the Canadian Organic Market 2003," Macy, Anne, Agriculture and Agri-Food Canada, September 2004.

Number of Certified Organic Farms - 2003						
Province	Certified					In Transition
	< \$10 K Gross Sales	? \$10 K ? \$50 K Gross Sales	> \$50 K Gross Sales	Unknown	Total	
British Columbia	212	120	86	2	420	76
Alberta	43	41	38	123	245	6
Saskatchewan	138	212	609	90	1,049	25
Manitoba	35	102	47	29	213	25
Ontario		12	62	413	487	41
Québec				793	793	67
New Brunswick	23	8	5		36	2
Prince Edward Island	11	8	4		23	5
Nova Scotia	28	11	6		45	1
Newfoundland	1	1	1		3	
Yukon				3	3	
<b>Total</b>	491	515	858	1,453	3,317	248

Source: op. cit.; Macy, Anne; 2004

The number of producers has recently reached a plateau as some small farms are dropping their certification and focusing on selling to their own local customer base. This reduction may also be due to two other factors:

- Extended drought in the Central Region of Canada; and
- Growth in the number of wholesalers dealing in organic products, leaving some smaller suppliers with the choice of expanding production or selling direct to consumers.

A summary of the partial data available to describe the range of products produced on these farms:

- Wheat, 942 farms;
- Flax, 601 farms;
- Mixed vegetables, 557 farms;
- Beef, 163 farms;
- Dairy, 102 farms;
- Apples, 96 farms;
- Eggs, 89 farms;
- Poultry, 74 farms;
- Sheep, 32 farms;
- Other, 40 farms.<sup>4</sup>

In 2003, in Canada there were about 966,482 acres in organic production, about 295,500 acres in Crown lands and about 13,400 acres in transition to organic production. This acreage is used for the following types of production:

- grains and oilseeds, 43.5%;
- pasture/hay (not including range, Crown Land and First Nations land), 17.6%;
- forage/green manure, 12.6%;
- wild rice, 3.1%;

<sup>4</sup> op. cit. Macy, Anne, 2004.

- vegetables, 0.5%;
- fruit and nuts, 0.3%;
- herbs, 0.1% and
- other, 22.3%.

Canada's organic acreage accounts for about 2.1% of world's organic acreage. In terms of total acreage, Canada ranks 11<sup>th</sup> in the world.

Based on the acreage in production, the average Canadian organic farm covers about 290 acres. This differs substantially from the average in the United States of 11 acres per organic farm.<sup>5</sup> The difference in average size is due primarily to the very large organic grain and cereal farms in Canada. Relative to its population, Canada has five times more organic acreage than the United States, again, owing to the number of large grain and cereal farms within the Canadian organic sector.

Based on the interview findings there is anecdotal evidence that over the last five years, some producers have reduced product lines, becoming more specialized, so that they can provide wholesalers with the volume of product required. However, by becoming more specialized some crop diversity on organic farms may be lost. The move to greater use of wholesalers has taken some producers out of the direct-to-consumer market and left more room for producers to choose whether to specialize in the direct sale marketplace.

The expansion of the role of wholesalers in the organic sector speaks to the growth of organic food consumption in Canada. Processors, wholesalers and retailers want to reduce the number of suppliers and therefore their transaction cost. This favours areas with large producers like California, and in the process Canadian producers and growers are at a disadvantage with respect to imports.

**Farm Gate Revenue:** Reports of farm gate value for 2003 are based on:

- data collected from several secondary sources;
- production per acre relationships generalised from one or several provinces to all provinces; and
- indicators from other countries.

The sources for this information are documented in the *table, below*, which summarizes the estimate of farm gate sales for 2003.

---

<sup>5</sup> "Organic Marketing & Production Seminar," a Saskatchewan Agriculture, Food and Rural Revitalization Seminar; Cooney, Ann (Ag. Econ., University of Saskatchewan); February 13, 2003.

The opinion among the Atlantic Canadian farmers and processors we interviewed is that organic growers and processors can make more money than five years ago.

This was the case because:

- growers and producers are becoming more specialized in terms of product lines;
- it is easier to purchase organic inputs; and
- growers and processors are now getting to the level of production needed to effectively supply wholesalers which in turn sell their products into the mainline retail stores.<sup>6</sup>

The situation reported in Saskatchewan was a bit different. Over the last five years, there has been a consistent increase in production and revenue, but revenue increases have been matched by rising costs. The European Union and Europe in general, are still a bit of a seller's market with respect to organic grains, oilseeds and lentils. Most markets in the EU remain willing to pay about a 30% premium for organic products (e.g., about \$520

versus \$400 per tonne, Cost, Insurance and Freight (CIF) for conventional lentils and peas; about \$1,755 per tonne versus about \$1,350 per tonne, CIF for conventional oats). There were suggestions from those interviewed that Canadian exporters of organic grains, oilseeds and lentils are beginning to see some price resistance in the European Union marketplace. As a countervail to this levelling trend the interviewees noted that buyers are making the market more professional and are therefore gaining entry into larger marketplaces. As a result, there is less of a tendency for producers to do their own marketing.

Similar price premiums were reported in the United States. Following premiums were reported for 2000:

Production Values at Farm Gate Prices, 2003 (\$,000,000 current)			
British Columbia		total	\$ 20.00
Alberta	grain, cereals, seed		\$ 10.53
	other		\$ 2.00
	total		\$ 12.52
Saskatchewan	grain, cereals, seed		\$ 81.67
	rice		\$ 10.33
	other		\$ 0.43
	total		\$ 92.43
Manitoba	grain, cereals, seed		\$ 5.55
	other		\$ 0.80
	total		\$ 6.34
Ontario	grain, cereals, seed		\$ 22.51
	other		\$ 6.08
	total		\$ 28.59
Québec	grain, cereals, seed		\$ 9.35
	maple syrup		\$ 10.25
	milk		\$ 9.35
	other		\$ 5.62
	total		\$ 34.56
Atlantic Canada		total	\$ 5.67
<b>Canada</b>		<b>total</b>	<b>\$ 200.12</b>
"Certified Organic, The Status of the Canadian Organic Market in 2003," Macy, Anne, for Agriculture and Agri-food Canada, Revised September 2004			
"The Economic Effect of Canada Making or Missing the 3rd Country List: The Case of Organic Wheat," Ferguson, Shon; Wesseen, Simon; University of Saskatchewan, January, 2005.			
"Impact of Organic Guarantee Systems on Production and Trade in Organic Products," International Task Force on Harmonization and Equivalence in Organic Agriculture, United Nations Conference on Trade and Development, June 2004.			
"Organic Market Research and Action Plan," Atlantic Canadian Organic Regional Network, January 2003.			
Canadian Natural and Organic Retail Markets. Cunningham, Rosalie, 2002. Alberta Agriculture, Food and Rural Development.			
TDV Global Inc.			

<sup>6</sup> Personal communication with members of the Atlantic Canada Organic Regional Network.

- organic corn, 35%;
- hard red spring wheat, 50%;
- oats, 35%; and
- soybeans, 100%.

Crop yields do not appear to be a major factor in differences between profitability in organic and conventional farming. In North America crop yields range from 20% less to about 5% more than in conventional agriculture. The combination of lower production costs and price premiums results in gross margins per hectare that are as good as or better than those of conventional farming.

The situation with respect to prices, revenue and gross margins is significantly different among European organic farmers. In Europe, gross margins are about the same as in conventional farming. The reasons for this are varied; including the facts that conventional production in Europe is much more intensive than in North America, which leads to agriculture in Europe being a relatively high cost producer. However, in Europe, environmental protection services are much more highly valued than in North America. For example, governments in Europe pay for a range of environmental benefits that farms produce. Because organic farms tend to be more environmentally sensitive they also receive the larger relative share of payments for environmental services. This fact helps make up for the limited difference between organic and conventional farm product prices. These payments can account for up to 31% of farm profits.<sup>7</sup>

Later sections of the study provide details on rates of payment for environmental services and the conditions under which they would be warranted.

### 2.1.2 THE PROVINCES

As with conventional agriculture, there are significant regional differences in the organic sector. As described earlier, data are partial and therefore regional differences cannot be described comprehensively at this time. Regional differences can be summarized as follows:<sup>8</sup>

- **British Columbia:** About 50% are small producers, that is, they have gross farm gate sales less than \$10,000 per year. Recent large increases in acreage have occurred due to the recent transition of a couple of large conventional producers to organic production. About 12% of British Columbia's vegetable acreage and about 5% of its fruit acreage is in organic production.
- **Alberta:** Organic acreage is dominated by forage and pastureland, covering about 110,000 acres, and grains and oilseeds, which account for almost 50,000 acres. Vegetables, herbs, fruit, and nuts are farmed on about 800 acres.
- **Saskatchewan:** Saskatchewan has seen large growth in grain production as organic grain prices have increased. It has about 386,000 acres in grains and oilseeds and another 32,000 acres in wild rice lakes. Saskatchewan's organic agricultural sector is, to a large extent, dependent on export markets for its grains, cereals and legumes. Unlike other provinces, it has a negligible level of sales from producers direct to consumers. The province has about 171 acres in vegetables, herbs and specialty crops and fruit.
- **Manitoba:** Manitoba has a relatively small organic sector. It has about 27,000 acres in grains and oilseeds, with gross revenue of about \$5 million (2003) and about 319 acres in vegetables, herbs and fruit.

---

<sup>7</sup> Does the Adoption of Organic Food and Farming Systems Solve Multiple Policy Problems? A Review of the Existing Literature," McRae, Rod, et al., January, 2004, and personal communications with the authors.

<sup>8</sup> The summary description for each province was based on data drawn from

- "Certified Organic: the Status of the Canadian Organic Market in 2003," Macy, Anne, September 2004; and
- "Organic Market Research and Action Plan," Atlantic Canadian Organic Regional Network, January 2003.

- **Ontario:** The combination of its climate, land base and large population centres, results in an organic sector that has a large acreage (2,432) involved in vegetables, herbs, fruit and nuts. In 2003, gross revenue from the production of these products was about \$6 million. Grains and oilseeds also play a large role in the organic sector in Ontario. They make up about 55,000 acres and another 2,470 acres in wild rice lakes. Farm gate sales in 2003 amounted to about \$22 million. Ontario has about 40 organic dairy farms and the number is growing.<sup>9</sup>
- **Québec:** This province is the largest producer of organic maple syrup in Canada. It has about 2,250 acres dedicated to the production of vegetables, herbs and fruit and nuts. Grains and oilseeds account for about 28,500 acres. The total value of organic production in Québec depends largely on the success of the maple syrup harvest. Organic maple syrup makes up between 35% and 40% of total farm gate sales in Québec. Québec is also home to about 40 organic dairy farms.<sup>10</sup>
- **New Brunswick:** In 2003, it had 31 organic producers and two producers in transition. About 80% of its organic acreage is dedicated to maple sugar bush stands. About 190 acres are used for vegetables, herbs and some grains and cereals. Total farm gate sales amount to about \$2.2 million.
- **Prince Edward Island:** PEI had gross farm gate sales of \$685,000 in 2003. It was home to 23 certified organic producers and another five in transition to organic production. About one third of the organic farms had organic sales of about \$2,000-\$3,000 per year.
- **Nova Scotia:** There were 45 certified organic producers and one producer in transition to organic agriculture in 2003. It had about 1,000 acres in organic production, of which 300 acres were in mixed vegetables, greenhouses, fruit, and herbs. It also had about 50 acres involved in livestock and poultry production. Its gross farm gate sales in 2003 amounted to about \$2.7 million.
- **Newfoundland and Labrador:** There were three organic producers, working about 85 acres, in 2003. Virtually all of the acreage was in small fruit and tree fruit. Total sales amounted to \$92,500.
- **Atlantic Provinces:** As a group, organic producers sell about 50% of their production direct to consumers. Comparable data are not available for the provinces, but the data available suggests that the Atlantic Provinces sell a much greater proportion of their production direct to consumers than British Columbia, Ontario or Québec.

### 2.1.3 THE POTENTIAL FOR INCREASED PRODUCTION

The main problem for producers and growers is not with respect to demand for the product but being able to supply that demand. In addition, the supply chain from grower to consumer is not as well developed as in the conventional food products system and buyers and sellers have difficulty finding each other. Our interviews with growers and producers found that they believe being able to expand supply is, at the moment, a bigger issue than demand. The situation leaves a substantial incentive for conventional growers and producers to transition into organic production. For example, Ontario has only 15 beef producers and they are unable to meet demand.

In the short run, organic growers may be able to better match supply with demand by switching from a fixed crop rotation to one that reflected changes in the type of products in demand. To increase supply further the sector would have to increase its acreage and modify farming practices so that production volume considerations take a larger role in operations.

Sources at the Organic Trade Association report that production is growing about 20% per year, but were unable to provide data to support that view. This view of production growth is also reflected in the observations of other sources. For example, production is reported to be increasing 15% to 20% per year in

---

<sup>9</sup> Personal communication, OntarBio Organic Farmers' Co-operative.

<sup>10</sup> Personal communication, OntarBio Organic Farmers' Co-operative.

Saskatchewan.<sup>11</sup> The growth is coming from two sources, the expansion of existing producers and conversions from conventional agriculture. Conversions from conventional agriculture have been "helped along" by the current difficulties in conventional farming (e.g. drought, BSE etc.) in the Prairie Provinces.<sup>12</sup>

As the market for organic products matures and shows that it has a long life and substantial growth opportunities, one can expect that a significant part of growth in organic agriculture will come from the conversion of conventional operations to organic. However, the conversion takes at least 36 months, allowing time for traces of previous chemical pesticide use to disappear.

In Saskatchewan new large farms, (e.g. 18,000 acres), are coming on stream and therefore, the supply of grains and cereals is catching up with demand.<sup>13</sup> Under these conditions, losing third-party status with the European Union would create a significant oversupply situation in the market that remains open to Canadian organic grain and cereal products.<sup>14</sup>

However, the aggressive growth activity does not appear to be consistent across Canada. For example, in Ontario despite 100%+, price premiums for organic grain, cereals and legumes, farmers still appear reluctant to convert to organic farming.<sup>15</sup> This could be due to the extra labour involved in organic agriculture, an ongoing belief that organic farming is a fad, the certification costs<sup>16</sup> and transition costs<sup>17</sup> faced by farmers converting to organic agriculture and / or the risk of losing the European Union market should Canada's entry onto its third country list be denied or delayed.

For all of the reasons outlined above, it appears that if the Canadian rate of growth in domestic demand holds, the increase in supply in the short run (1 to 5 years) will most likely come from imports.

The "Organic Market Research and Action Plan" of the Atlantic Canada Organic Regional Network and the "National Strategic Plan for the Canadian Organic Food and Farming Sector" emphasize the large opportunities in the domestic market in terms of the import substitution and the value of the growing market for organic food products.

---

<sup>11</sup> Reports of Canadian growth rates in organic production of about 20% also find some support in comparisons with other countries. For example:

- Production is growing 20% per year globally ("Does the Adoption of Organic Food and Farming Systems Solve Multiple Policy Problems? A Review of the Existing Literature," McRae, Rod, et al.; January 2004.).
- The United States saw 30% growth per year in certified acreage from 1991 to 1997 (ibid.).
- 58% of organic farmers in the United States planned to increase their volume of production in 2002 and only 5% planned to reduce volumes (Fourth National Organic Farmers Survey Results, USDA, 2004). However, this percentage dropped to 38% for 2004. Half of those saying they would increase acreage said it would be by up to 25% ("The Organic Report," The Organic Trade Association, September 2004).
- European production has been growing 30% per year since 1998 (op. cit., McRae, Rod, January 2004.).

<sup>12</sup> Op. cit.; Cooney, Ann (Ag. Econ., University of Saskatchewan); February 13, 2003 & personal communication with representatives of the Saskatchewan Organic Directorate.

<sup>13</sup> Op. cit.; Cooney, Ann (Ag. Econ., University of Saskatchewan); February 13, 2003.

<sup>14</sup> Ibid. and "The Economic Effect of Canada Making or Missing The EU 3rd Country List: the Case of Organic Wheat," Ferguson, Shon and Weseen, Simon; University of Saskatchewan, January 2005.

<sup>15</sup> "Organic Grain Marketers' Struggle to Fill Their Demand," Organic Agriculture Centre of Canada, 2005.

<sup>16</sup> On a scale of 1 to 5, 5 being severe, the top problems reported by organic farmers were, weather (2.9), organic certification costs (2.6); obtaining organic price premiums (2.4), high input costs (2.4), and lack of an organic marketing network (2.3) (Fourth National Organic Farmers of Survey Results, USDA), 2004.

<sup>17</sup> It takes at least 36 months for farm converting from conventional agriculture to be declared organic. In the meantime, the farm is not getting organic premium prices for its product and may also sustain a small decline in production per acre.

## 2.2 PROCESSORS

There were 499 processors in Canada in 2003, down from 552 in 2002. The number may be somewhat overstated because some processors hold multiple certifications. The breakdown of processors and handling operations across Canada is as follows:

- British Columbia, 85;
- Alberta, 52;
- Saskatchewan, 94;
- Manitoba, 27;
- Ontario, 64;
- Québec, 152;
- New Brunswick, 9;
- Prince Edward Island, 3; and
- Nova Scotia, 13.<sup>18</sup>

The interview results revealed that one of the major constraints to increasing the supply of organic products is the lack of processing and handling capacity in Canada. For example, there are only two milk processors dealing solely in organic products and several co-processors in Canada. The relatively small amounts of organic product make it difficult to establish stand-alone processing operations. In many cases, processors and handlers deal in organic and conventional food products.

## 2.3 INTERNATIONAL TRADE

Data on exports and imports are limited because export statistics do not differentiate between organic and conventional products. The information described below, were assembled from a variety of sources as noted. Together they provide a comprehensive picture of the sizing commodity breakdown of Canadian exports and imports organic food products. As noted in the secondary source publications, information was developed through surveys of exporters and importers and estimations based on levels of provincial production by commodity group.

### 2.3.1 EXPORTERS

In 2003, Canada exported about \$63.1 million, CIF (Cost, Insurance and Freight). The breakdown of exports was approximately as follows (total may not add due to rounding):

- grains, seeds, flour, \$39.9 million
- food and beverages, \$10.0 million
- maple syrup, \$7.0 million;
- apples and miscellaneous fruit, \$4.1 million; and
- vegetables, \$2.0 million.

Destination markets are relatively varied, compared to the typical profile of the majority of Canadian exports going to the United States market. The following provides an overview of the export destinations, by value:

- USA, \$26.0 million
- European Union, \$23.0 million;
- Japan, \$2.9 million; and
- Other and unknown, \$11.2 million.

### 2.3.2 IMPORTERS

Canada is a major importer of organic food products. Canada imports:

- 78% of its fresh produce;

---

<sup>18</sup> "Canada-Organic Statistics 2003," Agriculture and Agri-Food Canada.

- 90% of its organic grocery products;
- 100% of its organic coffee;
- 10% of its dairy and cheese products; and
- 10% of its meat, poultry and fish products.

## 2.4 DOMESTIC TRADE

### 2.4.1 WHOLESALE

With the growth in popularity of organic food products, more wholesalers have entered the organic food supply chain. In general, we expect wholesalers to make best efforts to consolidate their sources of supply. They can be expected to attempt to hold processors and producers to their label via exclusive supply contracts so that they can consistently provide sufficient product to their customers.

Members of the Atlantic Canada Organic Regional Network report that five years ago most chain stores bought direct from the producer. Today, they want to work through wholesalers because demand is up and they need larger quantities at regular delivery times.

For these reasons, wholesalers may appear to favour suppliers from California and other states with large organic farming activities. However, it is more correct to say that they are seeking sources of supply that can give assurances of the volumes required, at the times required.

As noted in earlier sections, the increasing popularity of organic food products has also had the indirect effect of encouraging specialization among growers. This occurs so growers can supply sufficient product to their wholesale distributors.

### 2.4.2 RETAIL

**Domestic Sales, 2003.** Canadian organic retail trade stood at about \$986.0 million, or about 1.6% of total Canadian food purchases (*see table in Section "2.9.3 Domestic Trade."*) The consultants developed this table from the Canadian Natural and Organic Retail Markets publication of the Food and Rural Development Directorate of Alberta Agriculture, 2002 and information collected as part of the HOMESCAN Consumer Survey, A. C. Nielson, 2005, for Agriculture and Agri-food Canada. The \$986.0 million figure falls towards the low range of the Canadian consumption \$800 million and \$1.3 billion estimates of Canadian organic products consumption provided in "Certified Organic: the Status of the Canadian Organic Market in 2003." The author of this publication warned that of the two estimates the real figure for Canadian consumption was probably closer to \$800 million.

In terms of sources we find the following:

- produce; \$87.6 million domestic, \$310.5 million imported;
- grocery; \$46.0 million domestic \$413.8 million imported;
- organic coffee; no domestic, \$7.0 million imported;
- dairy; \$99.0 million domestic, \$11.0 million imported; and
- meat, fish and poultry; \$10.1 million domestic, \$1.1 million imported.

#### 2.4.2.1 PUTTING THE CANADIAN SITUATION IN CONTEXT: GROWTH RATES AROUND THE WORLD

Global growth rates for organic food sales were about 25% to 30% per year during the late 1990s and early 2000s.<sup>19</sup> Other assessments found a slightly lower global growth rate, of about 23% per year in the early 2000s.<sup>20</sup> Worldwide sales were slightly over \$20 billion in 2001.

---

<sup>19</sup> op. cit.; Cooney, Ann (Ag. Econ., University of Saskatchewan); February 13, 2003.

<sup>20</sup> op. cit., McRae, Rod, et al., January, 2004.

In 1997, organic foods had a 0.8% share of the United States food market. Organic foods' market share in the United States exceeded the 2003 Canadian market share by 1999 with the share of 1.8%. During the late 1990s and early 2000s organic food sales in the United States grew 20% annually. Dairy showed even stronger growth. The growth in organic sales was on a very small base, approximately \$9.5 billion USD in 2001.<sup>21</sup> Sales apparently began to grow more slowly after 2001. Sales grew to \$10.8 billion US dollars by 2003 for 1.9% market share, reflecting a 6.6% annual growth rate in total sales.<sup>22</sup> This rate is very similar to that reported by organic farmers in the Fourth National Organic Farmers Survey Results published by the United States Department of Agriculture in 2004.

The Fourth National Organic Farmers Survey Results, USDA, suggested that the growth rate for organics might be slowing a bit. The producer respondents to the survey reported a weighted average rate of organic market expansion of 6.6% from 2000 to 2001. Among the respondents, 20% said the market expanded more than 20%, 15% said their market expanded 10% to 19%. Reported price improvements of 0.8% (weighted average) were less than the inflation rate.

#### 2.4.2.2 TRENDS IN THE CANADIAN MARKETPLACE

**Market Penetration and Sales.** The Canadian marketplace for organic foods is reported to be 10 years behind United States and Europe in terms of its stage of development. Based on the similarities of the societies, and the market share growth in the United States and Europe, one can assume that there is good potential for growth in the Canadian retail market.

Organic foods are becoming a more common part of consumers' diets; with at least one half of consumers saying they bought organic food in the past year. The Canadian Council Grocery Distributors also notes that, as education levels improve and household incomes increase, there is a greater tendency to buy organic.

Reports from the Organic Trade Association and the Atlantic Canada Organic Regional Network indicate that domestic demand is growing about 20% per year. The growth is attributed to the availability of:

- more product,
- a wider range of products; and
- more packaged and prepared organic products.

In a recent report to Agriculture and Agri-food Canada A. C. Nielson analysed information from its "HOMESCAN" reporting system and found that for six product groups domestic demand grew 29.6% per year from 2002 to 2004.<sup>23</sup>

Projections prepared by Alberta Agriculture, Food and Rural Development estimate the annual average growth in domestic organic food sales to be about 18.2% from 2002 to 2011.<sup>24</sup> Other assessments project Canadian growth rate in organic sales of about 15% per year for next 10 years.<sup>25</sup>

The availability of organic products is relatively widespread. About 45 – 50% of retail outlets now sell organic products. All mainstream food retailers provide at least some range of organic products. This is a reflection of the belief that the next category of organic products consumer requires the convenience of buying those products as part of a regular shopping trip.

**Price Premiums and Price Elasticities.** In January 2004, a survey of organic products in Canadian markets found the following price premiums over conventionally produced products:

---

<sup>21</sup> op. cit.; Cooney, Ann (Ag. Econ., University of Saskatchewan); February 13, 2003.

<sup>22</sup> "Prairie Wide Organic Conference 2004, Health Focus International, 2004.

<sup>23</sup> HOMESCAN Consumer Survey, A. C. Nielson, 2005, for Agriculture and Agri-food Canada.

<sup>24</sup> Canadian Natural and Organic Retail Markets. Cunningham, Rosalie, 2002. Alberta Agriculture, Food and Rural Development

<sup>25</sup> op. cit., McRae, Rod, et al., January, 2004.

- meat, 138%;
- dairy and cheese, 85%;
- vegetables, 53%;
- apples, 51%; and
- cereal, 40%.<sup>26</sup>

Observers within the grocery distribution business suggest that these differentials reflect what the committed organic consumer is willing to pay. For the mass-market, consumer price differentials may be more in the 5% range.<sup>27</sup>

In recent survey, Léger Marketing found that of those who are willing to pay more for organic food the average premium was about 11% to 13%.<sup>28</sup>

There are indications that the proportion of the population willing to pay at least a slight premium for organic food, is increasing. For example, 53% of Americans say they will pay a slight premium for organic compared to 48% in 1998.<sup>29</sup>

As the organic food sector matures, and unless new consumer market segments are developed, the sector could see some deterioration in price premiums.<sup>30</sup> Moreover, not all organic products sell at a premium. For example, respondents to the Fourth National Organic Farmers' Survey reported that 73% (weighted average) of organic products sold by US organic farmers sold at premium prices in 2001.<sup>31</sup> In some cases, organic products may need to be sold at the same price as conventional products or even slightly below. This is the case when products, such as fruit and vegetables, that may not have the same eye appeal as conventional products, are sold into a marketplace that is unaware of the attributes of organic products. The lack of eye appeal can result in lower prices.

A cross-sectional analysis between product types suggests the following relationships between price premium and market share<sup>32</sup>:

- price premium from 25% to 50%, market share drops from 1% to 0.4%, therefore 1% increase in price premium produces 0.6% decrease in market share;
- premium from 50% to 100%, market share drops from 0.4% to 0.15%, 1% increase in price premium results in 0.63% decrease in market share;
- premium from 100% to 200% results in market share decrease from 0.15% to 0.08%, 1% increase in price premium results in 0.45% decrease in market share.<sup>33</sup>

---

<sup>26</sup> Agriculture and Agri-Food Canada, Market Report, January 10, 2004.

<sup>27</sup> Personal communication, Canada Council of Grocery Distributors.

<sup>28</sup> "How Canadians Feel about Their Health and Organic Food," Léger Marketing, 2002.

<sup>29</sup> "Prairie Wide Organic Conference 2004," Health Focus International, 2004.

<sup>30</sup> "A National Strategic Plan for the Canadian Organic Food and Farming Sector," McRae, Rod, 2002.

<sup>31</sup> "Fourth National Organic Farmers of Survey Results," United States Department of Agriculture, 2004.

<sup>32</sup> Overall average of -0.56%.

<sup>33</sup> Op. cit., Leifert, Carol and Bourlakis, Michael, 2004 and TDV estimates.

Looking only at pork, as the price premium rise from 20% to 40% market share declines from about 0.8% to about 0.525%, 1% increase in price premium results in a 0.34% decrease in market share. Over a broad range of price premium, 20% to 80%, 1% increase in price premium results in about 0.2% decrease in market share.

Price premiums for high value per pound products such as mushrooms and baby carrots ranged between 0% and 25%, and the elasticity of market share percentage with respect to price premium was about -0.3% per 1% increase in price premium.

While these are rough estimates of price elasticities, especially considering that they were taken on cross-sectional basis between products, it seems safe to say that, even in Europe, where the market is more mature, the elasticity of market share with respect to price premium is less than unity. Hence there still seems to be some room to maintain, and even increase, price premiums without negative impacts on total revenue.

There appears to be very little data on the price elasticities for prepared or frozen products. One source suggested that the price elasticity of demand for frozen organic vegetables is much less than unity.<sup>34</sup>

### 2.4.3 PROCESSING, TRANSPORTATION AND DISTRIBUTION, WHOLESALE AND RETAIL MARGINS

The margins ratios associated with wholesale, transportation and retail activities were estimated based on the commodity inputs to final demand for food and beverage products as described in the Final Demand Matrix of the Canadian input-output tables.<sup>35</sup>

The processing and handling margin was estimated as the residual after deducting wholesale, transportation and retail margins from organic food product sales. The residual was then used to estimate the processing and handling margin ratio. The residual estimate depends on a variety assumptions including the:

- estimate of the farm gate value of domestic growers and producers;
- percentage of domestic production sold directly to the consumer;
- value of exports CIF;
- transportation and distribution margins associated with exports; and
- accuracy of the margin ratios for wholesale, transportation and retailing derived for the final demand tables of the input-output system, among others.

For these reasons, the estimate of processing and handling margins should be used with caution. Margin ratios for wholesale, transportation and retail appear to be in the range of normal for the food products sector. The processing and handling margin may appear a bit low but given that a very large portion of Canadian organic food product consumption is imported and a large portion of consumption of domestic products is fresh and unpackaged product, the processing and handling margin rate may not be overly low.

Margins on 2003 consumption of domestically produced organic foods roughly amounted to:

- \$24.9 million in processing and handling margins (estimated at 19.4% on farm gate price);
- \$17.3 million in wholesale margins (estimated at 13.5% on farm gate price);
- \$5.3 million in transportation margins (estimated at 4.1% on farm gate price); and
- \$48.4 million in retail margins (estimated at 37.8% on farm gate price).

Margins on 2003 consumption of imported organic foods roughly amounted to:

- \$16.5 million in handling margins (processing assumed to be zero);
- \$57.3 million in wholesale margins;
- \$17.6 million in transportation margins (within Canada only); and
- \$160.7 million in retail margins.

### 2.4.4 THE CONSUMER

The classic organic consumer is

- well-educated;
- younger;
- female;

---

Price premiums for low value per pound products such as potatoes and cauliflower ranged from 60% 220%. However, the available data did not make it possible to estimate even in order of magnitude relationship between market share and price premium.

<sup>34</sup> op. cit., Cooney, Anne, 2003.

<sup>35</sup> "The Input-Output Structure of the Canadian Economy," Statistics Canada, 15-201-XPB.

- a professional or white collar worker;
- committed to the environment;
- concerned with the use of chemicals and pesticides;
- willing to pay a premium for organics;
- willing to search out sources of organic food products; and
- committed to the ideology underlying the organic food movement.<sup>36, 37</sup>

The emerging consumer is:

- well-educated;
- committed to personal health;
- shops in supermarkets (rather than searching out organic products, purchasing direct from a producer or visiting farm markets);
- female;
- a professional or white collar worker;
- in a higher personal income strata; and
- willing to spend more on family and health.<sup>38, 39</sup>

Convenience of access is a major motivator in the purchasing decisions of the emerging consumer. This suggests that efforts that lead to greater recognition of organic products and shelf space at full-service grocery stores would benefit the organic sector.

Among Canadian consumers:

- 18% are regular buyers;
- 22% by several times a month;
- 31% once or twice; and
- 26% never.<sup>40</sup>

There are 3.3 million regular and several time buyers. Léger Marketing, in 2004, found that among Canadian consumers:

- 1% purchased organic products on every food shopping trip;
- 17% purchased them often;
- 37% rarely purchased organic products;
- 20% never purchased organic products; and
- 17% did not know or refuse to answer.<sup>41</sup>

The incidence of regular organic consumers, those that purchase organic products at least once a week, is slightly higher in the United States at 20%. This is about the same average rate experienced in Europe and Japan. Rates are higher in Scandinavia and the United Kingdom at 25%.<sup>42</sup>

There is a positive relationship between organic food consumption and:

- households with children less than 12 years old;
- education levels;

---

<sup>36</sup> "Organic Market Research and Action Plan," Atlantic Canadian Organic Regional Network, January 2003.

<sup>37</sup> "Organic Agriculture: a Primer-Who Is Who and What Is Happening Across the Country," Workshop, Guelph Organic Conference, January, 2005.

<sup>38</sup> op. cit., Atlantic Canadian Organic Regional Network, January 2003.

<sup>39</sup> op. cit., Workshop, Guelph Organic Conference, January 2005.

<sup>40</sup> Op. cit., Cooney, Anne, 2003.

<sup>41</sup> Op. cit., Léger Marketing, 2004.

<sup>42</sup> Op. cit., Cooney, Anne, 2003.

- empty nest households now have income to spare for their own interests;
- families who fed newborns organic strained food (The whole family tends to go organic when the newborns in the household graduate to solid food.);
- the 18 to 34 year-old demographic (This demographic group makes up 22% of those who buy organic regularly and 24% of the consumer group that buys several times a month. However, this age cohort makes up only 18% of the Canadian population).<sup>43, 44</sup>

However, the data show that households with higher incomes are not necessarily more likely to purchase organic foods than lower income households. Buyers in \$60,000-\$80,000 individual income range are underrepresented among organic buyers. However, households with incomes under \$40,000 are overrepresented among buyers in Canada and in United States there is a strong representation of households with under \$25,000 in household income among regular organic purchasers. The regular buyers among these income groups tend to be young persons/young families who are convinced organic food is better quality.

Taken as a whole, the consumer research suggests that organic consumers share more values than they do in terms of demographics. They tend to begin buying mainly in one of three food product categories:

- produce;
- dairy; or
- baby food.

The purchase of organics tends to be triggered by:

- having young children in the home;
- desire to deal with food allergies;
- desire for healthier lifestyles; and an
- overall sense of value in the philosophy upon which organic farming is based.

Recent research from the University of Saskatchewan comes to the following conclusions regarding the effect of imported organic foods on consumer welfare. The research finds that:

- If domestic consumers perceive foreign organics to be equivalent to domestic organics consumers welfare will increase because prices will decrease as imports combine with domestic production to increase supply.
- If domestic consumers perceive foreign organics to be of lesser quality than Canadian organics then prices on imported organics will be lower than Canadian organics. Foreign organics could still capture part of the market, and the domestic share of the organic food market and conventional food market would decrease.
- If the perceived utility of consuming Canadian organics increases, the domestic organic industry would gain market share shifting away from imports.<sup>45</sup>

About 85% of consumers have health, chemical additive and pesticide related concerns with respect to their food.<sup>46</sup> However, only 15% of those concerned with pesticides buy organic products.<sup>47</sup> This low conversion rate may be due to the lack of knowledge with respect to organic products or access to them in mainstream retail stores.

---

<sup>43</sup> Ibid.

<sup>44</sup> "Organic Agriculture: a Primer -- Who Is Who and What Is Happening across the Country," Schumilas, Theresa, and Canadian Organic Growers, Guelph Organic Conference and Organic Expo Canada, January 2005.

<sup>45</sup> "Consumer Welfare Impact of Imported Organic Foods: A Vertical Differentiation Model", Sawyer, Erin, University of Saskatchewan, 2004.

<sup>46</sup> "How Canadians Feel about Their Health and Organic Food," Léger Marketing, 2002.

<sup>47</sup> op. cit., Workshop, Guelph Organic Conference, January 2005.

In terms of price, the price difference relative to conventional products is more important than the absolute price of the organic product. Price is the most significant reason that people do not buy organic products. This is the case even though between 64%<sup>48</sup> and 83%<sup>49</sup> say they would pay more for organic products. Of those that say they would pay more about:

- 25% say they would pay 5% more than they would for conventional products;
- about 35% say they would pay up to 10% more for organic products;
- 20% to 25% say they would pay about 15% more than they would for conventional products; and
- 5% to 20% say they would pay more than a 15% premium.

Regarding taste, there are mixed findings on the reaction of consumers. Recent information from major grocery retailers suggests that people begin to buy organic products due to their concerns for the potential of residual pesticides and chemicals on conventional food products and related health issues, especially in households with infants and young children. Consumers appear to keep buying them due to taste preferences.

Retailers tend to believe that organic products have a shorter shelf life than conventional products. Retailers also know that consumers place high value on freshness. These two beliefs provide one reason for the limited shelf space provided to organic products in full-service grocery stores. Shelf life in organic may also improve as the sector matures, with better post harvest handling techniques and better processing. However, some recent consumer research has shown that consumers are much less concerned about differences in shelf life between conventional and organic products.<sup>50</sup>

Appearance is a major concern for retailers. They report that 83% of consumers will not accept insect damage on produce. This is important because in many cases, although the quality of organic fruit and vegetables is as good as or better than conventional products, some organic produce may have less appearance appeal.

#### **2.4.5 EUROPEAN AND NORTH AMERICAN TRADE**

The European market is maturing. Projections for growth rates in organic food sales are now in the range of 5.1% to 8.4% per year.<sup>51</sup>

Retail sales growth shows the highest rates in North America. Sales grew about 12% from 2001 – 2002. Recent reports suggest that growth in North America is holding at about 6.6%<sup>52</sup> to 10%<sup>53</sup> per year.

### **2.5 ACCREDITATION AGENCIES**

At present, certifying bodies in Canada can receive accreditation from five agencies some of which operate only in Canada, have offices in Canada but are based elsewhere or operate from offices outside of Canada. Appendix 1 provides a list of the accreditation agencies currently serving clients in Canada.

Charges to certification bodies by accreditation agencies vary, depending on the size of the certification body and the manner in which the accreditation agency is itself funded. The following outlines the range of accreditation fees charged by these agencies:<sup>54</sup>

---

<sup>48</sup> op. cit., Léger Marketing, 2002.

<sup>49</sup> op. cit., Workshop, Guelph Organic Conference, January 2005.

<sup>50</sup> Ibid.

<sup>51</sup> op. cit.; Willer, Helga and Yussefi, Minou, Eds., International Federation of Organic Agriculture Movements, 2004.

<sup>52</sup> "Fourth National Organic Farmers' Survey Results," United States Department of Agriculture, 2004.

<sup>53</sup> op. cit., Workshop, Guelph Organic Conference, January 2005.

<sup>54</sup> Personal communication, Organic Trade Association.

Personal communication, Pro Cert/OC Pro.

- Standards Council of Canada
  - \$10,000 to \$50,000 net; and
  - annual renewal fee of about \$10,000 and 0.0025% of certification body's revenues.
- United States Department of Agriculture, National Organic Program
  - \$4,500 to \$5,000 USD;
- CAAQ (Government of Québec funds 75% of its operating costs.)
  - about \$3,500 to \$7,000 initial; and
  - annual fee of about \$2,000.
- International Organic Accreditation Service (IOAS)
  - about \$5,750 to \$8,000 USD;
  - \$3,000 to \$3,500 USD annual fee and 0.7% of certification body's revenue; and
  - surveillance visit, costs \$2,000 USD.

## 2.6 CERTIFICATION BODIES

There are currently 30 certification bodies operating in Canada, of which three are operating without accreditation.<sup>55</sup> Appendix 1 provides a list of certification bodies currently serving clients in Canada. Over 80% of certifications are done by the three largest certifying bodies.

Certification charges average about \$381 per client. Most certification bodies have fee ranges that depend on the size of the operation being certified.<sup>56</sup> Based on this average fee and 3,916 certifications annual revenue for the sector is about \$1.49 million. Full-time equivalent employment, based on ratios of full-time employment to gross revenues from selected certification bodies, is likely in the range of 19.9. Based on ratios derived from selected certification bodies, the total number of inspectors employed by the certification bodies, either as employees or contractors, is likely in the order of 64 which implies that the average inspector conducts about 61 inspections per year.<sup>57</sup> Based on personal interviews this number of inspections per year may be a bit high but in the absence of additional data, we accept this as a working figure.

For large operations, certification costs are a small percentage of their overall cost structure.<sup>58</sup> Growers and producers are concerned about cost impacts of certification; however, this concern appears to be most significant among small producers. Most producers Atlantic Canada are small producers and are now certified by non-accredited bodies because they are less expensive than the accredited bodies.<sup>59</sup>

Interviewees across Canada emphasize the need for a pricing system that does not drive out small producers or deter new entrants as either situation would be detrimental for the sector as a whole. The OCIA has a sliding fee scale that provides a benefit to new and small producers. The large producers that are members of the OCIA accept this as the right thing to do for the growth of the industry.

---

"A Comparison Research Audit: Four Organic Conformity Assessment Body Accreditors in Canada", Presented to the Organic Task Force, Gibson, Janine and Scholz, Monique, March 2005.

<sup>55</sup> The OCIA operates many chapters in Canada. In this analysis we assume that the chapters represent one certification body.

<sup>56</sup> Personal communication.

<sup>57</sup> The master list of certification bodies, contained in Appendix 1, indicates that there are about 258 inspectors involved with the certification bodies across Canada. This number likely overestimates the total number of inspectors because contract inspectors will work for more than one certification body.

<sup>58</sup> Personal communication with operators and certifiers in Saskatchewan, Ontario and Atlantic Canada.

<sup>59</sup> About 4% to 5% of Canadian certifications are completed by non-accredited bodies. Atlantic Canada is overrepresented due to the cost sensitivity of its a small operators. Atlantic Canada farms average about \$11,000 per year in farm gate sales. The next smallest provincial grouping has average sales of about \$22,500.

## 2.7 TARGETS AND CHALLENGES

The organic sector in Canada has challenged itself to increase its share of the retail market to 10% by 2010 from its current share of about 1.6%. It is also seeking to have domestic production account for 35% domestic sales compared to the 2003 share of about 24.6%. The sector is looking to maintain stability in terms of exports as it focuses on increasing its share of the domestic market.<sup>60</sup>

Among the greater challenges is that the supply of domestic organic products is much less than demand and the sector is not well prepared to increase its production quickly. The following factors limit its ability to increase supply in the short-term:

- The sector lacks support services of research and extension.
- More processors, or better access to processors, are needed if volumes are to grow. Some regions do not have access to processing for many important types of organic products.
- The most important factor restraining its growth may be the fact that the organic sector is promoted and developed mostly through volunteer effort and those people are now becoming taxed.

Demand growth may be constrained by limited "consumer awareness." Consumer appreciation of the value and role of organic food and farming in Canada is limited in scope and depth.

## 2.8 TRANS BORDER CONDITIONS AND ISSUES<sup>61</sup>

Canada has had a voluntary national standard since 1999. In 2002, efforts began in Canada to harmonize standards and regulations with its major trading partners. These efforts are particularly important in the case of the European Union, which expects to see full harmonization by the end of 2005. After December 31, 2005 the European Union will accept organic imports only from those countries that have protected the word "organic" via regulations put in place by their national governments.

In terms of regulations and the associated standards, Canada is behind the rest of the world. The following sections summarize conditions in regions of the world and provide some perspective on the steps and distance that Canada must cover in the near term.

Among the major organic products producing nations:

- 39 countries have fully implemented regulatory regimes.
- Eight countries have finalized regulations but have not yet fully implemented them.
- Eight countries, of which Canada is one, are in the process of developing mandatory regulations.

### 2.8.1 STANDARDS AND REGULATIONS BY REGION

Progress on the development of standards and regulations differs by geographic region. The following points provide a summary:

- **Africa:** The potential of organics has not yet been recognised by the majority of African governments. Most African countries rely on foreign standards and certifying bodies, which is a major constraint on development.
- **Asia:** Countries in Asia are in the early stages of formalizing standards and regulations to enforce a standard. Interest in organics is growing in the Asian continent. Mandatory standards and regulations governing those standards are in place in India, Japan, Korea and Taiwan.
- **Australia and Oceania:** Australia and New Zealand are taking more interest in organic production. This rise in interest has paralleled the growth in their appreciation of the export potential for organic products.

---

<sup>60</sup> "A National Strategic Plan for the Canadian Organic Food and Farming Sector," McRae, Rod, Editor, The Organic Agriculture Centre of Canada, Truro, Nova Scotia, 2002.

<sup>61</sup> op. cit., Willer, Helga and Youssefi, Minou, Eds., International Federation of Organic Agriculture Movements, 2004.

- **European Union:** Organic production standards and supporting regulations were implemented by the member countries of the European Union by 1993. Full harmonization is expected to be completed by the end of 2004. After December 31, 2005 organic imports will be accepted only from those countries deemed equivalent to European Union standards.
- **Other European Countries:** In many of the countries that are not members of the European Union organic products are either legally protected or the development of national organic standards and regulations are in progress.
- **Central and South America:** The countries of Central and South America offer a mixed bag with respect to organic standards and protection of the term organic. Costa Rica has national standards in place and regulations to guide enforcement of those standards. Paraguay and Chile are working on standards. Argentina, a significant competitor to Canada in the agricultural sector, has compulsory standards for organic products dating back to 1992.
- **North America:** The United States, through its "National Organic Program", now has in place published organic standards and regulations to support the enforcement of those standards. Canada is in the process of developing regulations to support the enforcement of its organic standards. The draft standards have a recently been approved in a countrywide vote by organic products producers and processors. Although very aggressive, a target date of December 31, 2005, has been set for the implementation of Canadian regulations with respect to organic foods production.

## 2.9 PROJECTION OF THE STATUS QUO

The following section provides projections of exports, imports and domestic trade for the status quo, assuming Canada maintains its market share and growth rates.

### 2.9.1 EXPORTERS

The **following table** provides a description of the dollar value, CIF, of exports in 2003, broken down by commodity group and destination. Projections beyond 2003 were estimated based on expectations for growth in organic consumption in the destination countries.<sup>62</sup> The implicit assumption is that that Canada will maintain its market share, other things being equal.

---

<sup>62</sup> "Impact of Organic Guarantee Systems on Production and Trade in Organic Products," Wynen, Els; International Task Force on Harmonization and Equivalence in Organic Agriculture, June 2004.

Canadian Export Organic Market Projection for Major Food Groups (\$'000,000 current)																												
Year	Grains / Seeds / Flour					Apples					Misc. Fruit					Vegetables					Maple Syrup					Food		
	Total	EU	US	Japan	Other	Total	EU	US	Japan	Other	Total	EU	US	Japan	Other	Total	EU	US	Japan	Other	Total	EU	US	Japan	Other	Total	EU	
2002	\$ 37.4	\$ 19.5	\$ 15.0	\$ 1.9	\$ 1.1	\$ 3.0	\$ 0.1	\$ 2.9	\$ -	\$ -	\$ 0.8	\$ -	\$ 0.8	\$ -	\$ -	\$ 1.9	\$ -	\$ 1.9	\$ -	\$ -	\$ 6.6	\$ 2.0	\$ 3.7	\$ 0.9	\$ -	\$ 9.4	\$ -	
2003	\$ 39.9	\$ 20.8	\$ 16.0	\$ 2.0	\$ 1.2	\$ 3.2	\$ 0.1	\$ 3.1	\$ -	\$ -	\$ 0.9	\$ -	\$ 0.9	\$ -	\$ -	\$ 2.0	\$ -	\$ 2.0	\$ -	\$ -	\$ 7.0	\$ 2.1	\$ 4.0	\$ 0.9	\$ -	\$ 10.0	\$ -	
2004	\$ 42.7	\$ 26.7	\$ 12.6	\$ 2.1	\$ 1.3	\$ 3.4	\$ 0.1	\$ 3.3	\$ -	\$ -	\$ 1.0	\$ -	\$ 1.0	\$ -	\$ -	\$ 2.1	\$ -	\$ 2.1	\$ -	\$ -	\$ 7.5	\$ 2.3	\$ 4.3	\$ 1.0	\$ -	\$ 10.7	\$ -	
2005	\$ 45.6	\$ 28.5	\$ 13.5	\$ 2.3	\$ 1.4	\$ 3.7	\$ 0.1	\$ 3.5	\$ -	\$ -	\$ 1.0	\$ -	\$ 1.0	\$ -	\$ -	\$ 2.3	\$ -	\$ 2.3	\$ -	\$ -	\$ 8.0	\$ 2.4	\$ 4.5	\$ 1.0	\$ -	\$ 11.4	\$ -	
2006	\$ 48.6	\$ 30.4	\$ 14.3	\$ 2.4	\$ 1.5	\$ 3.9	\$ 0.2	\$ 3.7	\$ -	\$ -	\$ 1.1	\$ -	\$ 1.1	\$ -	\$ -	\$ 2.4	\$ -	\$ 2.4	\$ -	\$ -	\$ 8.5	\$ 2.6	\$ 4.8	\$ 1.1	\$ -	\$ 12.1	\$ -	
2007	\$ 51.9	\$ 32.5	\$ 15.3	\$ 2.6	\$ 1.5	\$ 4.1	\$ 0.2	\$ 4.0	\$ -	\$ -	\$ 1.2	\$ -	\$ 1.2	\$ -	\$ -	\$ 2.6	\$ -	\$ 2.6	\$ -	\$ -	\$ 9.1	\$ 2.8	\$ 5.2	\$ 1.2	\$ -	\$ 12.9	\$ -	
2008	\$ 55.4	\$ 34.7	\$ 16.3	\$ 2.7	\$ 1.7	\$ 4.4	\$ 0.2	\$ 4.2	\$ -	\$ -	\$ 1.2	\$ -	\$ 1.2	\$ -	\$ -	\$ 2.8	\$ -	\$ 2.8	\$ -	\$ -	\$ 9.7	\$ 3.0	\$ 5.5	\$ 1.3	\$ -	\$ 13.8	\$ -	
2009	\$ 59.1	\$ 37.0	\$ 17.4	\$ 2.9	\$ 1.8	\$ 4.7	\$ 0.2	\$ 4.5	\$ -	\$ -	\$ 1.3	\$ -	\$ 1.3	\$ -	\$ -	\$ 2.9	\$ -	\$ 2.9	\$ -	\$ -	\$ 10.4	\$ 3.2	\$ 5.9	\$ 1.3	\$ -	\$ 14.7	\$ -	
2010	\$ 63.0	\$ 39.5	\$ 18.5	\$ 3.1	\$ 1.9	\$ 5.0	\$ 0.2	\$ 4.8	\$ -	\$ -	\$ 1.4	\$ -	\$ 1.4	\$ -	\$ -	\$ 3.1	\$ -	\$ 3.1	\$ -	\$ -	\$ 11.0	\$ 3.4	\$ 6.2	\$ 1.4	\$ -	\$ 15.7	\$ -	
2011	\$ 67.2	\$ 42.1	\$ 19.7	\$ 3.3	\$ 2.0	\$ 5.4	\$ 0.2	\$ 5.1	\$ -	\$ -	\$ 1.5	\$ -	\$ 1.5	\$ -	\$ -	\$ 3.3	\$ -	\$ 3.3	\$ -	\$ -	\$ 11.8	\$ 3.6	\$ 6.7	\$ 1.5	\$ -	\$ 16.7	\$ -	
2012	\$ 71.7	\$ 45.0	\$ 21.0	\$ 3.5	\$ 2.1	\$ 5.7	\$ 0.2	\$ 5.5	\$ -	\$ -	\$ 1.6	\$ -	\$ 1.6	\$ -	\$ -	\$ 3.6	\$ -	\$ 3.6	\$ -	\$ -	\$ 12.6	\$ 3.8	\$ 7.1	\$ 1.6	\$ -	\$ 17.8	\$ -	
2013	\$ 76.5	\$ 48.0	\$ 22.4	\$ 3.8	\$ 2.3	\$ 6.1	\$ 0.2	\$ 5.8	\$ -	\$ -	\$ 1.7	\$ -	\$ 1.7	\$ -	\$ -	\$ 3.8	\$ -	\$ 3.8	\$ -	\$ -	\$ 13.4	\$ 4.1	\$ 7.6	\$ 1.7	\$ -	\$ 19.0	\$ -	
2014	\$ 81.6	\$ 51.2	\$ 23.9	\$ 4.0	\$ 2.4	\$ 6.5	\$ 0.3	\$ 6.2	\$ -	\$ -	\$ 1.8	\$ -	\$ 1.8	\$ -	\$ -	\$ 4.0	\$ -	\$ 4.0	\$ -	\$ -	\$ 14.3	\$ 4.4	\$ 8.1	\$ 1.8	\$ -	\$ 20.3	\$ -	
2015	\$ 87.0	\$ 54.6	\$ 25.5	\$ 4.3	\$ 2.6	\$ 6.9	\$ 0.3	\$ 6.6	\$ -	\$ -	\$ 1.9	\$ -	\$ 1.9	\$ -	\$ -	\$ 4.3	\$ -	\$ 4.3	\$ -	\$ -	\$ 15.2	\$ 4.7	\$ 8.6	\$ 2.0	\$ -	\$ 21.6	\$ -	

\*Certified Organic, The Status of the Candian Organic market in 2003," Macy, Anne, for Agriculture and Agri-food Canada, Revised September 2004

\*The world of Organic Agriculture; Statistics and Emergin Trends, 2004," Willer, Helga and Yussefi, Minou (Eds.), International Federation of Organic Agriculture, 2004.

\*Fourth National Organic Farmers' Survey Results, ", United States Department of Agriculture, 2004

For 2002, 2004-15, TDV Global estimates

## 2.9.2 IMPORTERS

The **following table** provides estimated dollar values, CIF, of exports in 2003, broken down by commodity group. The implicit assumption is that that Canada will maintain its market share, other things being equal.

Imports, 2002 - 2015 (\$'000,000 current)								
Year	Imports to Final Demand (purchaser prices)						Imports to Intermediate Inputs, CIF	Total All Imports
	Fresh Produce	Grocery	Coffee	Dairy	Meat, Fish Poultry	Total		
2002	\$ 244.1	\$ 334.3	\$ 5.5	\$ 7.9	\$ 0.9	\$ 592.8	\$ 5.5	\$ 598.3
2003	\$ 310.5	\$ 413.8	\$ 7.0	\$ 11.0	\$ 1.1	\$ 743.4	\$ 7.0	\$ 750.4
2004	\$ 538.2	\$ 489.8	\$ 10.3	\$ 18.7	\$ 1.5	\$ 1,058.5	\$ 10.3	\$ 1,068.8
2005	\$ 623.8	\$ 596.5	\$ 12.2	\$ 22.9	\$ 1.8	\$ 1,257.2	\$ 12.2	\$ 1,269.4
2006	\$ 723.6	\$ 727.2	\$ 14.6	\$ 28.2	\$ 2.1	\$ 1,495.7	\$ 14.6	\$ 1,510.3
2007	\$ 832.2	\$ 856.9	\$ 17.1	\$ 33.8	\$ 2.8	\$ 1,742.8	\$ 17.1	\$ 1,759.8
2008	\$ 956.2	\$ 1,009.3	\$ 19.9	\$ 40.6	\$ 3.4	\$ 2,029.5	\$ 19.9	\$ 2,049.4
2009	\$ 1,100.7	\$ 1,188.7	\$ 23.3	\$ 48.7	\$ 4.4	\$ 2,365.9	\$ 23.3	\$ 2,389.3
2010	\$ 1,265.6	\$ 1,402.9	\$ 27.3	\$ 58.4	\$ 5.5	\$ 2,759.7	\$ 27.3	\$ 2,787.0
2011	\$ 1,454.8	\$ 1,657.0	\$ 32.0	\$ 70.1	\$ 7.1	\$ 3,221.0	\$ 32.0	\$ 3,253.0
2012	\$ 1,672.3	\$ 1,958.6	\$ 37.5	\$ 84.1	\$ 9.0	\$ 3,761.5	\$ 37.5	\$ 3,799.0
2013	\$ 1,922.3	\$ 2,316.6	\$ 44.1	\$ 100.9	\$ 11.4	\$ 4,395.3	\$ 44.1	\$ 4,439.3
2014	\$ 2,209.6	\$ 2,741.9	\$ 51.7	\$ 121.1	\$ 14.5	\$ 5,139.0	\$ 51.7	\$ 5,190.7
2015	\$ 2,540.0	\$ 3,247.7	\$ 60.8	\$ 145.3	\$ 18.5	\$ 6,012.3	\$ 60.8	\$ 6,073.1

"Certified Organic, The Status of the Canadian Organic Market in 2003," Macy, Anne, for Agriculture and Agri-food Canada, International Federation of Organic Agriculture, 2004.

"Fourth National Organic Farmers' Survey Results," United States Department of Agriculture, 2004.

TDV Global estimates for 2002, 2004-15.

## 2.9.3 DOMESTIC TRADE

The **table below** provides details on historical expenditures as well as projections to the year 2015. The projections were produced with the assumption that current regulation and certification would remain in place in Canada. The projections were built up based on projections for each commodity group.

Canadian Domestic Organic Market Forecast for Major Food Groups (\$'000,000 current, unless otherwise noted)										
Year	Dairy	Bread and Grains	Beverages	Snack Foods	Packaged / Prepared	Condiments	Fruit and Vegetables	Meat, Fish, Poultry	Total	Total 2005
2002	\$ 79.0	\$ 114.0	\$ 131.0	\$ 21.0	\$ 96.0	\$ 15.0	\$ 313.0	\$ 9.0	\$ 778.0	\$ 818.4
2003	\$ 110.0	\$ 156.6	\$ 146.3	\$ 26.1	\$ 119.2	\$ 18.6	\$ 398.1	\$ 11.2	\$ 986.0	\$ 1,019.4
2004	\$ 186.9	\$ 169.3	\$ 163.6	\$ 35.3	\$ 161.2	\$ 25.2	\$ 690.0	\$ 15.1	\$ 1,446.5	\$ 1,473.8
2005	\$ 228.9	\$ 206.1	\$ 194.5	\$ 43.2	\$ 200.5	\$ 30.7	\$ 799.8	\$ 17.6	\$ 1,721.4	\$ 1,721.4
2006	\$ 281.9	\$ 251.9	\$ 231.6	\$ 52.3	\$ 248.4	\$ 38.3	\$ 927.6	\$ 21.4	\$ 2,053.6	\$ 2,093.1
2007	\$ 338.0	\$ 292.7	\$ 266.1	\$ 62.6	\$ 302.9	\$ 44.9	\$ 1,067.0	\$ 27.7	\$ 2,401.8	\$ 2,313.0
2008	\$ 406.5	\$ 339.5	\$ 305.9	\$ 75.1	\$ 369.3	\$ 51.5	\$ 1,225.9	\$ 34.0	\$ 2,807.8	\$ 2,652.1
2009	\$ 487.5	\$ 393.3	\$ 351.9	\$ 89.9	\$ 450.0	\$ 59.2	\$ 1,411.1	\$ 44.1	\$ 3,286.9	\$ 3,044.0
2010	\$ 584.0	\$ 456.0	\$ 404.9	\$ 108.1	\$ 549.1	\$ 67.9	\$ 1,622.6	\$ 55.4	\$ 3,848.1	\$ 3,492.9
2011	\$ 700.8	\$ 529.7	\$ 465.9	\$ 129.7	\$ 670.1	\$ 77.8	\$ 1,865.1	\$ 70.5	\$ 4,509.7	\$ 4,010.7
2012	\$ 841.0	\$ 615.3	\$ 536.1	\$ 155.7	\$ 817.6	\$ 89.1	\$ 2,143.9	\$ 89.8	\$ 5,288.5	\$ 4,606.5
2013	\$ 1,009.2	\$ 714.7	\$ 616.9	\$ 186.8	\$ 997.7	\$ 102.0	\$ 2,464.5	\$ 114.3	\$ 6,206.0	\$ 5,292.5
2014	\$ 1,211.0	\$ 830.2	\$ 709.8	\$ 224.1	\$ 1,217.4	\$ 116.8	\$ 2,832.9	\$ 145.4	\$ 7,287.7	\$ 6,082.5
2015	\$ 1,453.3	\$ 964.3	\$ 816.7	\$ 269.0	\$ 1,485.5	\$ 133.8	\$ 3,256.4	\$ 185.1	\$ 8,564.1	\$ 6,992.6

Sources: Canadian Natural and Organic Retail Markets. Cunningham, Rosalie, 2002. Alberta Agriculture, Food and Rural Development & HOMESCAN Consumer Survey, A. C. Nielson, 2005, for Agriculture and Agri-food Canada & TDV Global (2012-15)

The composite average annual growth rate from 2006 to 2015 is 20.6%

### 3.0 STATEMENT OF NEED FOR REGULATORY CHANGE

At the request of the Canadian organic industry, draft standards were developed to govern organic agriculture in 1995, but consensus was never reached. In 1996, the House of Commons Standing Committee on Agriculture recommended that the organic industry develop a set of voluntary guidelines. In 1997, the CFIA contracted the Canadian Organic Advisory Board to develop a national standard and an accreditation mechanism. In June 1999, the Standards Council of Canada (SCC) published a voluntary national standard for organic agriculture that established minimum criteria for agricultural practices, management practices and requirements for making organic claims on foods. The national standard is being revised by the industry through the Canadian General Standards Board (CGSB).

In 2002/03, organic industry associations held an informal vote to determine the interest in establishing a mandatory national standard for organic agriculture, resulting in a majority of participants indicating agreement with establishing a mandatory system. AAFC and the CFIA have been working with the organic industry to assess the need and develop options for mandatory organic regulation.

#### 3.1 CURRENT SITUATION

The current system is a self-regulated system where organic producers are certified through a network of independent certification bodies. A voluntary Canadian standard (Canadian National Organic Standard) is maintained by the Canadian General Standards Board. This self-regulated system includes five Accreditation Agencies. The Certified Organic Association of British Columbia (COABC) and the Conseil des appellations agroalimentaires du Quebec (CAAQ) and the SCC are three Accreditation Agencies based in Canada. Those with bases outside of Canada are the United States Department of Agriculture National Organic Program (NOP) and the International Organic Accreditation Service (IOAS), the accreditation arm of the International Federation of Organic Agricultural Movement (IFOAM). The role of these five Accreditation Agencies is to develop and apply standards. The standards are applied by 30 Certification Bodies (CBs) in Canada. The CBs inspect farms and certify production, processing, handling and sale of organic agricultural products. CBs may be accredited by one or more Accreditation Agencies.

A number of optional organic seals are used throughout the country to mark certified product.

Compliance to the standards is voluntary and currently unenforceable in most of Canada. Quebec and BC are exceptions. Quebec has a mandatory system and standard, operating since 2000, composed of CAAQ-accredited Certification Bodies (6), mandatory standards (Normes biologique de references du Quebec) and a formal enforcement and complaint process. About 75% of the cost of this system is subsidized by the Quebec provincial government. BC has its own system and standard as well as 11 CBs. Organic producers in BC must comply with the COABC standard in order to use the COABC organic mark.

Existing regulations under the Food and Drugs Act prohibit selling or advertising of food in a manner that is false, misleading or deceptive. The Consumer Packaging and Labelling Act is enforced by the CFIA relevant to organic, but not to a high degree as it is not a food safety issue. Consumers do have the option of sending complaints to CBs.

Imports currently have no specific regulations related to organics; however some products may or may not be certified by local certification bodies.

In terms of exports, exporters may or may not follow the voluntary standards. As of 2006, the European Union (EU) will only accept imported organic product from countries that have an equivalent inspection system. Canadian products that are now reaching the EU market may lose market access. AAFC wishes to initiate negotiations for recognition of an equivalency agreement between Canada's national inspection regime and the EU. For US trade, Canadian certification system compliance must be recognized individually by USDA.

## **3.2 PROBLEM DEFINITION**

Trade in organic products, the domestic marketplace and consumer concerns have been identified as three main issues that indicate a need for a change in regulation in Canada. In addition, supplementary issues in the areas of environment, social and rural development, have also been identified. The section below outlines each of these needs and the implications of each.

### **3.2.1 TRADE IN ORGANIC PRODUCTS**

Export markets are not reaching their full potential. The multitude of certification requirements and regulations are considered an obstacle for growth of the organic export sector. In addition, if Canada does not have a national regulatory system acceptable to the EU by the end of 2005, Canada may lose access the EU market for organic agricultural products.

There is strong competition among trading partners in the organic market. The present system, with multiple standards and Accreditation Bodies, is inefficient and generates a high cost of accreditation for Canadian CBs. For example, SCC accreditation costs are estimated at \$50,000 for initial certification. A number of Canadian CBs are accredited by multiple Accreditation Bodies such as Organic Crop Producers and Processors (OCPRO) that is accredited by SCC, USDA as well as CAAQ.

To export to the US, Canadian organic product must be certified by CBs who have been accredited by USDA. The USDA has accredited 97 CBs worldwide (called Accredited Certification Agencies by the USDA), of which 57 are domestic. Of the remaining 40 foreign organisations, five are Canadian, including Organic Crop Producers and Processors/Pro-Cert Canada, Garantie Bio-Ecocert, Organic Producers Association of Manitoba, Canadian Organic Certification Co-op, and Saskatchewan Organic Certification Association. An additional four US organisations certify in Canada, including International Certification Services, Quality Assurance International, Organic Crop Improvement International, and Global Organic Alliance. Likewise, CBs must be accredited by the Japanese Ministry of Agriculture, Forestry and Fisheries for access to the Japanese market.

The EU has developed mandatory organic certification and accreditation systems. This includes detailed regulations on the production, labelling and inspection of organic products and a list of countries from which imports of organic products are permitted. Canada does not appear on this list at this time. There are two conditions that must be met for Canada to retain entry to the EU market after the end of 2005. The first is to appear on the third country list and the second is to have a recognised, competent authority issue a certificate stating that the EU production and inspection rules were respected.

### **3.2.2 DOMESTIC MARKET FOR ORGANICS**

On the domestic market, issues have been identified with respect to imported organic products and inter-provincial trade within Canada.

The current voluntary regime makes it relatively easy to import organic products. The lack of controls over imported organic products creates potential for an unfair trading environment as some countries have clear requirements while other countries do not. There is limited protection for the domestic market because of a lack of inspection of imported organic products. Foreign countries are unclear as to who is responsible for organic products in Canada as there is no central federal role.

In the present situation, different Accreditation Agencies, CBs and symbols are in place across the country. This situation is creating a lack of consistency in the Canadian organic regime. In addition, there is no monitoring program in place (with the exception of Quebec), and the voluntary standard cannot be enforced. This creates the potential for unfair inter-provincial trade.

### 3.2.3 CONSUMERS

Consumers are at risk of fraud under the current system and are confused by the multitude of organizations and organic logos. A loss of consumer confidence in the system could result in organic market failure.

Enforcement of label claims is seen as a critical factor to assure consumers that products marked “organic” are in compliance with a minimum standard. Domestic and foreign consumers are not protected from fraud under the present system, as products may be labelled “organic” when in fact, they are not and adherence to the national standard cannot be enforced.

Consumers are confused by the current organic system in Canada. Two independent marketing surveys (IMPACS Communication Center in 2002 and ENVIRONICS Research Group in 2003) showed that organic product consumers are confused by the current voluntary regime, including the multitude of organizations that certify organic foods and the use of different logos. In addition, consumers have difficulty differentiating between organic and natural products. The Environics' survey found that many Canadians currently assume that the use of the term "organic" on food products is regulated by a Department or Agency of the Federal Government.

A survey conducted by Ipsos-Reid found that Canadian consumers who are not confident that their food is safe are especially likely to want more detailed food labels (mentioned by 40%). Also, Canadian consumers feel the risk of pesticide use is the greatest chance for a food safety problem to develop at the farm level (Ipsos-Reid, 2002). While existing regulations do address food safety for conventionally grown and organically grown products, consumer confidence and trust in the organic sector may be at risk.

A recent study by Giannakas noted that while organic certification and labelling satisfy consumers' need for information, it can also create incentives for mislabelling in organic food markets. Further he demonstrated that while certification and labelling are necessary, they are not sufficient for alleviating failures in organic food markets. “Consumer deception through mislabelling affects consumer trust and can have detrimental consequences for the market acceptance of organic products. When extensive mislabelling occurs, the value of labelling is undermined and the organic food market fails.”<sup>63</sup>

### 3.2.4 ENVIRONMENTAL ISSUES

In some parts of the world, notably the EU, sustainable farming practices such as organic methods are gaining legislative and subsidy support to promote benefits to the environment, including protecting biodiversity. Organic farming and other sustainable farming practices, help prevent topsoil erosion, improve soil fertility, protect groundwater, and conserve energy. Land degradation can take a number of forms, including soil nutrient depletion, agrochemical pollution, and soil erosion. Organic farming can help reduce ground and surface water contamination, and can safeguard drinking water supplies. Organically grown crops have been shown to use less fossil energy than conventional crops, requiring only slightly more energy for infrastructure, machinery and fuel, with markedly lower energy input for the production of fertilizers and pesticides.<sup>64</sup>

Biodiversity is being threatened by agricultural intensification. A review of comparative studies on organic and conventional systems concluded that the following management options, intrinsic but not exclusive to organic farming, are likely to be particularly beneficial to farmland biodiversity:

- Prohibition/reduced use of chemical pesticides and inorganic fertilisers;
- Sympathetic management of non-crop habitats and field margins; and

---

<sup>63</sup> Information Assymetries and Consumption Decision in Organic Food Product Market, Giannakas, Konstaninos, Canadian Journal of Agricultural Economics, 50 (2002) 35-50.

<sup>64</sup> Maeder P, Fliessbach A, Dubois D, Gunst L, Fried P, Niggli U, Soil Fertility and Biodiversity in Organic Farming. Science 296, 1694-1697, 2002.

- Preservation of mixed farming.

However, further study is required before a full appraisal of its potential role in biodiversity conservation in agroecosystems can be made.”<sup>65</sup>

### **3.3 NEED FOR FEDERAL ACTION**

Regulation is meant to serve the public interest. The Smart Regulation<sup>66</sup> initiative describes the purposes of regulation as:

“... a key way by which governments work to protect the health, safety and socio-economic well-being of Canadians as well as Canada’s natural environment. It contributes to ensuring a fair and efficient marketplace for industry and consumers. It also plays a role in creating a climate conducive to trade and investment.”

Based on this, the need for Federal action is described under the areas of a fair and efficient marketplace for industry and consumers and trade.

#### **3.3.1 FAIR AND EFFICIENT MARKETPLACE FOR INDUSTRY**

Additional federal regulation would promote a level playing field for the import and inter-provincial organic product markets in Canada. Consistent national standards would form the base of certification of domestic and imported products, supporting a fair and efficient marketplace for organic products.

#### **3.3.2 FAIR AND EFFICIENT MARKETPLACE FOR CONSUMERS**

An enhanced role in enforcement would reduce the risk of fraud to the consumer and alleviate organic market failures. Giannakas concluded that the role of private and public institutions is clear to enforce compliance and guarantee the accuracy of information conveyed on the label.<sup>67</sup> A system which includes national standards, regular inspection, certification and enforcement, will protect the consumer and prevent claims that could mislead consumers about the quality of the product or the way it was produced. It will also provide a process for dealing with consumer complaints.

#### **3.3.3 TRADE**

The maintenance or increasing of market access and economic growth in the organic sector is an expected outcome of additional regulatory intervention. Organic producers would maintain or increase export market access through a national mandatory system as equivalency agreements are negotiated. A recent study of organic wheat and the effect of Canada missing the EU 3<sup>rd</sup> country list concluded that the main reason for negotiating equivalency is to avoid the possibility of a trade barrier resulting in a negative impact for Canada.<sup>68</sup> Changes to the current voluntary system are required to negotiate equivalency. Costs may be reduced as the multitude of certification requirements and regulations are simplified.

---

<sup>65</sup> Does Organic Farming Benefit Biodiversity? Hole, D.G., Perkins, A.J., Wilson, J.D., Alexander, I.H., Grice, P.V., Evans, A. D., Biological Conservation, July 2004.

<sup>66</sup> Smart Regulation, A Regulatory Strategy for Canada, Report to the Government of Canada, External Advisory Committee on Smart Regulation.

<sup>67</sup> Information Assymetries and Consumption Decision in Organic Food Product Market, Giannakas, Konstaninos, Canadian Journal of Agricultural Economics, 50 (2002) 35-50.

<sup>68</sup> Economic Effect of Canada Making or Missing the EU 3rd Party Country List: The Case of Organic Wheat, Ferguson, Shon and Wessen, Simon, Department of Agricultural Economics, University of Saskatchewan, Project on Organic Agriculture Number 7, January 2005.

## **4.0 REGULATORY OPTIONS**

### **4.1 OPTION 1: STATUS QUO**

#### **4.1.1 IMPLEMENTATION PROGRAM**

##### **4.1.1.1 DESCRIPTION**

This option is the current system where organic producers are self-regulated through a network of independent certification bodies. A voluntary Canadian standard (Canadian National Organic Standard) is maintained by the Canadian General Standards Board. This self-regulated system includes five Accreditation Agencies. The role of these five Accreditation Agencies is to develop and apply standards, and to accredit Certification Bodies.

The standards are applied by 30 Certification Bodies in Canada. The Certification Bodies inspect farms and certify production, processing, handling and sale of organic agricultural products. Certification Bodies may be accredited by one or more Accreditation Agencies.

A number of optional organic seals are used throughout the country to mark certified product.

Compliance to the standards is voluntary and currently unenforceable in most of Canada. Quebec and British Columbia are exceptions. Quebec has its own mandatory system and standard, operating since 2000, composed of CAAQ-accredited Certification Bodies (6), mandatory standards (Normes biologique de references du Quebec) and a formal enforcement and complaint process. British Columbia has its own system and standard and 11 Certification Bodies. Organic producers in BC must comply with the COABC standard in order to use the COABC organic mark.

Existing regulations under the Food and Drugs Act prohibit selling or advertising of food in a manner that is false, misleading or deceptive. The Consumer Packaging and Labelling Act is enforced by the CFIA relevant to organic, but not to a high degree as it is not a food safety issue. Consumers do have the option of sending complaints to Certification Bodies. Imports currently have no specific regulations related to organics; however, some products may or may not be certified by local certification bodies. Exporters may or may not follow the voluntary standards.

##### **4.1.1.2 KEY ASSUMPTIONS**

- National Organic Standards currently drafted and in revision through CGSB are approved.
- If the current voluntary system continues, access to European Union markets will be lost in 2006.

### **4.2 OPTION 2: THIRD-PARTY DELIVERY**

#### **4.2.1 IMPLEMENTATION PROGRAM**

##### **4.2.1.1 DESCRIPTION**

Under this option, a mandatory regulatory system would be implemented through a form of alternate service delivery, in conjunction with the private sector and provincial governments. With regulation:

- the certification system would be mandatory;
- a "Canada organic" mark would be created;
- the 'organic' designation would be protected;
- imports would be subject to standards that are the same as, or deemed equivalent to, the Canada mark's; and
- systematic certification for accredited certifiers would be undertaken by provincial and federal authorities.

The proposed Canadian National Organic Standard would be mandatory and the appropriate regulations would be included under relevant CFIA statutes. Each province and territory in Canada would conform to the new regulations and provincial governments would be empowered as accreditation bodies to accredit certifiers. This is similar to the organic certification systems currently in place in Quebec and British Columbia. The provincial/territorial role would be to accredit Certification Bodies and operate surveillance programs.

The CFIA would develop and maintain the regulations, recognize and audit 3<sup>rd</sup> party accreditors communicate the program, recognize importers and enforce the regulations. The existing (and potentially new) Accreditation Bodies would report to the CFIA. The CFIA would act as an accreditation body if necessary.

All Certification Bodies would be required to be ISO 65 accredited through a provincial/territorial accreditation body or the SCC.<sup>69</sup> The Certification Bodies would license producers, manufacturers, processors, or handlers with the CFIA, and continue their inspection and certification activities. Certification an accredited Certification Body would be mandatory. A “Canada Organic” certification mark would also be mandatory.

A surveillance program would be both complaints driven and fed by information gathered by inspectors who verify organic food labelling in numerous points of purchase throughout the province or territory and report their findings back to the provincial authority, who, in turn reports to the CFIA. Improperly labelled organic foods would lead to enforcement action by the CFIA and penal proceedings.

Importers of organic product would be required to meet Canadian organic standards. Exporters would be licensed to meet the Canadian standard and the requirements of importing countries. Equivalency agreements would be negotiated by AAFC/ITCan based on the standard and mandatory system. The Government of Canada would negotiate bilateral or unilateral trade agreements with other countries or organizations.

This option could operate on a cost-recovery basis, with fees charged by the CFIA to the Accreditation Bodies and/or individual licensees.

#### **4.2.1.2 IMPLEMENTATION TIMEFRAME**

This option would require about two years to phase in.

### **4.2.2 PUBLIC SECTOR IMPLEMENTATION COSTS**

#### **4.2.2.1 FEDERAL**

CFIA has estimated that seven additional staff would be required to deliver the program. Costs including wages, benefits, office space, travel, overhead, communications, etc. are estimated at \$1,000,000 per year.

AAFC and ITCanada would increase market access activities to negotiate recognition agreements for the Canadian program. An estimated 1/3 of a person and associated benefits, office space, travel, overhead, communications, etc. would cost \$80,000 per year.

#### **4.2.2.2 PROVINCIAL**

For each province or territory there would be annual costs for accreditation, surveillance, and recognition of foreign CABs. These costs are known for the SCC, CAAQ and COABC and can be estimated for the remaining provinces and territories:

- British Columbia (COABC) \$335,000 (based on 2003 Annual Report)
- Quebec Total revenues of \$414,000 of which \$81,000 was contributed by farmers and processors (based on 2003 Annual Report)
- Standards Council of Canada \$50,000 per certification body

---

<sup>69</sup> Informed sources contacted during the assignment suggest that the organic sector is generally more willing to use the IFOAM accreditation criteria than ISO 65.

Provinces and territories may choose to participate in the program, may opt out and not incur any costs, or opt to have the SCC or CFIA deliver the program. Alternately, a method may be found to combine accreditation authorities for more than one province, as in the case of the Atlantic Provinces.

### **4.3 OPTION 3: FULL DELIVERY BY THE GOVERNMENT OF CANADA**

#### **4.3.1 IMPLEMENTATION PROGRAM**

##### **4.3.1.1 DESCRIPTION**

Under this option, the CFIA would take on all certification, licensing, audit and inspection activities currently performed by Accreditation Bodies and Certification Bodies. The existing Accreditation Bodies and Certification Bodies would no longer be required.

The roles that the CFIA would assume include:

- Have federal government staff to inspect all organic operations in Canada.
- License all organic operations including farmers, processors, retailers, handlers, importers and exporters.
- Provide documentation and marks that certify all organic products as organic.
- Apply, maintain, amend and enforce the Canadian Organic National Standard.
- Enforce the regulations under a full monitoring program or on a complaint basis.
- The Canadian Government would be the 'recognized authority' and would negotiate bilateral or unilateral international trade agreements with other countries or organizations.

The CFIA could operate the organic program under a cost recovery regime.

##### **4.3.1.2 IMPLEMENTATION TIMEFRAME**

This option would also require about two years to phase in.

#### **4.3.2 PUBLIC SECTOR IMPLEMENTATION COSTS**

##### **4.3.2.1 FEDERAL**

CFIA is estimated to require an additional 34 staff, including 27 inspection and enforcement officers, to deliver the program under this option. Costs including wages, benefits, office space, travel, overhead, communications, etc. are estimated at \$4,700,000 per year.

AAFC and ITCanada would increase market access activities in order to negotiate recognition agreements for the Canadian program. An estimated 1/3 of a person and associated benefits, office space, travel, overhead, communications, etc. would cost \$80,000 per year.

##### **4.3.2.2 PROVINCES**

Provinces would not incur any costs as the CFIA would assume all roles.

## 5.0 MARKET EFFECTS ASSOCIATED WITH THE REGULATION OPTIONS

This section describes the effects of regulatory Options 2 and 3 on the key industry groups. Option 3 is identified separately where the effect varies from Option 2.

### 5.1 GROWERS AND PRODUCERS

During our interviews with organic farmers, organic products processors and buyers it appears that the biggest impact of regulations will be reduction of uncertainty. The reduction of uncertainty will help retain organic farmers that now export to European Union and could attract new organic farmers in anticipation of future growth in the European Union market and future entry on a third country basis into Japan. However, the rate of uptake of organic farming by new entrants will be significantly affected by the level of transition support services available.

Little or no impact is expected on the range of product lines, at least in the short run (1-5 years). However, beyond five years the reduction of uncertainty and achievement of third country status should help open new markets and as a consequence should help establish new product lines. By way of supporting evidence, some organic farmers in the United States reported that in 2001 they were already feeling the impacts of National Organic Program. When asked about the NOP's short run impacts they responded as follows:

- 25%, no changes;
- 10%, paperwork became excessive;
- 5%, certification costs increased;
- 2%, needed to change accreditation agency;
- 2%, cost of production increased; and
- 2%, increased sales and / or expanded markets.

When asked about the NOP's effects over the next few years:

- 4% thought market demand and sales would increase; and
- 16% (down from 25%) did not expect any changes.<sup>70</sup>

During our interviews with Canadian growers and producers we found that, with the exception of the impact on achieving third country status with the European Union, the new regulations, at least in the short run, are anticipated to have relatively benign impacts. Interviewees believed that:

- The new regulations would save time taken to determine what products can and cannot be used on an organic farm. The anticipation was that the permitted substance list (PSL) will be comprehensive.
- The issuance of Canada wide standards and regulations for certification should actually reduce costs by eliminating the need for multiple certifications. For example, most producers and exporters in Saskatchewan hold at least two certifications and many have three. The number of certifications depends on the demands of the target market. A mandatory regulatory framework in Canada should allow negotiation of equivalence agreements that will obviate the need for multiple certifications.
- The new regulations need not increase costs to growers. They believed that certification bodies have grown used to dealing with relatively small numbers of clients. They are still learning how to be cost efficient when dealing with large numbers of clients.
- If the new process did not allow for a sufficient number of accreditation agencies and certification bodies, the reduction in competition could lead to rising certification costs.
- Most growers and processors agreed that there may be some additional training costs. However, they also thought that the beginning of consistent standards and certification processes could also be a good opportunity to coordinate and make more efficient the overall inspections regime. They believe that farms and processors are subject to a wide range of inspections that are not undertaken in a

---

<sup>70</sup> Fourth National Organic Farmers of Survey Results, USDA

coordinated fashion, thus bringing costs to the farm and inefficiencies in the inspection processes themselves.

## 5.2 PROCESSORS

The interviewees said that Canada can expect some processor conversions from conventional to organic and conventional processors adding organic processing runs, if the new regulations guarantee acceptance in target countries.

They also indicated that we can expect some processors who do not anticipate exporting to export to drop their certifications. The processors might be inclined to take this route for two reasons. First, it would reduce their costs of production. Second, if they are selling to the local market there is a belief that there is less of a need for certification when customers and producers "know each other."

However, despite the above noted observation, Québec opted for the full and mandatory certification option because it also helps to eliminate fraud. However, in this situation enforcement of standards is as important as the standards themselves.

There remains some concern that issues with respect to the acceptance of minor non-organic ingredients still need to be worked out.

## 5.3 INTERNATIONAL TRADE

### 5.3.1 EXPORTERS

The status quo situation is reported to be very complex for exporters. Buyers report that even medium-size buyers have one person working full-time on paperwork. Grain sales into the European Union take up about \$2,000 to \$3,000 in paperwork for each export licence. The situation is even more expensive when moving product into Japanese markets. Buyers and exporter expect that the mandatory regulation process will reduce these costs, on the assumption that Canada achieves a third country status or negotiates equivalency agreements with destination countries.

Buyers and exporters also expect either of the proposed regulatory options to eliminate import license application requirements in the European Union, which can now take four to six months to get approved.<sup>71</sup>

Exporters report that their certification costs represent about 0.5% of their transaction costs. Most exporters maintain certification from more than one certification body. The multiple certifications are currently needed to meet the requirements of individual countries in Europe. They expect the new regulation regimes to eliminate the need for multiple certifications.

Impacts associated with not establishing a regulatory process with the Government of Canada as the competent authority are already being felt. The European Union has made it clear that unless Canada has regulations in place before the end of 2005 it will not accept Canadian product as organic.

The consensus among growers, buyers and exporters interviewed was that if the EU closes its borders to Canadian organic product, Canada cannot assume you can simply sell into the United States. They believe that Canada does not have the economies of scale or the level of subsidies existing in the United States. Canada makes its money as a seller in niche grain and oilseed markets.

The consensus among those interviewed in the Prairie Provinces was that the impacts of the new regulations would be more to maintain than to grow export market for grains and oilseeds. However, there are signs that the risk associated with being shut out of the European Union market is limiting efforts to grow Canadian

---

<sup>71</sup> Personal communication with grain, cereal and lentil buyers and exporters.

export markets. Interviewees in Québec indicate that, in general, Québec is not making significant efforts to develop the EU market because of the risk that the market might close to Canadian exports in 2006.

Reports are that Québec growers and producers are targeting other markets that are growing faster than United States. For example, demand for organic products is reported to be growing 18% per year in Sweden, Denmark, the Netherlands, and the United Kingdom. This rate contrast to a growth rate of about 7% per year in countries in continental Europe.

**The Situation Without Compulsory Regulation.** If Canada does not establish compulsory regulations it will still have avenues to export into the European Union under article 11, which allows a Canadian exporter to be certified by an EU certification body. However, as noted above this would raise costs for Canadian exporters through direct certification costs and costs associated with time needed to acquire export licenses. Exports into the United States and Japan should be no more difficult than at present.

However, most observers believe that should Canada not gain third country status, all exporting to the European Union would effectively cease. Exporters interviewed during this assignment advised us that they are no longer purchasing product for shipment to the European Union unless it can be guaranteed to be delivered before December 31, 2005.

The Example of Canadian Wheat. Recent research (Ferguson and Weseen, 2005)<sup>72</sup> provided an integrated examination of the effect of the EU closing its borders to imports of Canadian wheat. The research used data from 2002.

In 2002, exports of Canadian wheat, in Canadian dollars, CIF, amounted to \$13.2 million. The EU accounted for 50% of the sales, followed by the United States at 38%, Japan at 6% and the rest of the world at 6%.<sup>73</sup> The research also made note that although Canada is a major world exporter of wheat, accounting for 27% of exports by value, it also had major competitors in the United States (33% of world exports by value), Hungary (22%), Australia (9%), Argentina (5%), and Slovakia (4%). In terms of importing, the EU leads, importing 65% of world trade in organic wheat, followed by Switzerland at 15%, United States at 10%, Japan at 6% in the rest of the world at 3%. The data clearly show the importance of the EU market to wheat exporters around the world.

They concluded that should the EU close its borders to Canadian wheat the direct result would be:

- a complete stop of exports from Canada to the European Union;
- increased exports to other customers (primarily the US, and Japan); and
- more organic wheat consumed domestically.

However, this would not occur without cost. The elimination of the EU market for Canadian organic wheat leads to increases in supply available to other outlets, which in turn results in price decreases for Canadian organic wheat.

Price declines leave Canadian consumers better off and Canadian producers worse off. They have similar, but smaller, effects in countries that import more Canadian wheat. In the EU the effects are opposite.

---

<sup>72</sup> "The Economic Effect of Canada Making or Missing The EU Third Country List: The Case of Organic Wheat," Ferguson, Shon and Weseen, Simon; University of Saskatchewan, January 2005.

<sup>73</sup> Data for 2003 (op. cit., Macy, Anne, September 2004) show that Canadian wheat exports amounted to about \$14.0 million, of which 73% went to the EU, 25% to the United States and 2% to Japan. Negligible amounts went to other destinations. The shift away from the US continued with the imposition of a 14.5% tariff by the US on Canadian wheat. By 2004-05 the US took just under 10% of Canadian wheat exports and the EU share of Canadian wheat exports rose to just under 80% . (op. cit., Ferguson, Shon and Weseen, Simon, January 2005).

Based on the information provided in the report to clear its supply of organic wheat, if the EU market is closed off, Canada would need to drop its farm gate price by about \$213 per tonne, leaving it just above the price for conventional wheat.<sup>74</sup> Significant price decreases can be expected because the EU makes up, in this analysis, about 79% of the market for Canadian organic wheat exports. This would leave Canada in a severe oversupply position.

Export volumes to the US would rise by 201% assuming a price elasticity of demand of unity.<sup>75</sup> Similarly, volumes to Japan would rise 191% and volumes to the rest of the world would rise 212%. However, a substantial price decrease would result in a net loss of export revenue of about \$9.04 million (using the 2002 data as in the original report). Domestic sales would, by implication, need to rise by 119% to clear the supply. Canadian consumers, on the other hand, would enjoy reduced prices for organic wheat and, if Canadians chose to purchase the organic wheat and assuming they always been willing to pay the premium price that existed before the closure of the European market (This assumption is very generous. Obviously, if Canadians were willing to pay the same price as Europeans, one can assume that domestic organic wheat sales will be much higher than was the case.) Allowing this assumption Canadian consumers earn the benefit of about \$4.4 million in reduced prices.

The analysis does not assume any impact on the conventional wheat producers because the volumes of organic wheat compared to conventional wheat is extremely small.

**The Situation with Compulsory Regulation and Achievement of Third Country Status in the EU.** In Options 2 and 3 presented in this assignment, the assumption is that Canada would be able to negotiate third country status with the European Union. This situation would have no immediate impact on trade relationships in organic products with either the United States or Japan. However, any impacts are believed to be positive.

In Options 2 and 3, Canada is able to continue exporting to the European Union. Moreover, the improved regulatory system is expected to bring cost savings and contribute to higher producer surpluses as well as reduce trading costs that will expand the market for Canadian organic wheat.

The achievement of third country status will result in two forms of cost saving that could impact the terms of trade. First, producers will save on the certification costs in terms of less paperwork and reduced number of certifications required. Based on the work of Ferguson and Weseen (2005) we estimate the value of the savings due to reductions in multiple certifications and related administration at about \$0.15 million (\$2005) per year. The authors report larger savings associated with the reduction of trade costs from reduced dollar and time costs incurred by exporters. The authors estimate the saving at about \$125 per sale (\$2002) or about \$0.43 million (\$2005) per year. They estimate the combination of these two savings, the latter being the significant saving, will improve Canada's terms of trade and allow it to increase its exports to the European Union. At the same time, they find that Canada would slightly decrease exports of organic wheat to the United States, Japan and the rest of the world. These decreases would be about 2% to 3%.

Overall, the estimated net gain would be about \$0.59 million (\$2005) per year, assuming certification bodies are able to reduce their accreditation costs and that these savings are passed on to exporters who in turn reduce costs to expand sales by a percentage greater than their percentage price decreases. Based on prices for organic wheat in 2003, we estimate that the effect of trade cost savings on market expansion or expand Canadian organic wheat sales, in terms of volume, by about 3%.

**Improving the Effectiveness of the Regulatory Options.** The consensus among those interviewed was that the "Canadian flag sells product." Therefore, if we are going to have a "Canada organic mark" there has

---

<sup>74</sup> We use the 2003 farm gate price of \$425 per tonne, reported in op. cit., Macy, Anne; September 2004.

<sup>75</sup> Op. cit., Ferguson, Shon and Weseen, Simon; University of Saskatchewan, January 2005 - The report did not describe the price elasticity is used and therefore we took a equilibrium assumption of an elasticity of one.

to be a sense of ownership of it by Canadians for it to reach its potential effectiveness. Ownership will be established if growers and producers participate in the development and implementation of process. Opinions are that the organic sector should be consistently consulted by the CFIA and brought in to advise on international initiatives and agreements. Canada needs to understand that it is a small player in the world organic market and therefore must make best efforts to stay one step ahead of larger competitors on issues with respect to international standards, accreditation and certification. Canada needs to find ways to exert influence on the world scene.

### 5.3.2 IMPORTERS

We expect no significant impact of the new regulation options on importers, except that their business should be simpler, and therefore less costly, because they do not have to track paperwork on certifications of their suppliers.

## 5.4 DOMESTIC TRADE

### 5.4.1 WHOLESALE

Wholesalers will experience some time savings because there will be slightly less effort on their part to ensure that the products they purchase are certified organic. The savings will be very small because at present the burden is on the supplier to prove that their products are organic.

### 5.4.2 RETAILERS AND CONSUMERS

The literature and persons interviewed during this assignment both indicate that consumers are now including consideration of where their food comes from, how was produced and whether it is organic in their overall judgment of food quality.<sup>76</sup> Due to this trend, retailers of organic products are able to sell them as the value added products and not basic commodities that sell only on price.

The creation of a "Canada organic" mark, properly introduced and "explained" to the marketplace, would guarantee that imports are equivalent to domestic organic products and therefore prices to consumers may decrease as supply lines improve. Secondly, the Canada mark could help increase the perceived utility of consuming Canadian organics and thereby, lead to shifts in market share from imports to the domestic industry.

**Options 2 and 3.** Notwithstanding potential differences in the cost of accreditation and certification that may occur between Options 2 and 3, the impacts on retailers and consumers will be virtually identical.

There is some opinion that the creation of a "Canada organic" mark will convert people to organics. However, it may also help increase the amount bought by current consumers, especially if there are more product lines.<sup>77</sup>

Representatives of the Canada Grocery Distributors Council point out that if the new certification process is going to have an impact on the demand for organic products, retailers will need clear interpretation guidelines from the CFIA. Retailers and wholesalers need to have information that will help them understand the principles of organic production so that they can identify the value proposition for current and potential market segments.

There is evidence that confidence in the words "certified organic," can have an impact on consumer buying decisions. For example, a recent survey of Canadians found that:

- 29% of consumers buy organic only if they are certified organic; and

---

<sup>76</sup> Consumer Perceptions of Food Safety and Quality, Ipsos Reid, 2004.

<sup>77</sup> Personal communication via interview process, several sources.

- 31% say that being organically produced is one of the things that they consider when buying foods in general.<sup>78</sup>

Similar research in the United States found that:

- 31% of consumers say certified organic is the most important thing on the label influencing their decision to buy.

The top-ranked responses were:

- 60% say fresh is the most important thing on the label influencing their decision to buy;
- 50% say without pesticides; and
- 37% say all natural.<sup>79</sup>

About 39% of all US shoppers that use at least some organic product state that the main reasons they do so are concerns over the use of pesticides and chemicals, concerns for the potential for chemical residual on the food and belief that organic products are safer for the environment.<sup>80</sup>

This suggests that some additional consumer information and a "Canada organic" mark could have an impact on growth rate of market share. Consumers would be assured that any product marked organic would be produced in an environment free of pesticides, that the product is all natural and guaranteed to be organically produced. The "Canada organic" mark would provide guarantees for three of the top four attributes people say influence a decision to buy.

Focus group participants in Canada were "astonished and deeply concerned" to know that organics are not governed by a mandatory system in Canada.<sup>81</sup> The market research concluded that mandatory certification, a uniform logo, and a public awareness campaign would likely enhance confidence and satisfaction and lead to rising purchases in organic food products.

There were similar findings in research conducted in the European Union. For example, in a real-life situation, when customers were told that organic pork came from conventional sows but were finished in organic production systems organic pork sales went down 40% at major retailers, compared to a 15% reduction of conventional pork sales. These data suggest that that uncertainty about the word organic led to a reduction in sales that was 25 percentage points greater than the reduction that occurred in conventional pork sales.<sup>82,83</sup>

Theoretical research also points to a link between levels of demand and confidence in the designation of a product as organic. Organic products are credence goods and people have to believe they are organic or they will not purchase them. Mislabelling creates uncertainty and uncertainty drives segments of consumers out of the organic market. Without clear segregation and certification, premiums for organic food are lost. Some research indicates that third-party certification is the only alternative to establishing credence. As the credibility of the certification is critical, the role of a third party in enforcement is essential.<sup>84</sup>

---

<sup>78</sup> "Consumer Perceptions of Food Safety and Quality," Ipsos Reid, 2004.

<sup>79</sup> Op. cit., Health Focus International, 2004.

<sup>80</sup> Op. cit., Health Focus International, 2004.

<sup>81</sup> "Consumer Demands Regarding the Canadian Organic Food Sector," Option consommateurs, date unknown.

<sup>82</sup> Op.cit., Leifert, Carlos and Bourlakis, Michael, 2004.

<sup>83</sup> The reduction in conventional pork sales could be related to the notion that consumers tend to be detached from the process by which food is produced. Information about hog farming and meat preparation process may have made a connection that consumers had a negative reaction to.

<sup>84</sup> "Information Asymmetries and Consumption Decisions in Organic Food Product Markets," Giannakas, Konstantino, University of Nebraska; Canadian Journal of Agricultural Economics, volume 50, 200.

We conclude that, as reflected in the work of the research reference, that label content does count in the buying decision.

## 5.5 ACCREDITATION AGENCIES

**Option 1: Status Quo.** In the status quo situation, Canadian organic food products would no longer be exported to the European Union unless producers and exporters were willing to invest in certification via bodies in the export destination country. However, the more likely case would that be with the loss of such a large export market, producers may be forced to drop out of organic farming. In this case, the indirect effects on the accreditation agencies would be a reduced willingness or ability of certification bodies to pay for accreditation services. Moreover, accreditation agencies may lose clients as certification bodies consolidate or court business to accommodate reduced demands for certification services to respond to a contraction in the size of the Canadian organic food products sector.

**Option 2.** We assume the USDA and IOAS will no longer be accepted as an accreditation agency in Canada. In this analysis, we assume that the three Canadian agencies remain in operation and the nine certification bodies accredited by the USDA and IOAS will move to one of the three agencies based in Canada, the Standards Council of Canada, the CAAQ or the COABC. Interviewees suggested that in the case of Option 2 there should be a sufficient number of accreditation agencies, at least three, to ensure price competition. It was further suggested that there might be value in having one of the agencies based outside of Canada as insurance for price competition.

**Option 3.** Option 3 has all accreditation and certification services delivered by the federal government. All accreditation agencies would close. It is possible that staff at these agencies would be hired by the federal government. Some interviewees suggested that because the CFIA has no experience in providing accreditation services cost may, in the short run, be higher than current. Structural considerations make this option very unlikely. It is unlikely that the CAAQ will be willing to disband or have its staff work for agencies of the federal government.

## 5.6 CERTIFICATION BODIES

### 5.6.1 OPTION 1: STATUS QUO

In the status quo situation there it would be no direct effects on certification bodies. However, in the status quo situation we assume that the European Union market is lost to Canada. In this situation we can expect that some organic operations may cease or return to conventional farming. The majority of this impact will be felt in Saskatchewan followed by Alberta and then Manitoba.

### 5.6.2 OPTION 2

Under this option all certification bodies would be required to be accredited by an agency that has been audited by the CFIA. For this assignment, our working assumption is that certification bodies not currently accredited will cease operations. Of the remaining 27, we expect some mergers and that some of the smaller bodies will choose not to pay what might be higher costs from the limited number of accreditation agencies. Our working assumption is that in Option 2 there will be 14 to 16 accredited certification bodies operating in Canada. Given this number, we expect that at most 500, more likely 250, organic operations will need to seek alternative certification bodies. Interviewees from certification bodies do not expect significant impacts on certification costs. The growth in business will for the most part be absorbed within the existing service infrastructure. Some small scale economies may be earned.

### **5.6.3 OPTION 3**

Under this option all certification services are provided by the federal government. The certification bodies would close and their 54 full-time equivalent employees and contract inspectors would be dislocated. It is possible, that they may retain their employment by being absorbed into the operation set up by the CFIA.

## 6.0 NON-MARKET EFFECTS ASSOCIATED WITH THE REGULATION OPTIONS

Farming has effects beyond the production of food. These include implementation of proper farming techniques and achievement of indirect benefits such as the provision of wildlife habitat, contribution to carbon sequestration and additions to the scenic quality of the landscape. The very nature of organic farming suggests that these types of non-market benefits may be more pervasive than in conventional farming activities. The following subsections discuss the major non-market effects of agriculture. They also pay special attention to the role of organic farming in the production of these non-market benefits.

The following non-market impacts associated with organic farming practices are the most studied:

- the relationship of the elimination of pesticide chemical use and its impacts on human health and the environment;
- soil erosion and water pollution mitigation;
- reduction in greenhouse gas emissions; and
- improvements to biodiversity.

### 6.1 CHEMICAL AND PESTICIDE PRODUCTION

There is a substantial body of data and literature that measure the reduction in pesticide loadings on people who eat organic food regularly. The following paragraphs provide some samples of that research and first-hand reports from our interviewees.

A wide range of studies have found that organic foods have pesticide residues on about one in four samples versus a three in four for conventional foods. However, for both types of food the residues were below established safety limits and the connection of reduced residues to improved health is considered tentatively proved.<sup>85</sup>

Preschool age children eating organic fruits and vegetables show concentrations of pesticide metabolite six times lower than children eating conventional produce. The reduction was sufficient to shift the exposure level from the range of uncertain risk to negligible risk.<sup>86</sup>

The Ontario College of Family Physicians in the 2004 publication "Comprehensive Review of Pesticide Research Confirms Dangers," recommends patients "avoid exposure to all pesticides whenever and wherever possible."

Several farmers interviewed for this benefit cost study said they converted to organic because they had injured themselves using chemicals on their conventional farms. Potential benefits with Option 2 and 3 are from reduced on-the-job injury risk

The cost of pesticide damage to natural capital in the United States has been estimated that \$3.70 per kilogram of active ingredient. In the United Kingdom the real costs of the typical food basket, produced organically, have been estimated to be one third of those of a basket produced by conventional farming practices.<sup>87</sup>

The Advertising Standards Authority, United Kingdom, has approved following statements for use in promoting benefits of organic food:

- no system of farming has higher levels of animal welfare standards than organic farms;
- no food has higher amounts of beneficial minerals, amino acids and vitamins than organic food;

---

<sup>85</sup> Op. cit., McRae, Rod, et al., 2004.

<sup>86</sup> "Organophosphorus Pesticide Exposure of Urban and Suburban Preschool Children with Organic and Conventional Diets," Curl, Cynthia et al., University of Washington, Seattle, 2002.

<sup>87</sup> Op. cit., McRae, Rod, 2002.

- eating organic food is the best method of reducing exposure to potentially harmful chemicals and pesticides; and
- eating organic food avoids hydrogenated fats completely.<sup>88</sup>

The research and findings described in the previous paragraphs strongly suggest that there is a quantitative basis upon which to base measures of the economic value of reducing chemical and pesticide loading. The approval of the claims by the Advertising Standards Authority indicates that the claims would not misinform the buying public.

## 6.2 EROSION AND WATER POLLUTION MITIGATION

The Atlantic Canada Dairy Sustainability Model found organic seasonal grazing generated 10% less soil erosion and 40% less nitrate leaching.

A search of North American literature found that off farm benefits of mitigating soil and water course degradation exceed on farm costs of soil conservation. Therefore, the research findings conclude that because benefits flow to parts of society beyond the producer and consumer of organic food, society at large should pay at least some of the on-farm costs.<sup>89</sup>

## 6.3 GREENHOUSE GASES EMISSION REDUCTION

A wide body of research has concluded that organic farming is more effective at avoiding external costs associated with greenhouse gas emissions. Research has found:

- Organic farming provides a two to threefold saving on emissions compared to conventional agriculture and a twenty-fold saving when comparing agriculture for local consumption versus selling at distance.
- Research at Michigan State University found organic corn-soybean-wheat systems produce 64% less greenhouse gas than conventional. Carbon dioxide equivalence was measured at 41 g/m/year versus 114 for conventional systems.
- Research in Germany found that:
  - organic farming systems used 55% less energy than conventional; and
  - in general organic farming resulted in 30% reduction in carbon dioxide equivalence.
- Danish research found conversion to organic farming resulted in approximately a 30% reduction in net energy use relative to conventional farming.
- Another European study found 50% reductions in carbon dioxide emissions per hectare on organic farms compared to conventional systems.<sup>90</sup>
- Research in Canada<sup>91</sup> and Europe<sup>92</sup> found substantially reduced nutrient loading associated with organic dairying systems.

The research findings begin to form a consensus that organic farming is a very effective at reducing greenhouse gas emissions relative to other methods of food growing and production.

## 6.4 BIODIVERSITY MAINTENANCE AND IMPROVEMENTS

There is an extremely wide range of research and testing that shows organic farming practices help maintain biodiversity and return levels of biodiversity. The reasons are somewhat obvious. Organic farming practices

---

<sup>88</sup> "Organic News," ACORN, March 2005.

<sup>89</sup> Op. cit., McRae, Rob, et al., 2004.

<sup>90</sup> *ibid.*

<sup>91</sup> "Nutrient Management for Organic Dairying," Arcand, Melissa; Roberts, Cory and Lynch, Lynch, Ontario Farmer, 2004.

<sup>92</sup> "The performance and nutrient use efficiency of two contrasting systems of organic milk production," Weller, R.F. and Bowling, J. in *Biological Agriculture and Horticulture*. 22:217-249, 2004.

use natural processes to control for insects and disease. Crop rotations used to control pests and improve crops' heat tolerance are more complex and hence support, and mitigate losses of biodiversity. For example, European studies positive return on investment relationships when measuring the effect of organic farming on seven different species of birds, mammals, insects and flora. Essentially, organic farming practices attempt to mimic nature.

## 6.5 ENVIRONMENTAL SERVICES

The preceding paragraphs quite clearly shows that relative to other practices organic farming provides significantly more services to the environment. While the research is clear, the question for economists and financial planners is how to fairly charge those who benefit from these services. Practices in Europe, the United Kingdom and Ireland as well as Central America provide significant guidance.

The implementation of payments for environmental services also shifts the onus from regulators checking for non-compliance to farmers showing how they are providing these services. Such an approach holds the potential for reduced costs of regulation.

### 6.5.1 PAYMENT FOR ENVIRONMENTAL SERVICES

Several European countries offer incentives to all farmers to engage in practices that improve the environment, but organic farmers have benefited more due to the nature of their production practices. For example, if a farmer plants a hedgerow there may be a payment provided for its contribution to environmental quality.

The World Bank is providing support to Costa Rica Costa Rica for the implementation of its Forest Law. This law recognizes four environmental services provided by forest ecosystems for which payments are made:

- mitigation of greenhouse gas emissions;
- hydrological services and hydro energy production;
- biodiversity conservation and improvement; and
- provision of scenic beauty for recreation and ecotourism.<sup>93</sup>

It is also established in North American literature that the off-farm benefits of mitigating pollution exceed the on-farm costs of implementing improvements.<sup>94</sup> The implication is that those benefiting from the environmental services i.e., society at large, should pay at least some of the associated on-farm costs. Some Canadian farm organizations<sup>95</sup> and at least one province (PEI) are now examining payments for environmental stewardship to improve environmental performance and farm finances, inspired by environmental service payments provided to farmers in the EU. With this approach, farmers receive payments when they adopt measures and systems that protect the environment, including organic farming and IPM.<sup>96</sup> Such payments are considered "green box" under the WTO because they are decoupled from production. Based on experiences in other jurisdictions, paying farmers to deliver environmental services (complemented with supporting policy and program instruments) in the course of producing food could potentially:

- deepen implementation of environmental practices and systems;

---

<sup>93</sup> "Payments for Environmental Services," Pagiola, Stefano and Platais, Gunars, in Environment Strategy Notes, The World Bank, No. 3, May 2002.

<sup>94</sup> Stonehouse, D.P. et al. 1997. Holistic approaches to natural resource management and environmental care. *Journal of Soil and Water Conservation* 52:22-25.

<sup>95</sup> Farm organizations who have expressed interesting in discussing this concept include: Canadian Federation of Agriculture, Keystone Agricultural Producers, Agricultural Producers Association of Saskatchewan, Christian Farmers Federation of Ontario, Ontario Corn Producers Association, Canadian Horticultural Council, various organic farming bodies.

<sup>96</sup> For an evaluation of the impacts of this approach on organic farming in Europe, see Haring, A.M. et al. 2004. *Organic Farming and Measures of European Agricultural Policy. Volume 11: Organic Farming in Europe: economics and policy.* University of Hohenheim, Stuttgart, Germany.

- contribute to financial stability by providing some rewards that the marketplace currently does not provide; and
- have low net costs to government.

One of the most difficult aspects of this process is to set prices that properly value the off farm environmental benefits. If prices are set too high, farmers would begin operating farms less to produce food and more to earn payments for environmental services. If prices are set too low, their effectiveness as incentives for the conduct of practices that improve the environment will be diminished.

Because organic farming practices are most in tune with positive environmental sustaining practices, there have been dramatic increases in organic farming in countries that pay for environmental services. The European Union uses the logic that organic farming saves governments money in terms the avoidance of environmental cleanup costs.

Sweden has set targets for the reduction of the use of pesticides and increases in organic production. As a result it has experienced savings in costs associated with pesticide certification.

Experience with the practice of payments for environmental services has shown that organic farming operations are less likely to drop out of the environmental services payment programs if payment levels are decreased. This is the case because much of the income of organic farmers depends on their ability to maintain their certification. Hence, organic farming requires lower payments for the same environmental services and offers better guarantees that those services will be provided for the long run.

There is Canadian precedent, or at least an implied one, for payments to farmers for environmental services. Canada has developed a range of grants programs that reflect a belief that farmers should be provided some support for delivering off farm environmental services. These programs have come primarily in the form of assistance for investment in structures and equipment (e.g., manure storage, fencing of riparian areas, conservation tillage equipment) and training.<sup>97</sup>

Practice in Europe provides guidance on appropriate payment rates for a Canadian program. European farming, despite its land use intensity, manages to maintain low pesticide use averages.<sup>98</sup> This experience does have relevance for Canada and the measurement of appropriate levels of payment for services related to the reduction of pesticide applications.

Canada's claim of a low pesticide use per acre- takes advantage of an average that includes a blend of extremely low or no applications extensive farming systems (e.g., pasture) and considerably higher applications in some field crops, tree fruits and vegetables. Some analysts estimate that fruit and vegetable production uses seven times more pesticides than any other agricultural sector.<sup>99</sup> The EC believes that all farmers must respect basic environmental measures without compensation, but that environmental services beyond this baseline should be paid by society. The EC has tried to find payment levels that:

- do not substitute "farming for environmental service payments" for farming's role as a producer of food and source of employment and income generation; but
- do recognize the societal benefits that result from farmers' delivery of environmental services, benefits that cannot readily be priced and sold in the private market.<sup>100</sup>

---

<sup>97</sup> "Making Pesticide Reduction A Reality In Canada Funding Programs to Advance Biointensive IPM and Organic Farming," World Wildlife Fund, 2000.

<sup>98</sup> "Pesticides in the European Union," . Lucas, S. and Pau Vall, M., Commission Working Document DGVI, Brussels, 1999.

<sup>99</sup> "The adoption of IPM techniques by vegetable growers in Florida, Michigan and Texas, Fernandez-Cornejo. J. et al., Journal of Agricultural and Applied Economics 26(1), 1994.

<sup>100</sup> "Impact of EC Regulation 2078/92 on the Development of Organic Farming in the European Union, Working Paper #7," Lampkin, N, Welsh Institute of Rural Studies, University of Aberystwyth, Aberystwyth, Wales, 1996.

The intention is for the payment schemes to be neutral – that is, their role should be to replace revenue foregone because of the adoption of environmental measures. Small increases beyond these payment levels are used only when needed to reach a stated environmental objective.<sup>101</sup> As one would expect, payments to organic farms are more common than payments to conventional farms and the expansion of organic farming was shown to be connected to the level of payment. It was also shown that the payment levels were not sufficient to encourage farming systems particularly reliant on pesticides to adopt environmental measures.<sup>102</sup>

#### **6.5.1.1 PAYMENT LEVELS FOR ENVIRONMENTAL SERVICES IN EUROPE AND SCANDINAVIA**

Austria (335 ECU/ha/yr for cereals) and Finland (365 ECU/ha/yr for cereals) had the highest payment rates and also had the highest uptake. Low rates in the United Kingdom (82 ECU/ha for all organic crops) resulted in lower than hoped for uptake.

On average, in the European Commission area, environmental service payments ranged from 190 ECU/ha/yr for cereals, 210 ECU for grassland, 280 ECU for vegetables and 540 ECU for fruit trees.<sup>103</sup> Conversion to improved environmental practices in livestock operations was particularly sensitive to available payments. Small increases in payments resulted in large changes in conversion rates. The converse was also the case.

#### **6.5.1.2 WHAT WOULD A CANADIAN ENVIRONMENTAL SERVICE PAYMENT PROGRAM LOOK LIKE?**

For this benefit cost study we will use payment levels currently being applied in the European Union, United Kingdom and Scandinavia as a proxy for the value of off farm environmental services provided by organic farming systems in Canada. We conduct sensitivity tests to judge the impact of alternative payment levels.

---

<sup>101</sup> “State of Application of Regulation (EEC) No. 2078: EC Evaluation of Agri-environmental Programmes,” Commission Working Document - DGVI, Brussels, 1999.

<sup>102</sup> *op. cit.*, Lampkin, N, 1996.

<sup>103</sup> *ibid.*

## 7.0 BENEFIT/COST ANALYSIS

**Treatment of the Social Discount Rate.** The social discount rate is essentially the minimum rate of return that an investment must turn to compensate for the return foregone when resources are diverted from other uses. In the case of this analysis, under the status quo situation, resources are actually being freed up when the European Union market closes to Canadian imports of organic food products. Those resources are then applied to the next best use. In Options 2 and 3, Government of Canada resources are applied to establish and maintain a federally regulated organic food production sector. These additional resources make possible the maintenance of markets in the European Union as well as some improvement in the domestic market share of organic products.

The Government of Canada's Treasury Board Secretariat set out a social discount rate at 10 percent real per annum, with a range from 5 to 10 percent (again in real terms) for sensitivity analysis in 1976.<sup>104</sup> The Secretariat has not wavered from this rate. The guide discusses alternative discount rates but rules them out unless a project involves "few, if any social implications."<sup>105</sup> The consultants view is that virtually any project funded by public money brings extensive social implications.

The debate over appropriate social discount rates is long-standing and extensive. In 1985, the National Energy Board<sup>106</sup> concluded that the Treasury Board rates were substantially high and recommended social discount rates of 5%, 7.5% and 10%. Wright (1985) argues for the use of a higher rate, centred on 8.5%.<sup>107</sup>

In 2002, the Health Canada produced a social benefit/cost assessment of "The Montréal Protocol" and applied a 5% discount rate.<sup>108</sup> This discount rate was at the low end of the recommendation of the former National Energy Board due to the intergenerational effects inherent in The Montréal Protocol. Moore et al (2003) provides an extensive discussion of the application of social discount rates in Canada. Their conclusion was that a rate of about 3.5% was appropriate for projects that do not have intergenerational effects and that do not crowd out private investment.<sup>109</sup> They recommended that when a public sector project will likely crowd out private investment that the social discount rate be raised by a factor of 1.1 to account for the shadow cost of capital.

In 2004 Industrial Economics Inc. completed a benefit cost for Health Canada of a regulatory proposal to reduce fire risks from cigarettes.<sup>110</sup> They used a social discount rate of 3%, which they said is generally used by Health Canada. They provide no other justification for the application of this rate in their particular analysis.

A higher discount rate gives more weight to the present and thus benefits to the current generation are given more weight than benefits to future generations. Many have argued for a social discount rate for environmental projects that is lower than the market rate, to leave more opportunities for future generations. The U.S. Department of the Interior sets the discount rate for federal water and related land resources planning based on the average yield of interest-bearing marketable securities of the United States, a rate that is sufficiently low to include the impact of intergenerational effects.

---

<sup>104</sup> "Benefit-Cost Analysis Guide," Treasury Board of Canada Secretariat, 1998.

<sup>105</sup> Ibid.

<sup>106</sup> "The Social Discount Rate: Is 10% Too High?", Economics Branch, National Energy Board, 1985.

<sup>107</sup> "The Social Discount Rate: Jenkins vs. Lind," Wright, R. W., Canadian Public Policy, volume 11, number 3, 1985.

<sup>108</sup> "Regulations Amending the Ozone Depleting Substances Regulations, 1998" Canada Gazette, 2002.

<sup>109</sup> "Just Give Me a Number! Practical Values for the Social Discount Rate," Moore, Mark A. et al., Simon Fraser University, 2003.

<sup>110</sup> "Economic Evaluation of Health Canada's Regulatory Proposals for Reducing Fire Risks from Cigarettes," Economic Analysis and Evaluation Division, Health Canada, 2004.

For this social benefit/cost analysis, the consultants use 7.5% as the base social discount rate. However, this rate includes allowances for the opportunity cost of capital so we have reduced the rate by a factor of 1.1 to **6.8%** because the regulatory initiatives and their impacts on the private sector are:

- not capital-intensive;
- not likely to crowd out private investment; and
- not likely to redirect private investment into demonstrably less productive activities.

We also use a rate above the lower end of the range due to the relative absence of intergenerational impacts and the fact that the core of the initiatives involves private sector activities.<sup>111</sup>

## 7.1 OPTION 1: THE STATUS QUO

The results of the status quo situation are not favourable for the Canadian economy. Should the status quo be allowed, the **net present value** of the loss to the Canadian economy will be approximately **-\$490.2 million (\$2005)**. **The benefit/cost ratio is 0.53** The table on the following page provides benefit/cost details and the paragraphs that follow describe the effects on each referent group and the assumptions that support the analysis.

The immediate impact in 2006 of the status quo is the closure of the European Union market to Canadian organic products. However, as described previously with respect to wheat, the loss of sales in the European Union is somewhat offset with increased exports to other customers and increased domestic consumption. The effect is only somewhat offset because the European Union takes 43% of all Canadian exports. The loss of such a large market will leave the Canadian organic sector in a substantial oversupply situation. Prices can be expected to fall for Canadian products in alternative export markets as well as in the domestic market.

Based on the research described in previous sections, it would appear that to reach a market clearing price, a price decrease of almost 38% would be required. In this situation, organic products would be selling for only 10% to 20% more than their conventional counterparts. We have assumed that the impacts on other organic products will be similar with respect to the modeling of wheat and grain products.

---

<sup>111</sup> Environmental services do make up a significant part of the benefit stream and they certainly bring intergenerational effects. However, relative to the immediate trade impacts they are not the focus of the benefits stream. Using the higher discount rate is more conservative and puts the scenarios to a more difficult test for economic advisability.



### **7.1.1 GROWERS AND PRODUCERS**

The major impact on growers and producers is a reduction in total revenue. The analysis assumes that prices decline sufficiently to clear the supply and that organic producers do not drop production.

### **7.1.2 PROCESSORS**

Processors benefit from increased domestic sales that will help clear a proportion of products that formerly went to the European Union. About 46% of the former sales to the EU are now processed and sold domestically.

Benefits of increased processing in Canada for domestic consumption are measured as a processing margin which is estimated at about 19.4% of farm gate prices.

Offsetting costs are estimated based on the ratio of total inputs less unincorporated income and other surplus to total inputs for the food processing sector, as described in the Canadian input -- output tables. Therefore, the cost of producing the processing margins is estimated at 84.4% of the value of the processing margins.

### **7.1.3 WHOLESALE SERVICES**

Wholesalers benefit from increased domestic sales as a portion of products that formerly went to the European Union, are now processed and sold domestically.

Benefits of increased wholesaling in Canada for domestic consumption are measured as wholesaling margins, which are estimated at about 13.5% of farm gate prices.

Offsetting costs are estimated based on the ratio of total inputs less unincorporated income and other surplus to total inputs for the wholesaling sector, as described in the Canadian input -- output tables. Therefore, the cost of producing the wholesale margins is estimated at 85.0% of the value of the processing margins.

### **7.1.4 EXPORT / BUYING SERVICES**

As discussed in previous sections, projections for exports, which were based on conditions existing before the imposition of significant United States tariffs on Canadian wheat, were adjusted to account for the impact of the tariffs by reducing the projection of shipments of wheat to the United States and allocating a counterbalancing increase in shipments to the European Union.

Based on research completed at the University of Saskatchewan we estimate that export trade will be reduced by about 65.2% in the absence of exports to the European Union. This percentage decrease includes the impact of modest increases in sales volumes to alternative export markets. The foregone export sales translate into losses of export and buying services margins. For the purposes of this analysis, we assume that the total margin as a percent of farm gate prices is about 25.0%.

However, because export and buying service firms reduce their activity they also use fewer resources from the Canadian economy because they are no longer producing those margins. We estimate these foregone costs at 85.0% of the value of the foregone margins.

### **7.1.5 IMPORT SERVICES**

In the status quo situation, we do not anticipate impacts on importers of organic food products. We assume that they will continue to be able to import from the European Union and have their products treated as organic in Canada.

### **7.1.6 RETAIL**

Because products that were formerly exported to the European Union are now diverted to other export markets and into the Canadian market, domestic prices for those products fall.

Incremental retail sales are estimated as follows. About 46% of the former exports to the European Union are diverted to the domestic market. Export service margins are removed and prices decreased by about 37.6%. Processing, local transportation, wholesaling and retailing margins are added.

Benefits of increased retail sales are measured as retail margins and are estimated at about 37.6% of farm gate prices.

Offsetting costs are estimated based on the ratio of total inputs less unincorporated income and other surplus to total inputs for the retail sector, as described in the Canadian input -- output tables. Therefore, the cost of producing the retail margins is estimated at 86.5% of the value of the margins.

#### **7.1.7 ACCREDITATION AGENCIES**

We assume that producers and processors will remain in the organic sector even if the European Union market closes. We assume that they will continue to sell to other export markets and domestically, although, at reduced profit margins. Therefore, we assume that certification bodies will continue business and accreditation agencies will continue to provide services. Limited financial impacts are expected.

#### **7.1.8 CERTIFICATION BODIES**

We assume that producers and processors will remain in the organic sector even if the European Union market closes. We assume that they will continue to sell to other export markets and domestically, although, at reduced profit margins. Therefore, we assume that certification bodies will continue business. Limited financial impacts are expected.

#### **7.1.9 SOCIETY/CONSUMERS**

Canadian consumers and Canadian society in general will earn some benefits due to the closure of the European Union to Canadian organic products.

As prices decrease, Canadian consumers will be able to increase purchases and at the same time increase their consumer surplus by a factor greater than the increased volume of their purchases. Estimates of the impact on consumer surplus are in the order of 13%.<sup>112</sup> We assume for this analysis that consumer surplus is earned at the same rate as retail margins. The value of the margins with respect to grain and bread related sales have been increased by 13% to reflect the improvement in consumer welfare.

Due to the falling prices, Canadian consumers are able to purchase more organic products. As described above, this will likely result in reduced pesticide loadings for consumers. For the overall value of off-farm environmental services provided by organic agriculture, we use the rate of \$322 per hectare, an average of the range of rates used in Europe and the European Union weighted according to the types of production in Canada. However, in the status quo, more hectares are not brought into production. But, consumers do have the opportunity to consume more organic production than they would have otherwise. Therefore, we reduce the value of environmental services per hectare to 20% of its full value so that only benefits associated with reduced pesticide loadings due to increased organic consumption are included.

The equivalent in hectares is calculated as the ratio of the farm gate value of the increased Canadian consumption of organic products divided by the average farm gate value in Canada per hectare.

#### **7.1.10 GOVERNMENTS**

Governments are not directly impacted by the status quo scenario. Reductions in income taxes and indirect taxes are fully included in the costs incurred by each of the other referent groups.

---

<sup>112</sup> Op. cit., Ferguson, Shon and Weseen, Simon; University of Saskatchewan, January 2005

## **7.2 OPTION 2: THIRD-PARTY DELIVERY**

Option 2 has significant net benefits for the Canadian economy. Option 2 assumes that Canada will gain third country status in the European Union. In addition, the assurances provided to Canadian consumers by the "Canada organic" mark are assumed to help increase, modestly, the market share of organic products among Canadian food purchases.

The ***net present value (2005\$)*** is ***\$767.3 million***. ***The benefit/cost ratio is 1.25***. The table on the following page provides benefit/cost details and the paragraphs that follow describe the effects on each referent group and the assumptions that support the analysis.

Social Benefit/Cost Analysis Results: Option 2 (\$'000'000s, current unless otherwise noted)												
Referent Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	RCV	
<b>Growers and Producers</b>												
<b>Benefits</b>												
Increase Farm Gate Income	\$ -	\$ 22	\$ 52	\$ 92	\$ 146	\$ 216	\$ 256	\$ 303	\$ 360	\$ 427	\$ 6268	
Reduction of Multiple Certifications	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.4	\$ 0.4	\$ 0.4	\$ 0.4	\$ 0.4	\$ 56	
<b>Total Grower &amp; Producer Benefits</b>	<b>\$ 0.3</b>	<b>\$ 25</b>	<b>\$ 55</b>	<b>\$ 96</b>	<b>\$ 149</b>	<b>\$ 219</b>	<b>\$ 259</b>	<b>\$ 307</b>	<b>\$ 363</b>	<b>\$ 431</b>	<b>\$ 6324</b>	
<b>Costs</b>												
Operations Costs	\$ -	\$ 15	\$ 36	\$ 64	\$ 100	\$ 149	\$ 176	\$ 209	\$ 248	\$ 295	\$ 4323	
<b>Total Grower &amp; Producer Costs</b>	<b>\$ -</b>	<b>\$ 15</b>	<b>\$ 36</b>	<b>\$ 64</b>	<b>\$ 100</b>	<b>\$ 149</b>	<b>\$ 176</b>	<b>\$ 209</b>	<b>\$ 248</b>	<b>\$ 295</b>	<b>\$ 4323</b>	
<b>Net Grower &amp; Producer Benefits</b>	<b>\$ 0.3</b>	<b>\$ 10</b>	<b>\$ 19</b>	<b>\$ 32</b>	<b>\$ 49</b>	<b>\$ 70</b>	<b>\$ 83</b>	<b>\$ 98</b>	<b>\$ 115</b>	<b>\$ 136</b>	<b>\$ 2001</b>	
<b>Processors</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 0.4	\$ 1.0	\$ 1.8	\$ 28	\$ 42	\$ 50	\$ 59	\$ 70	\$ 83	\$ 1219	
Reduction of Multiple Certifications	\$ 0.0	\$ 0.0	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 08	
<b>Total Processor Benefits</b>	<b>\$ 0.0</b>	<b>\$ 0.5</b>	<b>\$ 1.1</b>	<b>\$ 1.8</b>	<b>\$ 29</b>	<b>\$ 42</b>	<b>\$ 50</b>	<b>\$ 59</b>	<b>\$ 71</b>	<b>\$ 84</b>	<b>\$ 1227</b>	
<b>Costs</b>												
Processing Operations Costs	\$ -	\$ 0.4	\$ 0.9	\$ 1.5	\$ 24	\$ 35	\$ 42	\$ 50	\$ 59	\$ 70	\$ 1028	
<b>Total Processor Costs</b>	<b>\$ -</b>	<b>\$ 0.4</b>	<b>\$ 0.9</b>	<b>\$ 1.5</b>	<b>\$ 24</b>	<b>\$ 35</b>	<b>\$ 42</b>	<b>\$ 50</b>	<b>\$ 59</b>	<b>\$ 70</b>	<b>\$ 1028</b>	
<b>Net Processor Benefits</b>	<b>\$ 0.0</b>	<b>\$ 0.1</b>	<b>\$ 0.2</b>	<b>\$ 0.3</b>	<b>\$ 0.5</b>	<b>\$ 0.7</b>	<b>\$ 0.8</b>	<b>\$ 1.0</b>	<b>\$ 1.2</b>	<b>\$ 14</b>	<b>\$ 199</b>	
<b>Wholesale Services</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 0.30	\$ 0.70	\$ 1.25	\$ 1.96	\$ 291	\$ 345	\$ 409	\$ 485	\$ 576	\$ 8454	
<b>Total Wholesale Benefits</b>	<b>\$ -</b>	<b>\$ 0.30</b>	<b>\$ 0.70</b>	<b>\$ 1.25</b>	<b>\$ 1.96</b>	<b>\$ 291</b>	<b>\$ 345</b>	<b>\$ 409</b>	<b>\$ 485</b>	<b>\$ 576</b>	<b>\$ 8454</b>	
<b>Costs</b>												
Wholesale Operations Costs	\$ -	\$ 0.3	\$ 0.6	\$ 1.1	\$ 1.7	\$ 25	\$ 29	\$ 35	\$ 41	\$ 49	\$ 718	
<b>Total Wholesale Costs</b>	<b>\$ -</b>	<b>\$ 0.3</b>	<b>\$ 0.6</b>	<b>\$ 1.1</b>	<b>\$ 1.7</b>	<b>\$ 25</b>	<b>\$ 29</b>	<b>\$ 35</b>	<b>\$ 41</b>	<b>\$ 49</b>	<b>\$ 718</b>	
<b>Net Wholesale Benefits</b>	<b>\$ -</b>	<b>\$ 0.0</b>	<b>\$ 0.1</b>	<b>\$ 0.2</b>	<b>\$ 0.3</b>	<b>\$ 0.4</b>	<b>\$ 0.5</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.9</b>	<b>\$ 127</b>	
<b>Export/Buying Services</b>												
<b>Benefits</b>												
Reduction of Multiple Certifications	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 03	
Reduced Administration Related to Certifications	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 24	
Reduced Export Contract Administration	\$ 0.4	\$ 0.4	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 76	
<b>Total Exporting/Buying Services Benefits</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 103</b>	
<b>Costs</b>												
Total Export/Buying Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Net Exporting/Buying Services Benefits</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 103</b>	
<b>Import Services</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 7.3	\$ 16.9	\$ 29.6	\$ 46.1	\$ 67.2	\$ 78.5	\$ 91.8	\$ 107.3	\$ 125.5	\$ 1,841.3	
<b>Total Import Services Benefits</b>	<b>\$ -</b>	<b>\$ 7.3</b>	<b>\$ 16.9</b>	<b>\$ 29.6</b>	<b>\$ 46.1</b>	<b>\$ 67.2</b>	<b>\$ 78.5</b>	<b>\$ 91.8</b>	<b>\$ 107.3</b>	<b>\$ 125.5</b>	<b>\$ 1,841.3</b>	
<b>Costs</b>												
Import Operations Costs	\$ -	\$ 6.2	\$ 14.4	\$ 25.2	\$ 39.2	\$ 57.1	\$ 66.7	\$ 78.0	\$ 91.2	\$ 106.7	\$ 1,564.3	
<b>Total Import Services Costs</b>	<b>\$ -</b>	<b>\$ 6.2</b>	<b>\$ 14.4</b>	<b>\$ 25.2</b>	<b>\$ 39.2</b>	<b>\$ 57.1</b>	<b>\$ 66.7</b>	<b>\$ 78.0</b>	<b>\$ 91.2</b>	<b>\$ 106.7</b>	<b>\$ 1,564.3</b>	
<b>Net Import Services Benefits</b>	<b>\$ -</b>	<b>\$ 1.1</b>	<b>\$ 2.5</b>	<b>\$ 4.5</b>	<b>\$ 6.9</b>	<b>\$ 10.1</b>	<b>\$ 11.8</b>	<b>\$ 13.8</b>	<b>\$ 16.1</b>	<b>\$ 18.9</b>	<b>\$ 277.0</b>	
<b>Retail</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 14.4	\$ 33.7	\$ 59.2	\$ 92.4	\$ 135.3	\$ 158.7	\$ 186.2	\$ 218.6	\$ 256.9	\$ 3,768.2	
<b>Total Retail Benefits</b>	<b>\$ -</b>	<b>\$ 14.4</b>	<b>\$ 33.7</b>	<b>\$ 59.2</b>	<b>\$ 92.4</b>	<b>\$ 135.3</b>	<b>\$ 158.7</b>	<b>\$ 186.2</b>	<b>\$ 218.6</b>	<b>\$ 256.9</b>	<b>\$ 3,768.2</b>	
<b>Costs</b>												
Operations Costs	\$ -	\$ 12.5	\$ 29.1	\$ 51.2	\$ 79.9	\$ 117.0	\$ 137.3	\$ 161.1	\$ 189.1	\$ 222.3	\$ 3,260.0	
<b>Total Retail Costs</b>	<b>\$ -</b>	<b>\$ 12.5</b>	<b>\$ 29.1</b>	<b>\$ 51.2</b>	<b>\$ 79.9</b>	<b>\$ 117.0</b>	<b>\$ 137.3</b>	<b>\$ 161.1</b>	<b>\$ 189.1</b>	<b>\$ 222.3</b>	<b>\$ 3,260.0</b>	
<b>Net Retail Benefits</b>	<b>\$ -</b>	<b>\$ 1.9</b>	<b>\$ 4.5</b>	<b>\$ 8.0</b>	<b>\$ 12.5</b>	<b>\$ 18.2</b>	<b>\$ 21.4</b>	<b>\$ 25.1</b>	<b>\$ 29.5</b>	<b>\$ 34.6</b>	<b>\$ 508.2</b>	
<b>Accreditation Agencies</b>												

### 7.2.1 GROWERS AND PRODUCERS

Option 2 brings a modest benefit to Canadian growers and producers of organic food products. Due to the implementation of the "Canada organic" designation domestic consumer demand increases. The amount of this increase is described below in the sub-section describing retail impacts.

We calculate the incremental change in farm gate value based on our knowledge that:

- about of domestic retail sales are imports; and
- farm gate prices are about 57.2% of retail prices.<sup>113</sup>

Growers and producers will also benefit by no longer requiring multiple certifications. Based on our interviews, and estimates of the number of growers and producers involved in exporting, we estimate that about 25% of organic producers maintain on average two certifications. This suggests that there will be a cost saving of associated with about 829 certifications that will no longer be required. Most if not all of the certifications are provided by bodies outside Canada and therefore we do not expect a significant impact on Canadian certification bodies.

To produce the incremental farm gate revenue, farms need to incur costs. Based on information contained in the Canadian input-output tables we find that intermediate input costs as a percentage of farm gate revenue are about 69%. We use this ratio to estimate incremental costs associated with the increased production. This ratio is more reflective of conventional farming. Inputs cost in absolute terms and relative to farm gate prices tend to be lower for organic agriculture. Therefore, estimates of incremental revenue in this analysis are on the conservative side.

Commodity	% of Total Inputs & Output
Wages & Salaries	9.64%
SLI	0.44%
Net Income, unincorp. businesses	7.82%
Other Inputs	58.88%
Other Operating Surplus	23.22%
Total	100.00%

"The Input-Output Structure of the Canadian Economy," Statistics Canada, 15-201-XPB.  
 TDV Global Inc.

### 7.2.2 PROCESSORS

Processors also earn benefits in Option 2. Due to increasing domestic consumption, processors earn additional profits. We estimate the margins in processing at about 19.4% of farm gate prices. As discussed earlier in this analysis, this measure was derived as a residual and with further research we may discover that it is on the low side.

Many processors also hold multiple certifications. Based on the latest data, there are 499 processors of organic food products in Canada. We assume that only processors involved in exporting would maintain multiple certifications. We assume that 50% of processors export and that 50% of those would hold, on average, two certifications. Therefore, we estimate that Option 2 will result in 125 fewer certifications. The reduction in certifications generate a cost saving. Because most, if not all, of the second certifications are provided by certification bodies from outside Canada there is no concomitant reduction in activity at Canadian certification bodies.

Based on data provided in the Canadian input -- output tables about 84.4% of the value of processing margins is accounted for by the purchase and use of intermediate inputs and labour. We calculate incremental costs of processing based on this percentage.

<sup>113</sup> Estimated by subtracting exports at farm gate prices and direct farm sales from total production and farm gate prices. The remainder divided by the retail value of domestic sales of organic food products produced in Canada provides an estimate of farm gate price as a percent of the retail price.

### 7.2.3 WHOLESALE SERVICES

Wholesale companies will earn benefits because they will earn wholesale service margins on the increase in domestic consumption of organic products. We estimate these margins at 12.2% of farm gate prices.

Based on the ratio of all inputs, not including unincorporated business profits and other corporate surplus, to total inputs we estimate that the costs of providing wholesale service are about 84.4% of the gross value of wholesale margins earned.

### 7.2.4 EXPORT / BUYING SERVICES

Based on our interviews and research we do not expect Option 2 to increase the level or rate of growth of Canadian organic food product exports. In the longer run, Option 2 may aid Canada's entry into the Japanese market, but this possibility is not quantified in this analysis.

However, we have found that many exporters and buyers maintain more than one certification, depending on the countries into which they sell. We expect that Option 2 will make multiple certifications unnecessary. Based on the assumption that there are 100 active buyers and exporters of organic products, that 50 maintain on average two certifications we calculate the cost saving associated with the elimination of 50 certifications. Because most of the second certifications are held with certification bodies from outside of Canada there will be no or very limited impact on Canadian certification bodies.

There is no evidence to suggest that Option 2 will increase costs to exporters.

### 7.2.5 IMPORT SERVICES

Imports make up almost 76.1% of organic food products consumed by Canadians. The introduction of a "Canada organic" mark in Option 2 is expected to encourage increased domestic consumption of organic food products (see "7.2.6 Retail" below.). It will therefore also have a positive impact on importers of organic food products.<sup>114</sup> The value of increased imports is measured as the retail value of imports sold less Canadian local transportation, wholesale and retail margins.

The cost of the imports is estimated by applying the ratio of total inputs less unincorporated enterprise surplus and other surplus divided by total inputs for wholesale sector as described in the Canadian input -- output tables. This ratio is 85%. In other words, it costs \$.85 to produce \$1 of imports.

As the table shows, because imports make up such a large portion of Canadian domestic sales, the imports sector is one of the major beneficiaries of Option 2.

### 7.2.6 RETAIL

With the introduction of the "Canada organic" mark, research and experience suggest that confidence in products marketed as organic will increase and organic products will also gain visibility. Based on data from other jurisdictions and interviews with major retailers we assume that the introduction of the "Canada organic" designation will increase by 2011 Canadian consumption by 3 percentage points over the trend scenario. The impact is introduced gradually beginning at 0 in 2006 and climbing to 3 points above trend in 2011. The effect of this calculation is to produce a graduated but one time increase in the level of demand, while maintaining the trend rate of growth on the new level.

The increases in sales are valued at the retail sales margins earned on higher volumes. We assume no impact on prices.

To produce these margins the retail sector incurs costs that amount to about 85% of the value of the retail margins.

---

<sup>114</sup> We assume that equivalency agreements will be negotiated with the EU and USA, at a minimum.

### 7.2.7 ACCREDITATION AGENCIES

Accreditation agencies will earn additional revenue as certification bodies increase their revenues. On average, in addition to their set fees, the agencies charge about 0.7% of the gross revenue of the certification body. Using this percentage and the estimate of the increase in gross revenue of certification bodies, we estimate the incremental benefits of Option 2 to accreditation agencies. As the table shows, these benefits are very small.

These benefits do not come without costs. Based on the ratio of intermediate input costs to total outputs for the business services sector we find that 81% of the incremental revenue of accreditation agencies would, on average, go to operation costs.

### 7.2.8 CERTIFICATION BODIES

Certification bodies have sliding scales for certification prices. Based on information from British Columbia, we estimate that for operations with revenue in the range of \$55,000 to \$65,000 per year, a 1% increase in revenue would translate into about a 0.73% increase in certification charges. We use the percentage increase in farm gate revenue as a proxy for revenue increases among producers, processors and exporters. Based on that percent increase, we then calculate growth in the certification body revenues. Based on the results of our interviews we expect that there will be sufficient certification bodies in operation to maintain price competition. Furthermore, the interviews found that in general the certification bodies would be able to accommodate the increased demand, caused by some bodies going out of business, without incurring significant expansion costs.

Based on the business service sector relationships shown in the Canadian input -- output tables we estimate that the ratio of operating cost to total output value for certification bodies is about 81%. We use this percentage to calculate the incremental costs occurred in the process of earning the additional certification revenues.

### 7.2.9 SOCIETY/CONSUMERS

The data are not sufficient to estimate the impacts of Option 2 on consumer behaviour and possible changes in consumer surplus. Therefore, we do not attempt to make an assumption at this time.

However, increased consumption of organic food products will bring additional environmental service benefits to the Canadian society. This is the case, because as Canadian production expands we assume that more hectares will be required. We estimate the number of hectares based on the incremental growth of farm gate revenue and average farm gate revenue per hectare, increased by the rate of inflation for food. Each incremental (domestic) hectare is then multiplied by \$322, our estimate of the environmental service for organic farming per hectare, adjusted for inflation.

### 7.2.10 GOVERNMENTS

Benefits to governments have not been separated from the value-added benefits created by each sector within the organic food system.

The establishment of Option 2 does require incremental government expenditures. These expenditures would include expansions to staff of the CFIA, incremental and ongoing expenditures for market access activities by AAFC and Industry and Trade Canada and various expenses incurred by provincial governments with respect to accreditation agencies operating within their boundaries. The estimates for these costs were provided by the CFIA and AAFC.

The social benefit/cost analysis does not attempt to measure net benefits to governments (i.e., [benefits to governments] – [incremental government expenditures to implement the option] – [costs of additional government services associated with economic expansion due to growth in the organic food sector]).

### **7.3 OPTION 3: DELIVERY BY THE GOVERNMENT OF CANADA**

Option 3 also has significant net benefits for the Canadian economy. Option 3 assumes that Canada will gain third country status in the European Union. In addition, the assurances provided to Canadian consumers by the "Canada organic" mark are assumed to help increase, modestly, the market share of organic products among Canadian food purchases.

*The net present value (2005\$) is \$4,625.9 million. The benefit/cost ratio is . The table, following page, provides details.*

#### **7.3.1 OPTION 3 VS OPTION 2**

Option 3 differs from Option 2 in one way. In addition to CFIA costs shown in Option 2, costs are added to the CFIA budget to provide all accreditation and certification services.

The benefits shown under the heading "Government and Related" are cost savings due to federal government actions, not benefits directly accrued by the federal government.

Benefits and costs to accreditation agencies and certification bodies become zero in Option 3.

Social Benefit/Cost Analysis Results: Option 3 (\$'000'000s, current unless otherwise noted)												
Referent Group	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	RCV	
<b>Growers and Producers</b>												
<b>Benefits</b>												
Increase Farm Gate Income	\$ -	\$ 22	\$ 52	\$ 92	\$ 146	\$ 216	\$ 256	\$ 303	\$ 360	\$ 427	\$ 626.8	
Reduction of Multiple Certifications	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.4	\$ 0.4	\$ 0.4	\$ 0.4	\$ 0.4	\$ 56	
<b>Total Grower &amp; Producer Benefits</b>	<b>\$ 0.3</b>	<b>\$ 25</b>	<b>\$ 55</b>	<b>\$ 96</b>	<b>\$ 149</b>	<b>\$ 219</b>	<b>\$ 259</b>	<b>\$ 307</b>	<b>\$ 363</b>	<b>\$ 431</b>	<b>\$ 632.4</b>	
<b>Costs</b>												
Operations Costs	\$ -	\$ 1.5	\$ 3.6	\$ 6.4	\$ 10.0	\$ 14.9	\$ 17.6	\$ 20.9	\$ 24.8	\$ 29.5	\$ 432.3	
<b>Total Grower &amp; Producer Costs</b>	<b>\$ -</b>	<b>\$ 1.5</b>	<b>\$ 3.6</b>	<b>\$ 6.4</b>	<b>\$ 10.0</b>	<b>\$ 14.9</b>	<b>\$ 17.6</b>	<b>\$ 20.9</b>	<b>\$ 24.8</b>	<b>\$ 29.5</b>	<b>\$ 432.3</b>	
<b>Net Grower &amp; Producer Benefits</b>	<b>\$ 0.3</b>	<b>\$ 1.0</b>	<b>\$ 1.9</b>	<b>\$ 3.2</b>	<b>\$ 4.9</b>	<b>\$ 7.0</b>	<b>\$ 8.3</b>	<b>\$ 9.8</b>	<b>\$ 11.5</b>	<b>\$ 13.6</b>	<b>\$ 200.1</b>	
<b>Processors</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 0.4	\$ 1.0	\$ 1.8	\$ 2.8	\$ 4.2	\$ 5.0	\$ 5.9	\$ 7.0	\$ 8.3	\$ 121.9	
Reduction of Multiple Certifications	\$ 0.0	\$ 0.0	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.8	
<b>Total Processor Benefits</b>	<b>\$ 0.0</b>	<b>\$ 0.5</b>	<b>\$ 1.1</b>	<b>\$ 1.8</b>	<b>\$ 2.9</b>	<b>\$ 4.2</b>	<b>\$ 5.0</b>	<b>\$ 5.9</b>	<b>\$ 7.1</b>	<b>\$ 8.4</b>	<b>\$ 122.7</b>	
<b>Costs</b>												
Processing Operations Costs	\$ -	\$ 0.4	\$ 0.9	\$ 1.5	\$ 2.4	\$ 3.5	\$ 4.2	\$ 5.0	\$ 5.9	\$ 7.0	\$ 102.8	
<b>Total Processor Costs</b>	<b>\$ -</b>	<b>\$ 0.4</b>	<b>\$ 0.9</b>	<b>\$ 1.5</b>	<b>\$ 2.4</b>	<b>\$ 3.5</b>	<b>\$ 4.2</b>	<b>\$ 5.0</b>	<b>\$ 5.9</b>	<b>\$ 7.0</b>	<b>\$ 102.8</b>	
<b>Net Processor Benefits</b>	<b>\$ 0.0</b>	<b>\$ 0.1</b>	<b>\$ 0.2</b>	<b>\$ 0.3</b>	<b>\$ 0.5</b>	<b>\$ 0.7</b>	<b>\$ 0.8</b>	<b>\$ 1.0</b>	<b>\$ 1.2</b>	<b>\$ 1.4</b>	<b>\$ 19.9</b>	
<b>Wholesale Services</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 0.3	\$ 0.7	\$ 1.2	\$ 2.0	\$ 2.9	\$ 3.4	\$ 4.1	\$ 4.9	\$ 5.8	\$ 84.5	
<b>Total Wholesale Benefits</b>	<b>\$ -</b>	<b>\$ 0.3</b>	<b>\$ 0.7</b>	<b>\$ 1.2</b>	<b>\$ 2.0</b>	<b>\$ 2.9</b>	<b>\$ 3.4</b>	<b>\$ 4.1</b>	<b>\$ 4.9</b>	<b>\$ 5.8</b>	<b>\$ 84.5</b>	
<b>Costs</b>												
Wholesale Operations Costs	\$ -	\$ 0.3	\$ 0.6	\$ 1.1	\$ 1.7	\$ 2.5	\$ 2.9	\$ 3.5	\$ 4.1	\$ 4.9	\$ 71.8	
<b>Total Wholesale Costs</b>	<b>\$ -</b>	<b>\$ 0.3</b>	<b>\$ 0.6</b>	<b>\$ 1.1</b>	<b>\$ 1.7</b>	<b>\$ 2.5</b>	<b>\$ 2.9</b>	<b>\$ 3.5</b>	<b>\$ 4.1</b>	<b>\$ 4.9</b>	<b>\$ 71.8</b>	
<b>Net Wholesale Benefits</b>	<b>\$ -</b>	<b>\$ 0.0</b>	<b>\$ 0.1</b>	<b>\$ 0.2</b>	<b>\$ 0.3</b>	<b>\$ 0.4</b>	<b>\$ 0.5</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.9</b>	<b>\$ 12.7</b>	
<b>Export/Buying Services</b>												
<b>Benefits</b>												
Reduction of Multiple Certifications	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.3	
Reduced Administration of Export Contracts	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 2.4	
Reduced Export Contract Administration	\$ 0.4	\$ 0.4	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 7.6	
<b>Total Exporting/Buying Services Benefits</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 10.3</b>	
<b>Costs</b>												
Total Export/Buying Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Net Exporting/Buying Services Benefits</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.6</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 0.7</b>	<b>\$ 10.3</b>	
<b>Import Services</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 7.3	\$ 16.9	\$ 29.6	\$ 46.1	\$ 67.2	\$ 78.5	\$ 91.8	\$ 107.3	\$ 125.5	\$ 1,841.3	
<b>Total Import Services Benefits</b>	<b>\$ -</b>	<b>\$ 7.3</b>	<b>\$ 16.9</b>	<b>\$ 29.6</b>	<b>\$ 46.1</b>	<b>\$ 67.2</b>	<b>\$ 78.5</b>	<b>\$ 91.8</b>	<b>\$ 107.3</b>	<b>\$ 125.5</b>	<b>\$ 1,841.3</b>	
<b>Costs</b>												
Import Operations Costs	\$ -	\$ 6.2	\$ 14.4	\$ 25.2	\$ 39.2	\$ 57.1	\$ 66.7	\$ 78.0	\$ 91.2	\$ 106.7	\$ 1,564.3	
<b>Total Import Services Costs</b>	<b>\$ -</b>	<b>\$ 6.2</b>	<b>\$ 14.4</b>	<b>\$ 25.2</b>	<b>\$ 39.2</b>	<b>\$ 57.1</b>	<b>\$ 66.7</b>	<b>\$ 78.0</b>	<b>\$ 91.2</b>	<b>\$ 106.7</b>	<b>\$ 1,564.3</b>	
<b>Net Import Services Benefits</b>	<b>\$ -</b>	<b>\$ 1.1</b>	<b>\$ 2.5</b>	<b>\$ 4.5</b>	<b>\$ 6.9</b>	<b>\$ 10.1</b>	<b>\$ 11.8</b>	<b>\$ 13.8</b>	<b>\$ 16.1</b>	<b>\$ 18.9</b>	<b>\$ 277.0</b>	
<b>Retail</b>												
<b>Benefits</b>												
Increased Sales	\$ -	\$ 14.4	\$ 33.7	\$ 59.2	\$ 92.4	\$ 135.3	\$ 158.7	\$ 186.2	\$ 218.6	\$ 256.9	\$ 3,768.2	
<b>Total Retail Benefits</b>	<b>\$ -</b>	<b>\$ 14.4</b>	<b>\$ 33.7</b>	<b>\$ 59.2</b>	<b>\$ 92.4</b>	<b>\$ 135.3</b>	<b>\$ 158.7</b>	<b>\$ 186.2</b>	<b>\$ 218.6</b>	<b>\$ 256.9</b>	<b>\$ 3,768.2</b>	
<b>Costs</b>												
Operations Costs	\$ -	\$ 12.5	\$ 29.1	\$ 51.2	\$ 79.9	\$ 117.0	\$ 137.3	\$ 161.1	\$ 189.1	\$ 222.3	\$ 3,260.0	
<b>Total Retail Costs</b>	<b>\$ -</b>	<b>\$ 12.5</b>	<b>\$ 29.1</b>	<b>\$ 51.2</b>	<b>\$ 79.9</b>	<b>\$ 117.0</b>	<b>\$ 137.3</b>	<b>\$ 161.1</b>	<b>\$ 189.1</b>	<b>\$ 222.3</b>	<b>\$ 3,260.0</b>	
<b>Net Retail Benefits</b>	<b>\$ -</b>	<b>\$ 1.9</b>	<b>\$ 4.5</b>	<b>\$ 8.0</b>	<b>\$ 12.5</b>	<b>\$ 18.2</b>	<b>\$ 21.4</b>	<b>\$ 25.1</b>	<b>\$ 29.5</b>	<b>\$ 34.6</b>	<b>\$ 508.2</b>	
<b>Accreditation Agencies</b>												

## 8.0 SENSITIVITY ANALYSES

We conduct sensitivity tests on variables that have the greatest impact on the net present value: the social discount rate and the estimate of the impact of the implementation of the "Canada organic" designation on domestic demand. The tables below summarize the results of the sensitivity tests.

### 8.1 OPTION 1 SENSITIVITY TESTS

Sensitivity tests were conducted to estimate the impact of changes in the discount rate and value placed on environmental services.

Test were not completed with respect to changes in demand above trend because none are assumed to occur.

Test were not completed with respect to changes in the value of environmental services because the impact of market shifts expected with the Status Quo had inconsequential effects on the production of environmental services. As the value of environmental services declines the net present value becomes slightly more negative.

#### 8.1.1 CHANGE IN THE SOCIAL DISCOUNT RATE

The Net Present Value of Option 1 is negative at all values of the social discount rate. At lower rates, which suggest society values impact in the future relatively highly, the Net Present Value is at its lowest. This indicates is that the Status Quo situation involves an ongoing series of annual losses to the economy.

<b>Option 1, Status Quo: Discount Rate Sensitivity Tests</b>			
	<b>Social Discount Rate</b>		
	4.5%	6.8%	9.1%
<b>NPV (\$ millions, 2005\$)</b>	-\$741.4	-\$490.2	-\$365.8

### 8.2 OPTION 2 SENSITIVITY TESTS

Option 2 presents a more complicated picture. The tables below summarize the results.

#### 8.2.1 CHANGE IN THE INCREASE IN DEMAND ABOVE TREND AND SOCIAL DISCOUNT RATE

The table below shows that for all social discount rates and for any increase in domestic demand above trend the Net Present Value is positive. The negative Net Present Values for the 0% increase in demand above trend reflects the fact that additional government costs are added to the regulatory system. The main impact is the preservation of markets in the European Union. Because these markets are not incremental, in this scenario, the Net Present Values at a 0% increase in domestic demand above trend are negative.

Relative differences compared to the Status Quo are positive in all tests.

<b>Option 2, Third Party Delivery: Change in Increase in Demand Above Trend Sensitivity Tests ( NPVs in \$ millions, 2005\$)</b>			
	<b>Social Discount Rate</b>		
<b>Increase in Demand Above Trend</b>	4.5%	6.8%	9.1%
0 Percentage Points	-\$20.7	-\$13.9	-\$10.5
1 Percentage Points	\$418.6	\$246.5	\$164.5
3 Percentage Points	\$1,297.2	\$767.3	\$514.6
5 Percentage Points	\$2,175.8	\$1,288.0	\$864.6

### 8.2.2 CHANGE IN THE VALUE OF ENVIRONMENTAL SERVICES

The following table presents results that indicate the result is relatively insensitive to the value placed on environmental services. In all cases the relative differences compared to the Status Quo are positive.

<b>Option 2, Third Party Delivery: Change in Value of Environmental Services Sensitivity Tests (SDR = 6.8%, NPVs in \$ million, 2005\$)</b>			
<b>Value of Environmental Services/Hectare (2005\$)</b>	<b>Increase in Demand Above Trend</b>		
	<b>0 Percentage Points</b>	<b>3 Percentage Points</b>	<b>5 Percentage Points</b>
\$0	-\$13.9	\$552.5	\$930.1
\$161	-\$13.9	\$659.9	\$1,109.1
\$322	-\$13.9	\$767.3	\$1,288.0

### 8.3 OPTION 3 SENSITIVITY TESTS

The sensitivity tests for this option are virtually the same, as expected, as those for Option 2. This is the case because net costs associated with full government delivery, although higher than third-party delivery, are not sufficient high to substantially change the benefit/costs results.

#### 8.3.1 CHANGE IN THE INCREASE IN DEMAND ABOVE TREND AND SOCIAL DISCOUNT RATE

Relative differences compared to the Status Quo are positive in all tests.

<b>Option 3, Delivery By The Federal Government: Change in Increase in Demand Above Trend Sensitivity Tests ( NPVs in \$ millions, 2005\$)</b>			
<b>Increase in Demand Above Trend</b>	<b>Social Discount Rate</b>		
	<b>4.5%</b>	<b>6.8%</b>	<b>9.1%</b>
0 Percentage Points	-\$40.7	-\$27.1	-\$20.3
1 Percentage Points	\$398.5	\$233.3	\$154.7
3 Percentage Points	\$1,277.0	\$754.0	\$504.7
5 Percentage Points	\$2,155.5	\$1,274.7	\$854.7

#### 8.3.2 CHANGE IN THE VALUE OF ENVIRONMENTAL SERVICES

The following table presents results that indicate the result is relatively insensitive to the value placed on environmental services. In all cases, the relative differences compared to the Status Quo are positive.

<b>Option 3, Delivery by the Federal Government: Change in Value of Environmental Services Sensitivity Tests (SDR = 6.8%, NPVs in \$ million, 2005\$)</b>			
<b>Value of Environmental Services/Hectare (2005\$)</b>	<b>Increase in Demand Above Trend</b>		
	<b>0 Percentage Points</b>	<b>3 Percentage Points</b>	<b>5 Percentage Points</b>
\$0	-\$27.1	\$539.2	\$916.7
\$161	-\$27.1	\$646.6	\$1,095.71
\$322	-\$27.1	\$754.0	\$1,274.7

## 9.0 EQUITY IMPACT ANALYSIS

### 9.1 OPTION 1, STATUS QUO

In Option 1, the status quo, we find the following net present values for each of the major referent groups:

- growers and producers, -\$752.3 million;
- processors, \$4.1 million;
- wholesale services, \$2.7 million;
- exporters, -\$28.3 million;
- import services, nil;
- retail, \$6.9 million;
- accreditation agencies, -\$0.1 million;
- certification bodies, -\$12.0 million;
- society / consumers, \$288.7 million.

As expected, the bulk of the negative impact of the status quo falls on the growers and producers and exporters. These losses stem from the closure of the European Union market and reduced revenue as the producers and exporters sell, what is now an oversupply in Canada of organic products, into other markets

However, Canadian consumers in general greatly benefit from this closure of the European Union market. This occurs because the oversupply causes a loss of the very large EU market, driving prices down 38%, raising domestic demand and substantially increasing consumer surplus.

The effects on the government treasuries have not been separated from the effects on the referent groups because the net effects on government will have the same sign as the net present value for each referent group. That is, a negative net present value will result in lower income and indirect tax revenues, and the converse would be true for positive net present values. However, because the overall net present value is strongly negative the government treasuries would be worse off in the status quo situation.

On balance, the status quo is a distinctly negative situation for the Canadian economy, with a **Net Present Value of -\$490.2 million (2005\$)**.

### 9.2 OPTION 2, THIRD-PARTY DELIVERY

In Option 2, third-party delivery, we find the following net present values for each major referent group:

- growers and producers, **Error! Not a valid link.**million;
- processors, \$11.3 million;
- wholesale services, \$7.1 million;
- exporters, \$8.2 million;
- import services, \$155.8 million;
- retail, \$284.8 million;
- accreditation agencies, \$0.001 million;
- certification bodies, \$0.1 million; and
- society / consumers, \$214.8 million.

The overall Net Present Value for the Canadian economy in Option 2 is \$767.3 million.

In Option 2 all referent groups are economically better off. The major beneficiary is the retail sector, which experiences improved sales stemming from increased acceptance of organic products by the Canadian consumer. Importers are large beneficiaries because the majority of organic products consumed in Canada are imported. Society at large and consumers in particular are made much better off primarily due to the value of the environmental services that stem from expansions in the organic sector and increased consumption of organic foods by Canadians.

The effects on the government treasuries have not been separated from the effects on the referent groups because the net effects on government will have the same sign as the net present value for each referent group.

With Option 2, despite increased government expenditures, it appears that government treasuries will be better off due to the economic expansion associated with compulsory regulation.

### **9.3 OPTION 3, FULL GOVERNMENT DELIVERY**

The equity implications for Option 3 from a broad economy perspective are virtually identical to those of Option 2.

The major equity implication associated with this option is the replacement of accreditation agencies and certification bodies by federal government operations. To the individuals at accreditation agencies and certification bodies, as well as contract inspectors, involved in this equity impact this will obviously be a significant event. We estimate that about 22 full-time equivalent jobs with accreditation agencies and certification bodies will be eliminated along with 64 contract inspectors (each of whom complete about 61 inspections per year) in favour of services delivered by the federal government.

## 10.0 CONCLUSION

The social benefit/cost results clearly show that the Canadian economy and the referent groups studied will be:

- worse off should the status quo continue with respect organic food products;
- substantially better off should Option 2 be implemented; and
- substantially better off should Option 3 be implemented (but slightly less so than in the case of Option 2).

The true magnitude of the impact of implementation of Option 2 is best appreciated as the difference between the Option 1 (Status Quo) status quo net present value and the Option 2 net present value.

Between the status quo situation and Option 2, at the base discount rate, there is a difference of \$1,257 million (Net Present Value, 2005\$). By selecting Option 2 instead of doing nothing, the Canadian economy will be better off by about \$1.26 billion (2005\$).

	Discount Rate		
<b>Regulation Option:</b>	4.5%	6.8%	9.1%
<b>Option 2: Third Party Delivery</b>	\$2,039	\$1,257	\$880
<b>Option 3: Federal Government Delivery</b>	\$2,018	\$1,244	\$871

Source: TDV Global Inc.

Between the Status Quo situation and Option 3 there is a difference of \$1,244 million (Net Present Value, 2005\$) with a discount rate of 6.8%. By selecting Option 3 instead of doing nothing, the Canadian economy will be better off by about \$1.24 billion (2005\$).

These results show that Canada, as quickly as possible, should implement a new regulatory process to protect and guarantee the use of the word organic on Canadian and imported food products. Option 2 in terms of net present value is marginally preferable to Option 3.

Although Option 3 is only marginally less efficient than Option 2 there does not appear to be a compelling reason for direct government delivery of accreditation or certification services that would justify even this small reduction in efficiency. Based on the information available the delivery of accreditation and certification services by third parties should be able to provide equitable and competitively priced access to services.

## APPENDIX 1: ACCREDITATION AGENCIES AND CERTIFICATION BODIES WORKING IN CANADA

<b>Accreditation Agencies</b>			
1	Conseil des appellations agroalimentaires du Quebec	CAAQ	
2	Certified Organic Association of British Columbia	COABC	
3	International Organic Accreditation Service	IOAS	
4	Standards Council of Canada	SCC	
5	United States Department of Agriculture	USDA	

<b>Certification Bodies</b>			
	<b>Organisation Name</b>	<b>Abbreviation</b>	<b>Estimated Number of Inspectors</b>
1	Bio-Dynamic Agricultural Society	BIO-D	
2	Biological Food Producers	OCIA Affiliate	
3	Boundary Organic Producers Association	BOPA	4
4	British Columbia Association for Regenerative Agriculture	BCARA	5
5	Canadian Organic Certification Co-op	COCC	4
6	Fraser Valley Organic Producers Association	FVOPA	
7	Garantie Bio-Ecocert		15
8	Global Organic Alliance	GOA	40
9	Green Life Organic Association	GOA Chapter	
10	Inlands Organic Producers Association	IOPA	3
11	International Certification Services	ICS	50
12	Kootenay Organic Producers Association	KOGS	
13	Living Earth Organic Producers Association	LEOPA	1
14	Maritime Certified Organic Growers Co-op	MCOGC	5
15	North Okanagan Organic Association	NOOA	3
16	Nova Scotia Organic Growers Association	NSOGA	4
17	Organic Crop Improvement Association	OCIA	
18	Organic Crop Producers and Processors Inc./ Pro-Cert Canada Inc.	OCPRO	29
19	Organic Producers Association of Manitoba	OPAM	13
20	Organisme De Certification Quebec Vrai		7
21	Pacific Agricultural Certification Society	PACS	12
22	Peace Country Organic Association	GOA Chapter	
23	Quality Assurance International	QAI	120
24	Quality Certification Bureau (QMI)	QCB	
25	Saskatchewan Organic Certification Association	SOCA	4
26	Shuswap Thompson Organic Producers' Association	STOPA	2
27	Similkameen Okanagan Organic Producers' Association	SOOPA	
28	Steller Certification		
29	Surry Organic Farming Society	SOFS	
30	Sustainable Agriculture Association	OCIA Affiliate	

## APPENDIX 2: ORGANIC TASK FORCE MEMBERS AND LIST OF INTERVIEWEES

<b>Organic Task Force Members</b>	
Gary Briggs	CFIA
John Giraldez	CFIA
Heather Gordon	CFIA
Marie-France Huot	CFIA
Vivienne Laxdal	CFIA
Mike Leclair	AAFC
Shane Robertson	CFIA
Chantal Sicotte	AAFC
Joe Southall	CFIA

<b>Federal Government</b>	
Jody Robinson	ITCan
Anita Stanger	AAFC
<b>Provincial Government</b>	
Denis-Paul Bouffard	CAAQ
Kathryn Liotta	Food and Rural Affairs, Government of Ontario
Arthur Marcoux	MAPAQ
<b>Associations</b>	
Robert Beauchemin	La Table Filière Biologique
Janine Gibson	Canadian Organic Growers
Clark Phillips	Atlantic Canadian Organic Regional Network
Arnold Taylor	Saskatchewan Organic Directorate
Stephanie Wells	Organic Trade Association
Anne Wilkie	Canadian Health Food Association
Lester Wyatt	Saskatchewan Organic Directorate
<b>Subject Matter Experts</b>	
Av Singh	Agrapoint
Simon Weseen	Dept. of Agricultural Economics, University of Saskatchewan
<b>Growers</b>	
Aaron Delorme	Sunrise Foods International Inc.
Mark Gimby	Growers International Organic Sales Inc.
<b>Focus Groups</b>	
9 participants	Atlantic Canadian Organic Regional Network Roundtable Discussion (Growers, Producers, Processors, Wholesalers)
9 participants	Saskatchewan Roundtable Discussion (Growers, Producers, Processors, Wholesalers)
<b>Retailers</b>	
Sherry Casey	Loblaws

Jeanne Cruikshank	Canadian Council of Grocery Distributors
<b>Accreditation and Certification Bodies</b>	
Mervin Ermel	Canadian Organic Certification Co-operative
Gordon Hamblin	Canadian Organic Certification Co-operative
Wallace Hamm	Pro-Cert Organic Systems
Larry Lenhardt	Organic Crop Producers & Processors
Debbie Miller	Organic Crop Improvement Association International

### APPENDIX 3: BIBLIOGRAPHY AND REFERENCES

- Arcand, Melissa; Roberts, Cory and Lynch, Lynch. "Nutrient Management for Organic Dairying." *Ontario Farmer*. 2004. "Benefit-Cost Analysis Guide."
- "Benefit-Cost Analysis Guidelines." Treasury Board of Canada Secretariat. Ottawa, Canada. 1998.
- "Business Impact Test." Government of Canada. Undated.
- "Canada-Organic Statistics 2003" Agriculture and Agri-Food Canada. 2004.
- "Consumer Demands Regarding the Canadian Organic Food Sector." Option consommateurs. date unknown.
- "Consumer Perceptions of Food Safety and Quality." Ipsos Reid. 2004.
- Cooney, Ann, Ag. Econ., University of Saskatchewan. "Organic Marketing & Production." *Saskatchewan Agriculture, Food and Rural Revitalization Seminar*. February 13, 2003.
- Cunningham, Rosalie. "Canadian Natural and Organic Retail Markets." Alberta Agriculture, Food and Rural Development. 2002
- Curl, Cynthia et al. "Organophosphorus Pesticide Exposure of Urban and Suburban Preschool Children with Organic and Conventional Diets." University of Washington, Seattle. 2002.
- "Economic Evaluation of Health Canada's Regulatory Proposals for Reducing Fire Risks from Cigarettes." Economic Analysis and Evaluation Division, Health Canada. 2004.
- Ferguson, Shon and Weseen, Simon. "The Economic Effect of Canada Making or Missing The European Union 3rd Country List: The Case of Organic Wheat." *University of Saskatchewan*. January 2005.
- Fernandez-Cornejo, J. et al. "The adoption of IPM techniques by Vegetable Growers in Florida, Michigan and Texas." *Journal of Agricultural and Applied Economics*. 26(1), 1994.
- Gibson, Janine and Scholz, Monique. "A Comparison Research Audit: Four Organic Conformity Assessment Body Accreditors in Canada." The Organic Task Force. March 2005.
- Haring, A.M. et al. "Organic Farming and Measures of European Agricultural Policy." *Organic Farming in Europe: Economics and Policy, Volume 11*. University of Hohenheim, Stuttgart, Germany. 2004.
- Hole, D.G., Perkins, A.J., Wilson, J.D., Alexander, I.H., Grice, P.V., Evans, A. D. "Does Organic Farming Benefit Biodiversity?" *Biological Conservation*. July 2004.
- "HOMESCAN Consumer Survey." A. C. Nielson, for Agriculture and Agri-food Canada. 2005.
- "How Canadians Feel about Their Health and Organic Food." Leger Marketing. 2002.
- Layard, Richard. Ed. "Cost-Benefit Analysis." Penguin Books Limited. 1977.
- Lucas, S. and Pau Vall, M. "Pesticides in the European Union." Commission Working Document DGVI, Brussels. 1999.
- Macy, Anne. "Certified Organic: the Status of the Canadian Organic Market in 2003." September 2004.
- "Market Report." Agriculture and Agri-Food Canada. January 10, 2004.
- McRae, Rod. "A National Strategic Plan for the Canadian Organic Food and Farming Sector." The Organic Agriculture Centre of Canada, Truro, Nova Scotia. 2002.
- McRae, Rod, et al. "Does the Adoption of Organic Food and Farming Systems Solve Multiple Policy Problems? A Review of the Existing Literature." January, 2004.

- "*Millennium Ecosystem Assessment Synthesis Report.*" Millennium Ecosystem Assessment, World Bank. March 2005.
- "*Organic Grain Marketers' Struggle to Fill Their Demand.*" Organic Agriculture Centre of Canada. 2005.
- "*Organic Market Research and Action Plan.*" Atlantic Canadian Organic Regional Network. January 2003.
- "*Organic News.*" Atlantic Canadian Organic Regional Network . March 2005.
- "*The Organic Report.*" The Organic Trade Association. September 2004.
- "*Fourth National Organic Farmers Survey Results.*" United States Department of Agriculture. 2004.
- Giannakas, Konstantinos. "Information Assymetries and Consumption Decision in Organic Food Product Market." *Canadian Journal of Agricultural Economics*. 50 (2002) 35-50.
- Loose, Verne W. ed. "'Guidelines for Benefit-Cost Analysis.'" Environment and Land Secretariat, Province of British Columbia. 1977.
- "Guidelines for Preparing Economic Analyses." United States Environmental Protection Agency. September, 2000.
- Lampkin, N, "Impact of EC Regulation 2078/92 on the Development of Organic Farming in the European Union." Working Paper #7." *Welsh Institute of Rural Studies, University of Aberystwyth, Aberystwyth, Wales*. 1996.
- Leifert, Carlo and Bourlakis. "*Recent Development in the EU Organic Food Market.*" Atlantic Canadian Organic Regional Network Conference, Cornwall, PEI, Canada. March 2004.
- Maeder P, Fliessbach A, Dubois D, Gunst L, Fried P, Niggli U. "Soil Fertility and Biodiversity." *Organic Farming. Science* 296, 1694-1697, 2002.
- "*Market Report.*" Organic Agriculture Centre of Canada, Truro, Nova Scotia. January 2004.
- Moore, Mark A. et al. "*Just Give Me a Number! Practical Values for the Social Discount Rate*" Simon Fraser University. 2003.
- Nickamp, Deborah and Zafiriou, Margaret. "*Factors that Influence Farm Business Behaviour.*" Vista on the Agri-food Industry and the Farm Community, Statistics Canada. September 2000.
- "Organics Guide – Products from Ontario, Canada." *Ontario Ministry of Agriculture, Canada*. November 2004.
- "*Organic Price Index.*" The New Farm, [www.newfarm.org](http://www.newfarm.org). March 2005.
- Pagiola, Stefano and Platais, Gunars. "Payments for Environmental Services." *Environment Strategy Notes*. The World Bank. No. 3, May 2002.
- Parson, William. "*Organic Fruit and Vegetable Production: Do Farmers Get a Premium Price?*" Vista on the Agri-food Industry and the Farm Community, Statistics Canada. February 2004.
- Parsons, William. "*Niche Market or an Expanding Industry? Organic Fruit and Vegetable Production in Canada.*" Vista on the Agri-Food Industry and the farm Community, Statistics Canada. April, 2005.
- "*Prairie Wide Organic Conference 2004.*" Health Focus International. 2004.
- "Regulations Amending the Ozone Depleting Substances Regulations, 1998." *Canada Gazette*, 2002.
- Sawyer, Erin. "*Consumer Welfare Impact of Imported Organic Foods: A Vertical Differentiation Model.*" University of Saskatchewan. 2004.

Schumilas, Theresa, and Canadian Organic Growers. *"Organic Agriculture: a Primer -- Who Is Who and What Is Happening Across the Country."* Guelph Organic Conference and Organic Expo Canada. January 2005.

*"Smart Regulation, A Regulatory Strategy for Canada."* Report to the Government of Canada, External Advisory Committee on Smart Regulation.

*"State of Application of Regulation (EEC) No. 2078: EC Evaluation of Agri-environmental Programmes."* Commission Working Document. DGVI, Brussels. 1999.

Stonehouse, D.P. et al. "Holistic Approaches to Natural Resource Management and Environmental Care." *Journal of Soil and Water Conservation*. 52:22-25. 1997.

Sugden, Robert and Williams, Alan. "The Principles of Practical Cost-Benefit Analysis." Oxford University Press. 1981.

*"The Input-Output Structure of the Canadian Economy."* Statistics Canada, 15-201-XPB.

"The Social Discount Rate: Is 10% Too High?" *Economics Branch, National Energy Board*. 1985.

Weller, R.F. and Bowling, J. "The Performance And Nutrient Use Efficiency Of Two Contrasting Systems Of Organic Milk Production." *Biological Agriculture and Horticulture*. 22:217-249, 2004.

Willer, Helga and Yussefi, Minou, Eds. "The World of Organic Agriculture: Statistics and Emerging Trends 2004," *International Federation of Organic Agriculture Movements*. 2004.

World Wildlife Fund. *"Making Pesticide Reduction A Reality In Canada Funding Programs to Advance Biointensive IPM and Organic Farming."* 2000.

Wright, R. W. "The Social Discount Rate: Jenkins vs. Lind" *Canadian Public Policy*. Volume 11, Number 2, 1985.

Wynen, Els. *"Impact of Organic Guarantee Systems on Production and Trade in Organic Products."* International Task Force on Harmonization and Equivalence in Organic Agriculture. June 2004.