



2016

# An Overview of the Canadian Agriculture and Agri-Food System



## **An Overview of the Canadian Agriculture and Agri-Food System 2016**

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Members of the Agri-Food Industry and Competitiveness Analysis Section. This publication comprises data and analysis provided by all three divisions of the Research and Analysis Directorate as well as contributions from other divisions and branches of Agriculture and Agri-Food Canada.

April 2016

Research and Analysis Directorate  
Strategic Policy Branch  
Agriculture and Agri-Food Canada

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Catalogue No. A38-1/1E

ISSN 1919-8396

AAFC No. 12482E

Electronic versions of Research and Analysis Directorate publications are available on the Internet at <http://www.agr.gc.ca>  
Paru également en français sous le titre *Vue d'ensemble du système agricole et agroalimentaire canadien 2016*

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# ABSTRACT

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This 2016 report provides an economic overview of the Canadian agriculture and agri-food system using the most recent data available. It is meant to be a multi-purpose reference document that presents:

- the agriculture and agri-food system in the context of the Canadian economy and international markets; and,
- a snapshot of the composition and performance of the agriculture and agri-food system as it evolves in response to challenges, opportunities and market developments.

The report begins with a special feature section on natural resource use and the environment. This section examines the impact of agriculture on the environment and quantifies greenhouse gas (GHG) emissions by Canada's various economic sectors, including agriculture. Historical levels of emission trends by agricultural sub-sector (e.g. livestock and crop, land use, on-farm energy use) are provided, along with emissions/removals associated with land management changes. Projected GHG emissions for the agriculture sector through 2030 are given. The remainder of the section addresses Canada's agricultural use of land and water resources, including types of agricultural land cover, water use and consumption by sector, irrigation levels by province, farm size, farm type, and crop, as well as irrigation methods and sources of irrigation water.

The rest of the report looks at the agriculture and agri-food system's relevance to the Canadian economy, as measured by its share of the Canadian gross domestic product (GDP) and number of jobs in Canada. It also reviews the sector's performance internationally, in terms of its share of agriculture and agri-food trade to total world trade and a snap shot of each segment of the agriculture and agri-food system covering: primary agriculture, food processing, consumers and food distribution. The report ends with an overview of government support to agriculture.

The report describes the Canadian agriculture and agri-food system as a modern, integrated and competitive supply chain that is important to the Canadian economy. It is a dynamic and resilient system that constantly adapts to changing consumer demands, technological advances and globalization.

# HIGHLIGHTS

## SPECIAL FEATURE – NATURAL RESOURCE USE AND THE ENVIRONMENT

- Agriculture can be both a source of and a sink for greenhouse gas (GHG) emissions. In 2013, agriculture was responsible for about 10% of national GHG emissions. Over the 1990-2013 period, Canada's agricultural GHG emissions remained relatively stable when considering all sources and sinks.
- The proportion of total land used for agricultural purposes in 2011 is small in Canada and has decreased slightly since 1971, down to 64.8 million hectares, or 7% of Canada's total land area.
- Agriculture accounts for a small proportion of Canada's overall water use, which refer to any utilization of water regardless of whether it is consumed or returned to its original source. However, agricultural consumption of water, water withdrawn but not directly returned to its original source, is substantial compared to other economic sectors. In 2009, agriculture consumed around two billion cubic meters, or 84% of its water use.

## IMPORTANCE OF THE SYSTEM TO THE CANADIAN ECONOMY

- The Canadian agriculture and agri-food system (AAFS) is a complex and integrated supply chain that includes input and service suppliers, primary producers, food and beverage processors, food retailers and wholesalers, and foodservice providers. The activities along this supply chain generate significant economic benefits at both the national and provincial levels.
- In 2014, the AAFS generated \$108.1 billion, accounting for 6.6% of Canada's gross domestic product (GDP). Of this, the food retail and wholesale industry accounted for the largest share (1.8%), followed by the food, beverage and tobacco (FBT) processing industry (1.7%). The AAFS GDP has increased annually since 2007, except during the economic recession of 2009.
- Employment in most industries in the AAFS continued on an upward trend. In 2014, the AAFS provided one in eight jobs in Canada, employing over 2.3 million people. The foodservice industry was the largest employer in the AAFS, accounting for 5.7% of all Canadian jobs.

## GLOBAL CONTEXT

- The performance of the sub-sectors within the AAFS depends on their ability to compete in both domestic and international markets over the long term.
- Canada was the world's fifth-largest exporter of agriculture and agri-food products after the European Union, the United States, Brazil and China in 2014. Canadian export sales grew by 12.0% over 2013 levels to \$51.5 billion in 2014, increasing its share of total world agriculture and agri-food exports to 3.6%.
- It is estimated that approximately 58% of the value of primary agriculture production in Canada is exported, either as primary commodities or as processed food and beverage products.
- The U.S. remains Canada's most important agriculture and agri-food export destination, accounting for 51.4% of total Canadian exports. China accounted for 9.2% of Canadian agriculture and agri-food exports, and Japan, the E.U. and Mexico collectively accounted for 17.1%.
- Exports to the U.S. increased by 13.1% in 2014 to \$26.5 billion, while exports to non-U.S. markets grew by 10.1% to \$25.0 billion. Exports to China, which grew by 84.0% in 2012 and by 3.5% in 2013, dropped by 8.0% in 2014.
- With import sales of \$39.4 billion in 2014—an increase of 14.9% over the previous year—Canada remained the world's sixth-largest importer, accounting for 2.9% of the total value of world agriculture and agri-food imports. The U.S. accounted for 61.4% of the value of all Canadian agriculture and agri-food imports.

## PRIMARY AGRICULTURE

- Relatively high grain and oilseed prices, as well as record cattle and hog prices, have supported farm market receipts in recent years, causing them to reach \$55.7 billion in 2014.
- Cattle receipts have increased for five consecutive years due to strong cattle prices and were up 44.4% in 2014. Strong hog prices contributed to a 25.2% increase in hog receipts in 2014.
- Overall, market receipts increased by 76.8% between 2004 and 2014. Market receipts from grains and oilseeds increased by more than 160% during that time period. This accounted for the largest share (35.5%) of the total value of all farm market receipts in 2014. The share of farm receipts from red meats, which was 30.0% in 2004, decreased slightly to 27.1% in 2014.
- Farm-level performance, as measured by net cash income, reached a record high in 2014, while net value added declined from the record high registered in 2013. Net cash income among Canadian farms in 2014 was \$14.2 billion—32.5% above the 2009-2013 average. The net value added in agriculture was \$14.9 billion in 2014—in line with the 2009-2013 average, but 32.9% lower than 2013 level.
- Agriculture producers saw their operating costs increase substantially over the 2004-2014 period, as increased global demand for agricultural commodities led to higher input prices, with costs increasing by over 47%. The categories of operating expenses that most contributed to the increase in overall expenses over this period were commercial seed (107%), fertilizer and lime (103%), livestock and poultry purchases (91%), and machinery fuel (71%).

## FARM-LEVEL INNOVATION

- Farmers demonstrated innovation in areas such as new crop varieties and livestock breeds or processes and practices such as soil management methods, fertilizer application methods, precision farming and marketing methods on their operation, with about half of Canadian farms (48%) adopting at least one type of new or significantly improved product, process or practice between 2011 and 2013.
- Financing was a critical factor influencing 59% of farm operators decision to implement an innovation. However, a greater share of million dollar farm operators (72%) stated financing was a critical factor compared to only 44% of operators of smaller farms in the revenue class of \$ 25,000 to \$99,999.
- Canadian farmers relied on their own experience (91%) and the advice from peers (68%) when deciding whether to adopt or innovate.

## FOOD AND BEVERAGE PROCESSING

- In 2014, the food and beverage processing industry was the largest of all manufacturing industries in Canada, accounting for 16.0% or \$27.7 billion of the manufacturing sector's total GDP in 2014. It accounted for the largest share (16.6%) of jobs in the manufacturing sector.
- The food and beverage processing industry produces goods using both primary and processed products as inputs, with about 50% of the raw agricultural products produced in Canada being used as material inputs by the food processing industry.
- The food and beverage processing industry continues to grow, and the value of its shipments has almost doubled between 1995 and 2014 to \$103.4 billion. More than half of the total value of food processing shipments is accounted for by the meat, dairy and beverage industries.

## CONSUMERS

- Canadians spent \$195.7 billion on food, beverages and tobacco products in 2014. This represented the second-largest household expenditure category, after shelter.
- Real spending on food and non-alcoholic beverages increased by 2.2% in 2014, due in part to a slight increase in retail food price inflation in Canada.
- The share of household expenditures spent on food has decreased since 1997 in Canada. In 2013, food accounted for 10.1% of all household expenditures in Canada.

## GOVERNMENT EXPENDITURES IN SUPPORT OF THE SECTOR

- Expressed in dollar terms, government expenditures (federal and provincial) in support of the AAFS were estimated to be \$5.3 billion in 2015-2016. As a share of the agriculture GDP, government expenditures are estimated to be 26.0% in 2015-2016. That figure was 25.9% in fiscal year 2014-2015.
- Program payments as well as safety and control measures make up the largest portion of federal government expenditures in support of the agriculture and agri-food sector. Program payments, which also make up the largest portion of provincial government expenditures, continue to be an important component of support to the agriculture and agri-food sector. However, program payments have generally declined over the 2003-2004 through 2014-2015 fiscal years, but are estimated to increase slightly in fiscal year 2015-2016.
- Public investments in research and development (R&D) in the agriculture and agri-food sector represent a critical source of innovation and productivity growth. These expenditures, of which the majority are incurred by the federal government, are estimated to rise by 7.1% to \$649.5 million in 2015-2016.
- Canada's public R&D spending in the agriculture and agri-food sector, as a share of gross farm receipts (GFR), has decreased since 2007. However it continues to exceed that of the U.S., though it has been surpassed by Australia.

# SECTION A

Special Feature

# SECTION A1

## Natural Resource Use and the Environment

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### Introduction:

Agriculture can be both a source of and a sink for greenhouse gas (GHG) emissions. In 2013, agriculture was responsible for about 10% of national GHG emissions. Over the 1990-2013 period, Canada's agricultural GHG emissions remained relatively stable when considering all sources and sinks.

Agriculture competes with other natural resource based sectors of the economy for available land and water; it also has an impact on and is impacted by the environment.

Canada has a small proportion of total land area dedicated to agricultural purposes. This is mainly due to soil quality and the harsh Canadian climate which renders the majority of the country's land mass unsuitable for farming. Canada's agricultural land area has declined slightly over the past 20 years as marginal land has come out of production and small amounts have been redirected for urban expansion.

Although it accounts for a small component of overall water use, agriculture is the largest consumer of water in that it does not return much water to its original source.

Canada is characterized as having no water stress at a national level while regional differences and localized issues do exist.

## Agricultural emissions have remained relatively stable over time, but the sector remains emission-intensive relative to other sectors.

**Primary agricultural production (not including agricultural land use) was responsible for 10.3% of national greenhouse gas emissions (GHG) in 2013, while accounting for 1.2% of Canada's gross domestic product (GDP).**

Agricultural activities produce GHG emissions largely from biological processes inherent to animal and crop production. The agricultural sector is emission-intensive in comparison to other industries.

Carbon dioxide (CO<sub>2</sub>) is emitted from the manufacture of fertilizers and the machinery used in agriculture. These indirect emissions of CO<sub>2</sub> are reported in other manufacturing sectors and are not included in the agricultural emissions.

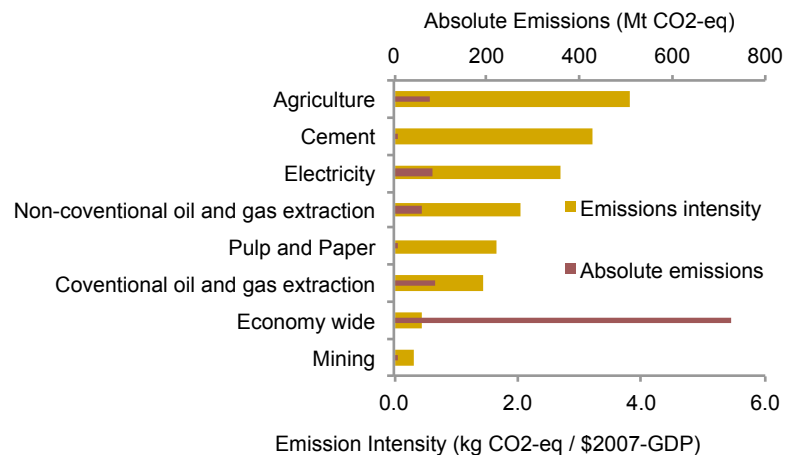
**Canada's agricultural GHG emissions declined slightly between 1990 and 2013 when considering all sources and sinks.**

Absolute GHG emissions from the agricultural sector in Canada declined by 4.4% (3.11 million tonnes or Mt) over the 1990-2013 period, when emissions and removals from crop production, livestock production, on-farm energy use, and agricultural land use are all taken into account.

Emission intensity, as measured by the amount of GHGs emitted per unit of economic activity (\$ GDP), decreased more dramatically during the same period from 5.2 to 3.4 kg CO<sub>2</sub> equivalent for every \$1 of agricultural GDP, a decline of 33.5%. Productivity gains and changes in management practices over time have helped explain the significant reduction in emission intensity. This shows enhanced efficiency in agricultural production.

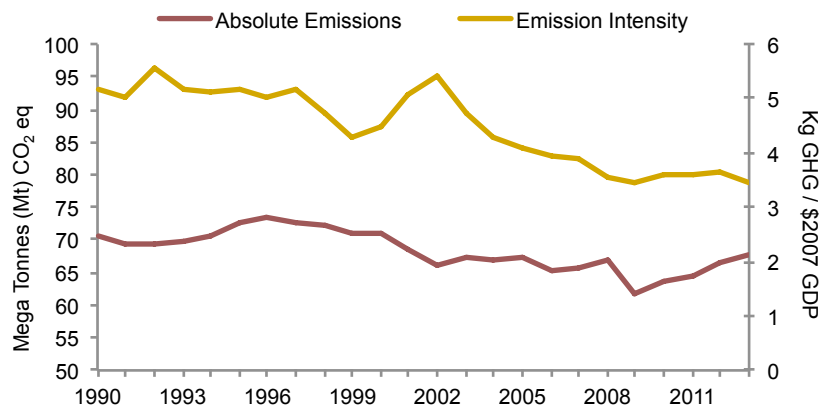
By comparison, in 2013, the emissions intensity of the agricultural sector in the U.S. was 3.8 kg CO<sub>2</sub> equivalent per 2007 \$US (AAFC calculations using data from EPA, USDA).

**Chart A.1  
GHG Emissions and Emission Intensity by Economic Sector, 2013**



Source: Environment Canada, National Inventory Report, 1990 to 2013, Statistics Canada, CANSIM Table 379-0031.

**Chart A.2  
Agricultural Sector's Absolute Emissions and Emission Intensity, 1990-2013**



Source: Environment Canada, National Inventory Report 2015; Natural Resources Canada, National Energy Database, 1990-2012.



# Changes in land use and land management practices during the past two decades have enhanced soil carbon sequestration and reduced emissions from land use.

**Reductions in GHG emissions from land use over the 1990-2013 period (-17 Mt) were partially offset by the increase in emissions from livestock and crop production (+11 Mt) and on-farm energy use (+3 Mt) during the same period.**

The main drivers of the upward trend in GHG emissions from livestock and crops were the expansion of beef cattle and swine populations, and increases in the application of synthetic fertilizers on the Prairies.

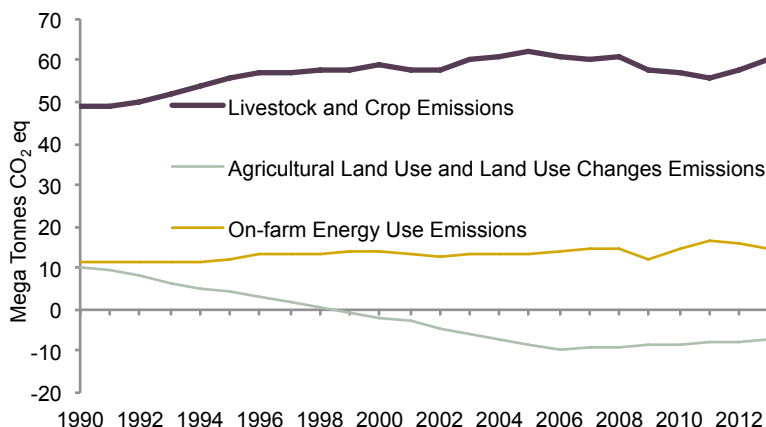
Major changes in land management practices over the past 20 years have reduced GHG emissions and enhanced soil carbon sequestration.

**Changes in crop mix, reduced use of summerfallow, tillage practices and the decline in the area of land converted to cropland explain the decrease (-17 Mt) in net GHG emissions from agricultural land use in the crop sector.**

During the 1991-2011 period, the area under summerfallow declined by 74% while the area under no-till and reduced tillage increased by 165% (2011 Census of Agriculture).

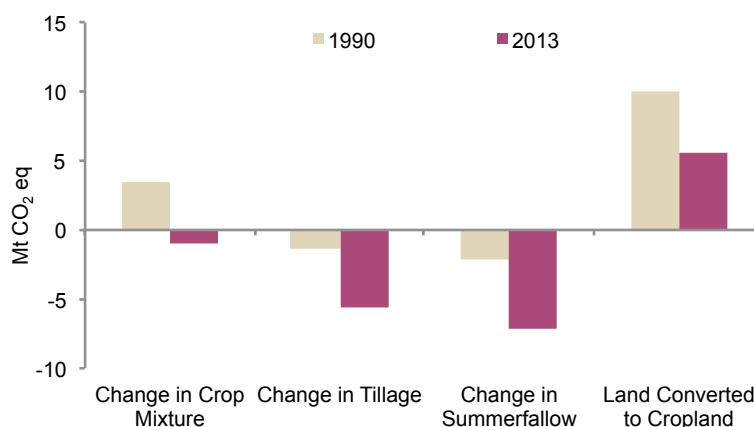
Over the same period, there was an increase in the area under perennial crops and a decline in land converted to cropland.

**Chart A.3  
Emission Trends by Category, 1990-2013**



Source: Environment Canada, National Inventory Report 2015 and Natural Resources Canada, National Energy Database, 1990-2012..

**Chart A.4  
Emissions and Removals Associated with Land Management Changes, 1990 and 2013**



Source: Environment Canada, National Inventory Report 2015.

## Future agricultural emissions are projected to remain fairly constant.

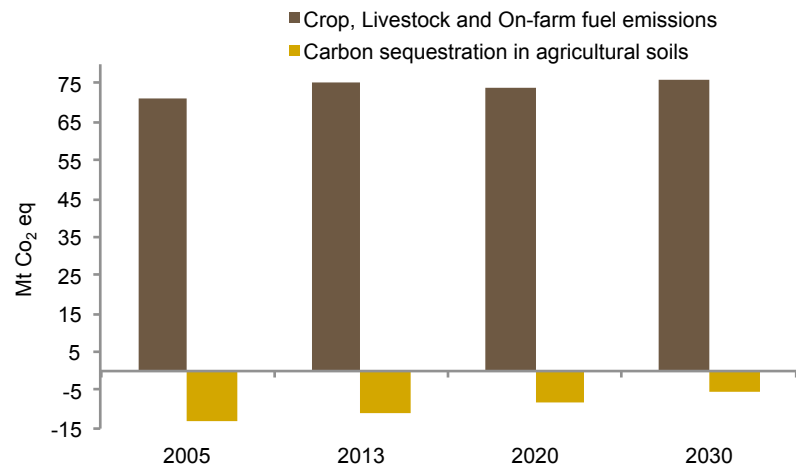
### Estimates of future agricultural emissions show little growth.

Combined GHG emissions from crop, livestock and fuel use are estimated to stay fairly constant over the next 15 years, increasing from 75 Mt in 2013 to 76 Mt in 2030.

It is projected that the annual rate of cropland soil carbon sequestration will decline from 11 Mt in 2013 to 6 Mt in 2030. This is a result of the soil carbon sink approaching equilibrium and limited scope for additional adoption of carbon sequestration practices such as no-till.

Emission projections were generated using two models: the Canadian Regional Agricultural Model (CRAM) was used to estimate resource use patterns in the agricultural sector while the Canadian Agricultural Greenhouse Gas Monitoring, Accounting and Reporting System (CanAG-MARS) provided corresponding estimates of emissions/removals from croplands using the same Tier 2 methodologies used to produce historical estimates for the National Inventory Report 2015. Future agricultural resource use patterns were projected by creating a baseline to 2024 in which CRAM was aligned to Agriculture and Agri-Food Canada's 2015 Medium Term Outlook crop and livestock production projections based on expected economic conditions through to 2024. The 2024 baseline was then used as a proxy for 2030 resource use patterns.

**Chart A.5**  
**Estimated GHG Emissions from Agriculture, 2005-2030**



Source: Environment and Climate Change Canada, Canada's Second Biennial Report, 2016.

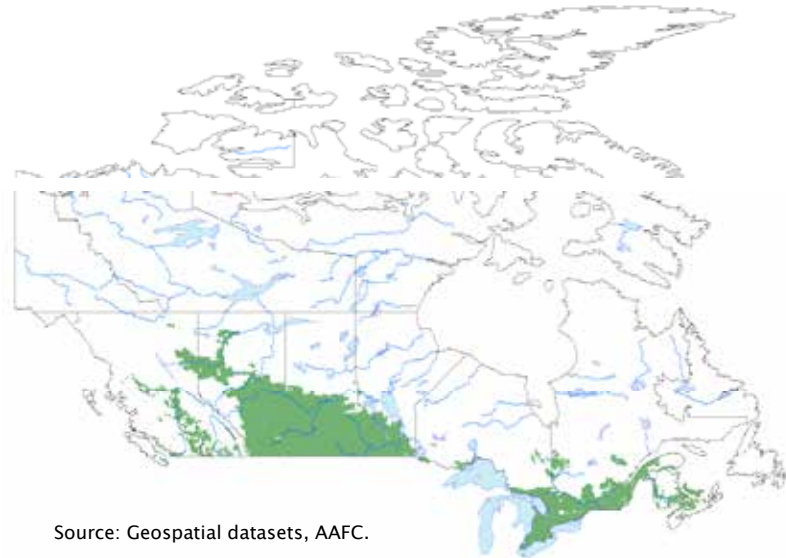
# The proportion of total land used for agricultural purposes is small in Canada and has decreased slightly since 1971.

**Total agricultural land in 2011 was 64.8 million hectares, representing 7% of Canada's land area.**

Prime farmlands are mainly concentrated in Ontario and the Prairies.

Many factors explain the large land area not suitable for farming, such as adverse climatic conditions, low soil fertility and topography.

**Chart A.6  
Spatial Extent of Canadian Agricultural Activity, 2011**

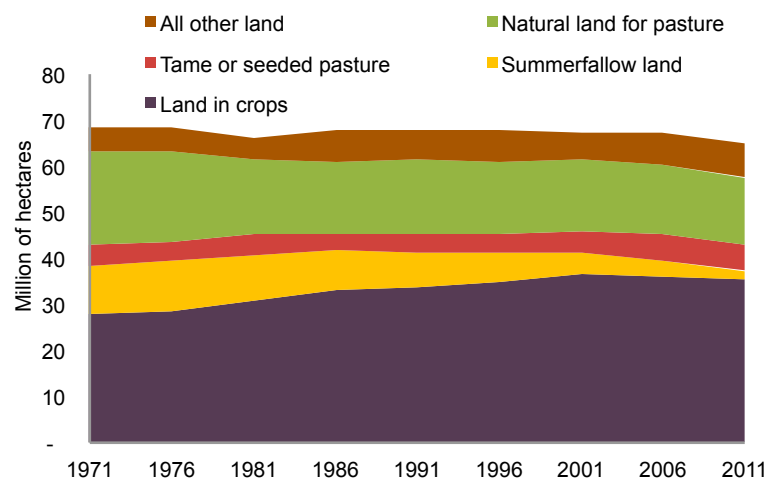


**Total farmland area declined slightly (5%) between 1971 and 2011 as marginal land came out of production and small amounts were being redirected for urban expansion.**

Land in crops was the largest agricultural land use category, increasing by 27% between 1971 and 2011. In contrast, land in summerfallow decreased by 80% during the same period, due to increased adoption of conservation farming practices such as no-till and continuous cropping.

Natural land for pasture decreased by 27% between 1971 and 2011, while tame or seeded pasture increased by 34% over the same period.

**Chart A.7  
Agricultural Land Use, 1971-2011**



Source: Statistics Canada, 2011 Census of Agriculture.

## Prime farmland is limited in Canada, with some parcels of such farmland currently being used for non agricultural purposes.

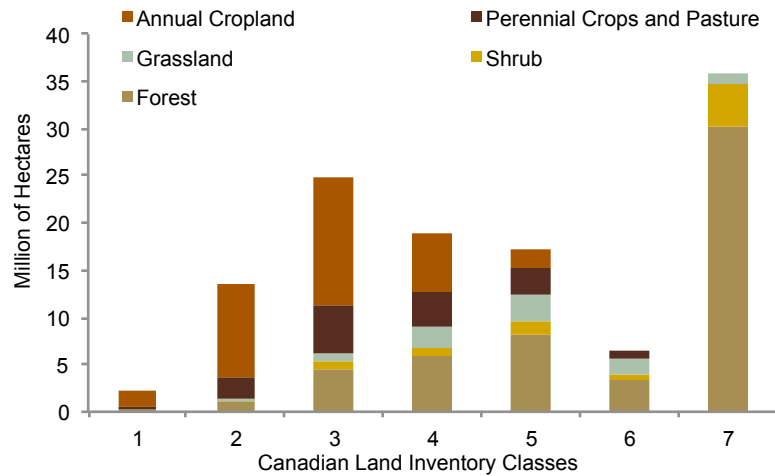
Agricultural land in Canada is classified into one of seven Canadian Land Inventory (CLI) classes, with class 1 being the highest-quality land without significant limitations for crop production, while class 7 has generally no capacity for arable cultivation or permanent pasture.

Prime farmland (CLI classes 1 to 3) is limited in Canada, with some parcels of such farmland classes currently being used for non agricultural purposes (e.g. shrub or forest).

Although Canada could potentially expand agricultural activities, the parcels of land under shrub or forest cover are important for recreational and environmental reasons (e.g. biodiversity, wildlife habitat, landscape aesthetics and water and carbon cycling). Shrubs and forest also serve as windbreaks and as a source of wood products.

Much of the class 4 to 6 land is dispersed and far from existing agricultural infrastructure such as grain elevators, rail transport and processing plants.

**Chart A.8**  
**Agricultural Land Cover by Canadian Land Inventory (CLI) Class, 2000**



Source: AAFC Land Cover of Canada Circa 2000, Ted Huffman.

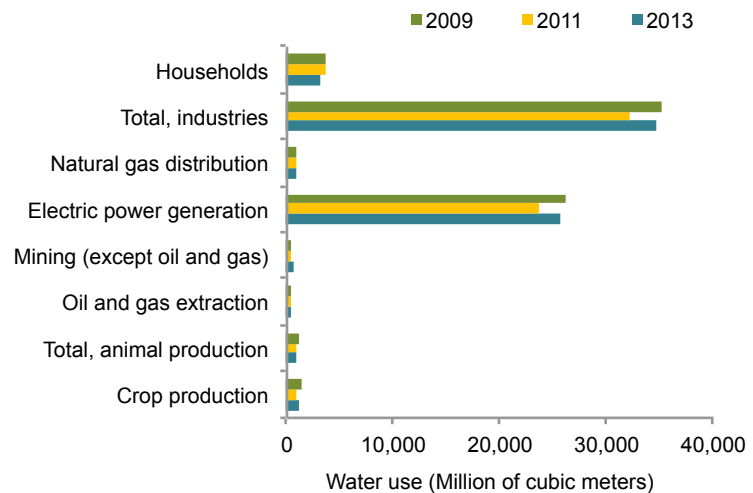
## Agriculture accounts for a small proportion of overall water use, but is the largest overall water consumer in Canada.

**Agriculture accounted for 5% of overall water use, or 2,007 million cubic meters, in 2013, a 15% decline from 2,366 million cubic meters in 2009.**

A wide variety of sectors use and consume water in Canada. Water use is any utilization of water regardless of whether it is consumed or returned to its original source.

Electric power generation, transmission and distribution used 25,635 million cubic meters, accounting for 68% of water use in 2013.

**Chart A.9  
Water Use by Sector, 2009-2013**



Source: Statistics Canada, Physical Flow Account for Water Use.

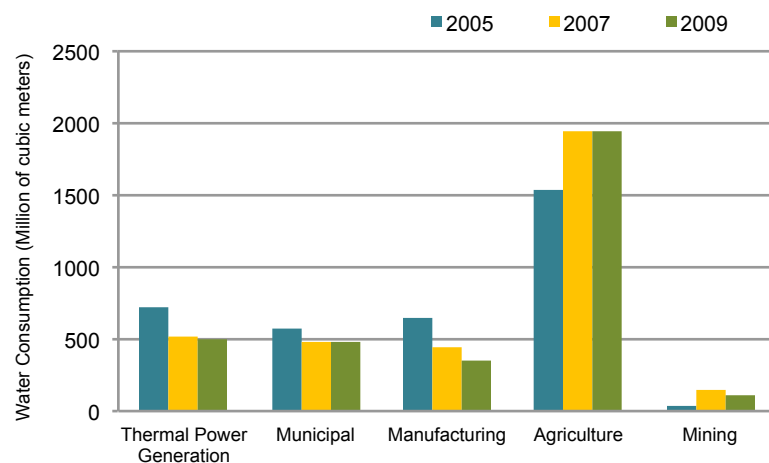
**Agricultural consumption of water from rivers, lakes and groundwater is substantial compared to other economic sectors.**

Water consumption refers to water withdrawn but not directly returned to its original source.

In 2009, agriculture consumed around 2 billion cubic meters, or 84% of its water use.

Thermal power generation, and municipalities consumed 507 million cubic meters and 480 million cubic meters of water, respectively, in 2009.

**Chart A.10  
Water Consumption by Sector, 2005-2009**



Source: Environment Canada (2004, 2006, 2009) Municipal Water and Wastewater Survey. Statistics Canada (2005, 2007, 2009) CANSIM Table 153-0101 - Water use in Canada, by sector, every 2 years.

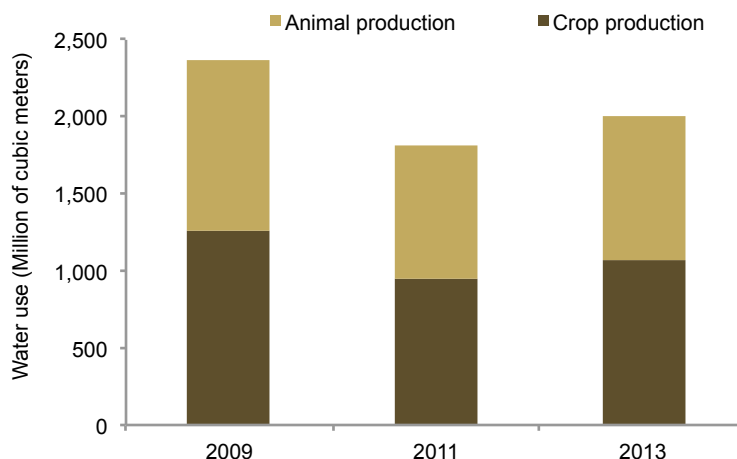
# Crop and animal production accounted for equal proportions of total agricultural water use while the number of irrigated farms decreased over time.

## Crop and animal production used 2,007 million cubic meters of water in 2013.

There was a 15% decrease in water used in agriculture from 2009 to 2013.

Animal and crop production used the water in almost equal share during this period.

**Chart A.11**  
Water Use in Canadian Agriculture, 2009-2013



Source: Statistics Canada, Physical Flow Account for Water Use.

## In 2014, 5,855 farms reported using irrigation, representing about 3% of farms in Canada.

At the national level, the number of farms that irrigated in 2014 decreased significantly (24%) compared to 2010. This in part, reflects farm consolidation over time.

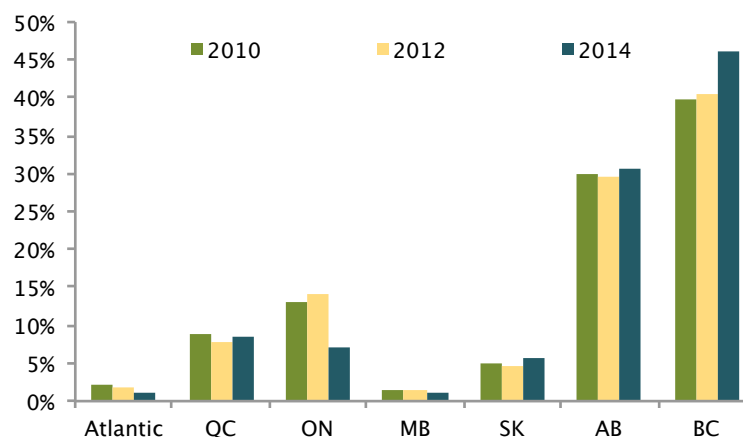
British Columbia had the largest number of irrigated farms (2,695 or 46% of farms) in 2014.

Alberta had the second largest number of irrigated farms (1,795 or 31% of farms) in 2014.

The proportion of irrigated farms increased between 2010 and 2014

in Saskatchewan, Alberta and British Columbia and decreased in Manitoba, Ontario and Quebec and the Atlantic provinces.

**Chart A.12**  
Share of Irrigated Farms to Total Farms by Province, 2010-2014



Source: Statistics Canada, Agricultural Water Survey.

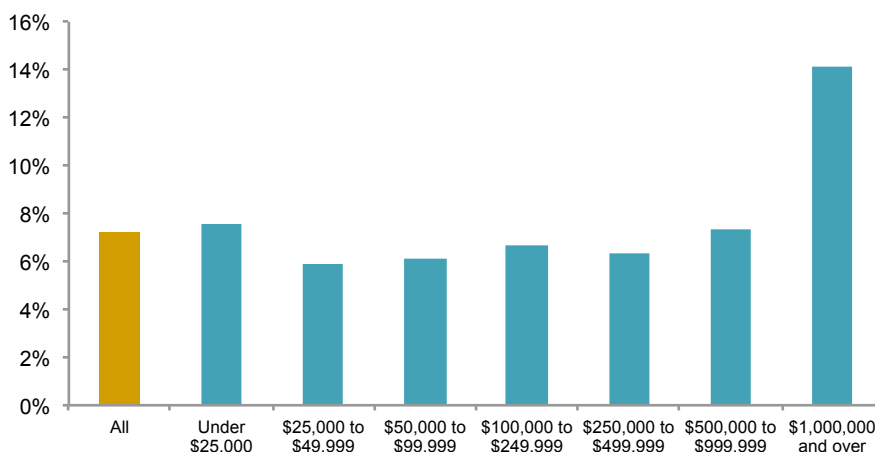
## The extent of irrigation varies by farm size and farm type.

### The largest farms are more likely to use irrigation.

In 2011, about 14% of the very large farms (those with gross farms receipts of \$1,000,000 and over) reported using irrigation.

In contrast, only about 7% of small and medium-sized farms (with gross farm receipts under \$1,000,000) used irrigation.

**Chart A.13**  
Share of Irrigated Farms by Farm Size, 2011



Source: Statistics Canada, Census of Agriculture 2011.

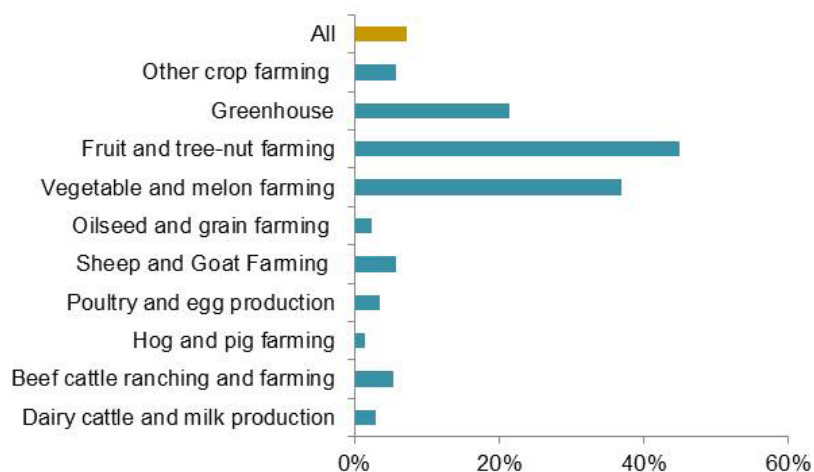
### Fruit and tree-nut farms reported the highest use of irrigation.

All farm types used irrigation in 2011. Fruit and tree-nut farms are most likely to irrigate with 45% reporting irrigation use, while 37% of vegetable and melon farms and 21% of greenhouse, nursery and floriculture farms used irrigation.

Of other farm types, less than 6% irrigated.

As farm size increases more irrigation is likely to be used. Seven in ten (72%) large fruit and tree-nut farms with farm gross receipts (GFR) of \$1,000,000 and over irrigated, whereas only 36% of small fruit and tree-nut farms with GFR under \$25,000 indicated irrigation use.

**Chart A.14**  
Share of Irrigated Farms by Farm Type, 2011



Source: Statistics Canada, Census of Agriculture 2011.



## A very small proportion of total crop area is irrigated with field and forage crops representing the most use in terms of land area and water use.

**In 2014, 586.000 hectares of crop land were irrigated, representing 1.6% of total crop area.**

Field crops accounted for 60% of total irrigated crop area, followed by forage crops (34%) (including alfalfa, hay and improved pasture), fruits (3%) and vegetables (3%).

Compared to 2010, there was an increase of 11% in total irrigated crop area in 2014, mainly from the increase in irrigated area for forage crops (33%).

The irrigated area for field crops and fruits increased by 6% and 18%, respectively, whereas that for vegetables decreased by 51% between 2010 and 2014.

**Agricultural producers used 1.67 billion cubic metres of water for irrigation in 2014, about the same amount reported in 2012, but double the amount of 2010.**

The dry conditions experienced in some regions of Canada in recent years partly explain this increase in irrigation water use.

Water use for field and forage crops doubled between 2010 and 2014.

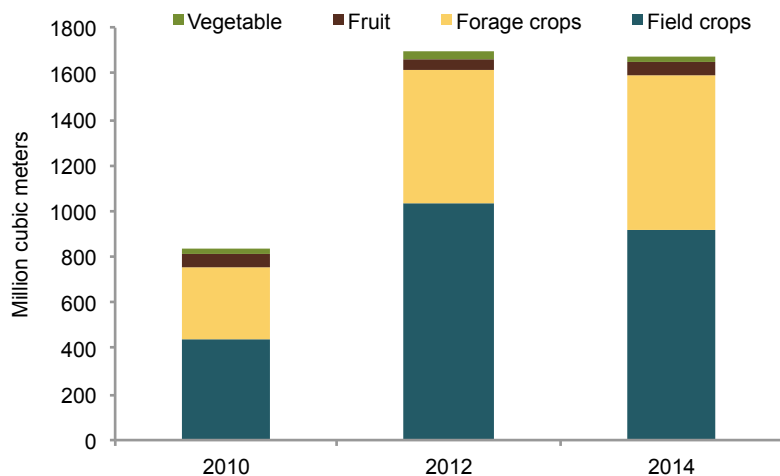
Water use for fruit crops increased by 22% during the same period whereas water use for vegetable crops was relatively stable.

**Chart A.15**  
Percentage of Irrigated Area by Crop Type, 2010–2014



Source: Statistics Canada, Agricultural Water Survey.

**Chart A.16**  
Irrigated Water Use by Crop Type, 2010-2014



Source: Statistics Canada, Agricultural Water Survey.

## Three-quarters of irrigated cropland in Canada is located in Alberta with half of all irrigated farms using off-farm water sources.

**Alberta accounted for 74% of the 586,000 hectares of irrigated cropland in Canada in 2014.**

There was a 22% increase in irrigated cropland in Alberta from 2010 to 2014.

British Columbia has the second largest irrigated crop area (68,000 hectares), accounting for 12% of irrigated cropland in Canada in 2014. There was a decrease (11%) in irrigated cropland in British Columbia from 2010 to 2014.

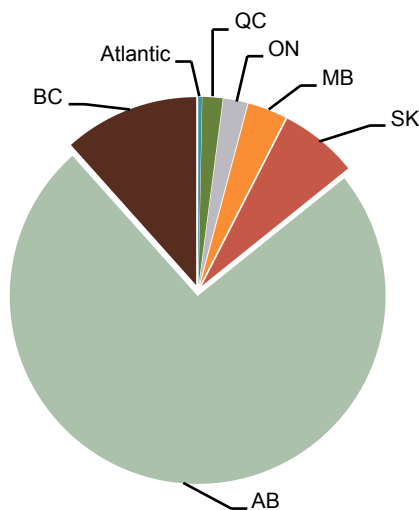
Differences in weather patterns, availability of surface water, crop types and farming practices can all lead to variations in irrigated area across regions and over time.

**Half (51%) of the farms that irrigated in 2014 used off-farm water sources.**

On-farm surface water was the second largest water source used by 40% of irrigating farms. On-farm groundwater was used by 20% of irrigating farms.

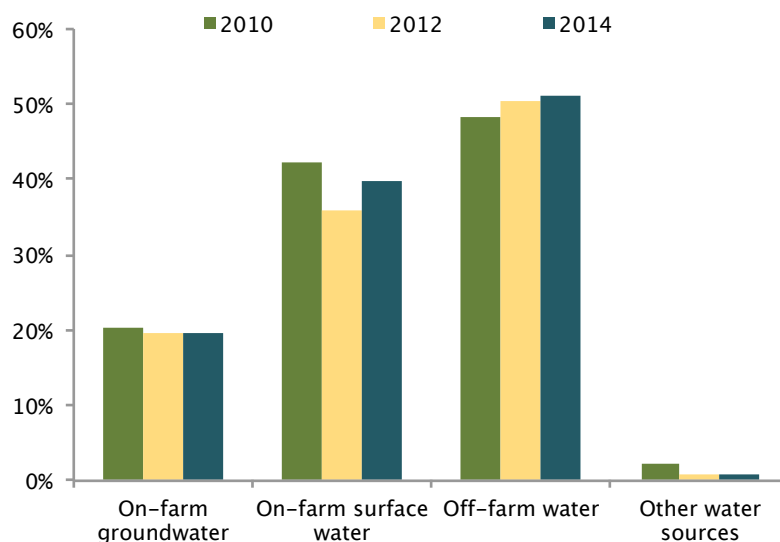
Off-farm water was the most frequently reported source of irrigation water for farms in most western provinces, while farms in Eastern Canada tended to use on-farm, surface water sources more often for irrigation.

**Chart A.17**  
Share of Total Crop Land Irrigated in Canada by Province, 2014



Source: Statistics Canada, Agricultural Water Survey.

**Chart A.18**  
Share of Irrigated Farms by Irrigation Water Source, 2010–2014



Source: Statistics Canada, Agricultural Water Survey.

# Four-fifths of irrigated farms used sprinkler irrigation and the vast majority of irrigating farms were adopting water and energy conservation practices.

**While various irrigation methods were employed, most farms used sprinkler irrigation.**

Farms use different irrigation methods depending on water source availability and farm situation.

In 2014, 79% of irrigated farms used sprinkler irrigation, 29% percent used micro-irrigation, and 12% employed surface irrigation.

The number of farms that used sprinkler and surface irrigation decreased by 27% and 58% respectively from 2010 to 2014, whereas the number of farms using micro-irrigation, which apply drips of water to the soil, increased by 9% during the same period.

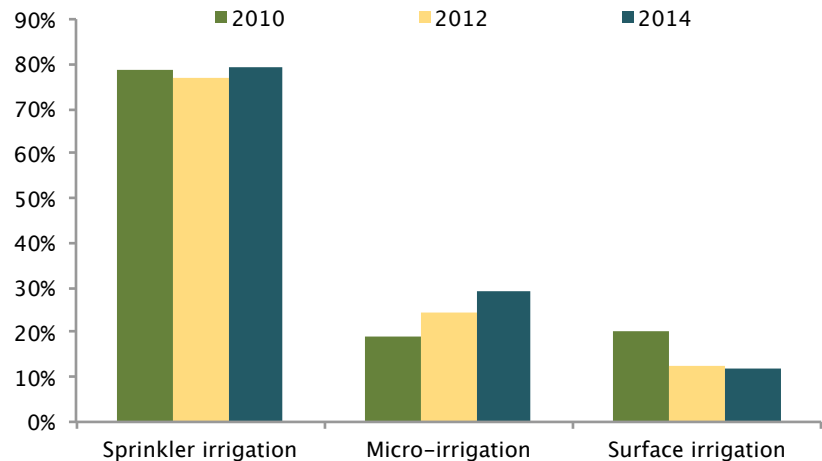
**In 2014, 96% of irrigated farms used one or more water and energy conservation practices, a significant increase compared to 2010 when three-quarters of irrigated farms adopted conservation practices.**

In 2014, the most employed conservation practices included: watering at night or in the morning, the use of water or energy-saving nozzles, and incorporating compost or other organic matter into soil. Nearly 6 in 10 irrigated farms (59%) used at least one of these practices.

The number of irrigated farms using pressure reduction, and water or energy saving nozzles increased by 21% and 22%, respectively, between 2010 and 2014.

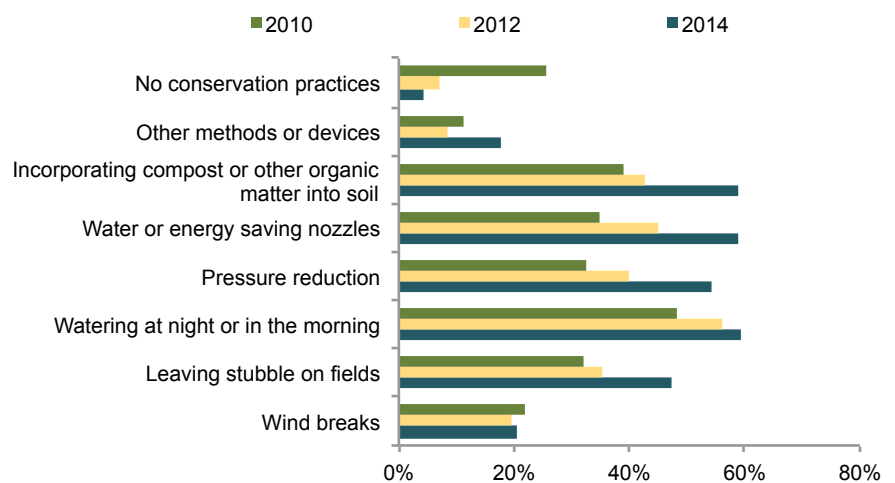
The number of farms leaving stubble on fields and incorporating compost or other organic matter into soil increased by about 8% during the same period. This may be due to the increase in the area of no-till production in recent years.

**Chart A.19**  
Share of Irrigated Farms by Irrigation Method, 2010–2014



Source: Statistics Canada, Agricultural Water Survey.

**Chart A.20**  
Share of Irrigated Farms by Water and Energy Conservation Practices, 2010-2014



Source: Statistics Canada: Agricultural Water Survey.

# SECTION B

GDP and Employment

# SECTION B

## GDP and Employment

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### Introduction:

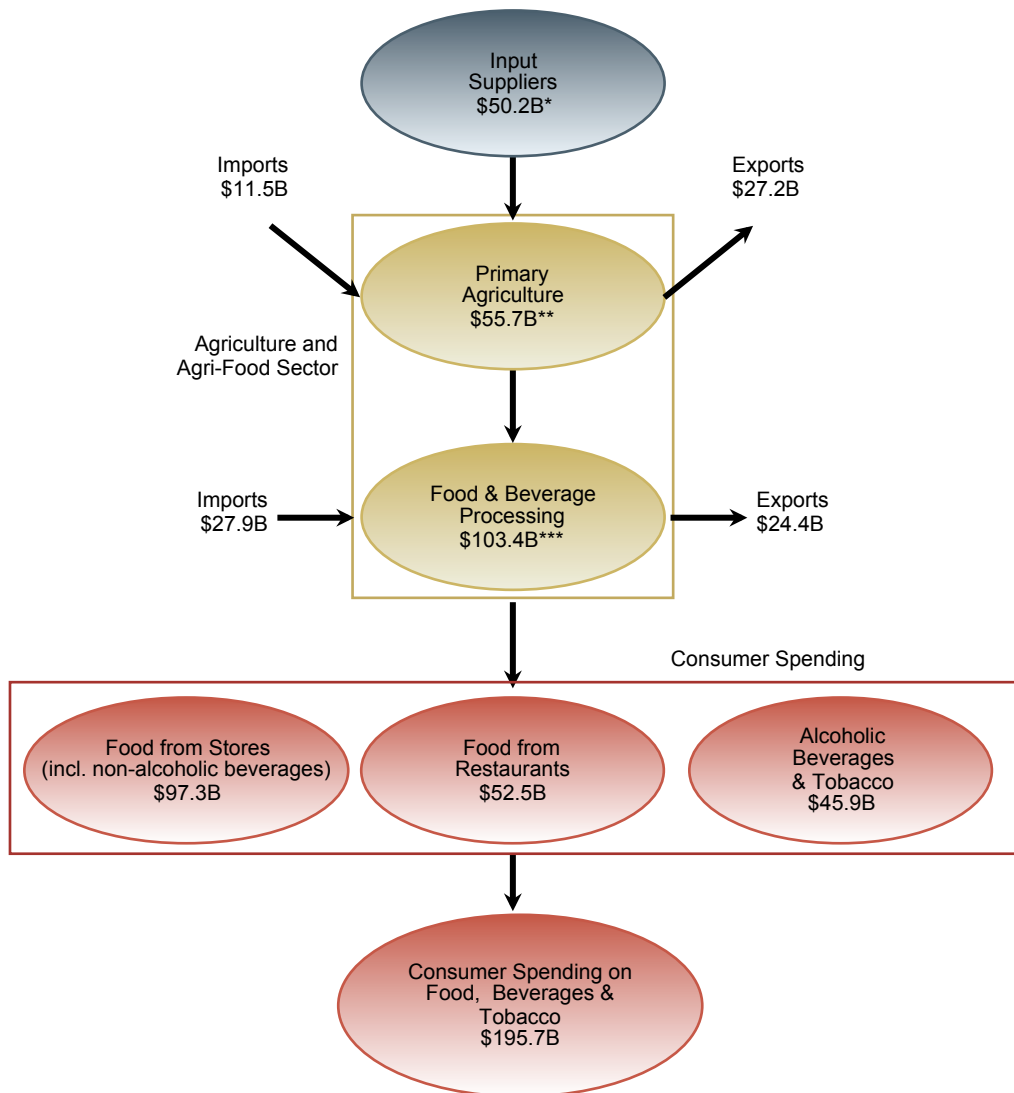
The Canadian agriculture and agri-food system (AAFS) is a complex and integrated supply chain which includes input and service suppliers, agricultural producers, food and beverage processors, food retailers and wholesalers, and foodservice providers. The AAFS makes significant direct and indirect contributions to the gross domestic product (GDP) and employment in Canada.

The AAFS Contributed 6.6% of Canadian GDP and one in eight Canadian jobs in 2014. The GDP of the AAFS has increased annually since 2007, the exception being during the economic recession of 2009. The food retail and foodservice industries have experienced the highest growth, while growth in the primary agriculture and food and beverage processing industries have been less consistent. In 2013, employment in most industries in the AAFS also continued their upward trend.

# The Canadian AAFS produces, processes and distributes products to consumers both domestically and abroad.

The Agriculture and Agri-food System (AAFS) is a complex, integrated and competitive system consisting of input suppliers, primary producers (farmers), food and beverage processors, wholesalers, retailers and consumers.

Chart B.1 The Agriculture and Agri-Food System, 2014



Source: Statistics Canada and AAFC calculations.

Note: \*Measures the value of inputs purchased by the primary agriculture sector.

\*\* Measures the value of farm production (farm market receipts).

\*\*\* Measures the value of shipments for both food and beverage processing.

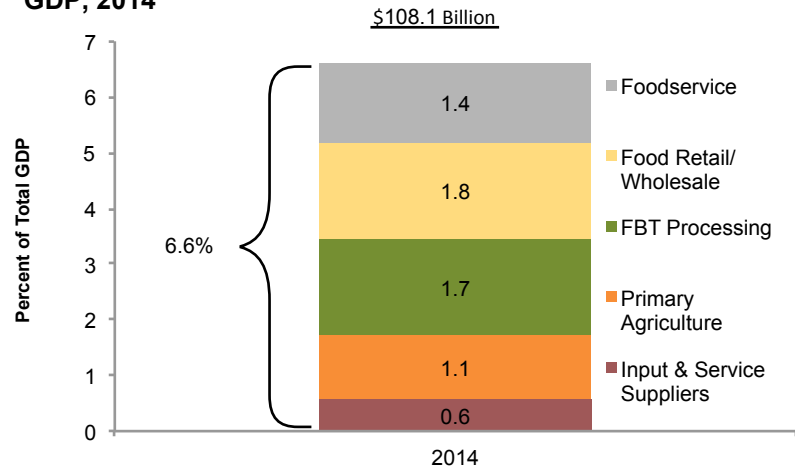
# The agriculture and agri-food system (AAFS) plays a significant role in the Canadian economy.

**In 2014, the AAFS generated \$108.1 billion of gross domestic product (GDP) and accounted for 6.6% of Canada's total GDP.**

The food retail/wholesale industry had the largest share of AAFS GDP with \$28.7 billion and 1.8% of Canada's total GDP in 2014.

It was followed by the food, beverage and tobacco (FBT) processing industry, worth \$28.3 billion and 1.7 % of total GDP, the foodservice industry worth \$23.1 billion and 1.4% of total GDP, primary agriculture, worth \$18.7 billion and 1.1% of total GDP, and the input and service suppliers, worth \$9.3 billion and 0.6 % of total GDP.

**Chart B.2  
Agriculture and Agri-Food System's Contribution to Total GDP, 2014\***



Source: Statistics Canada and AAFC calculations.  
Note: \*2014 data is subject to revisions.

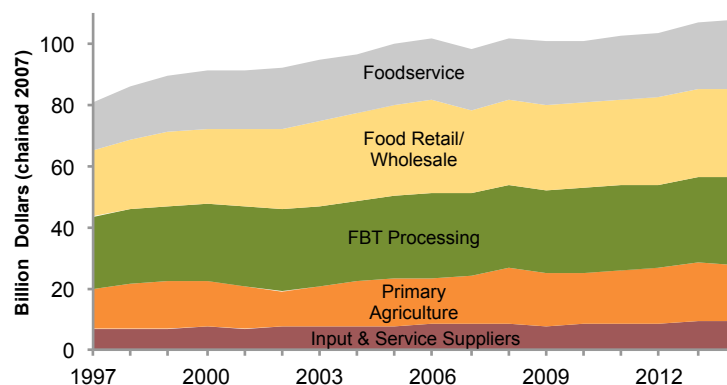
**GDP in the AAFS grew by 6.9% from 2010 to 2014. In comparison, GDP across all sectors of the Canadian economy grew by 10.0% over the same time period.**

The AAFS' annual GDP growth averaged 1.1% from 2010 to 2014. In 2014, AAFS' GDP grew by 1.2% over that of the previous year.

GDP generated by food service providers, food retailers/wholesalers, FBT processors and input and service suppliers increased in 2014 from the previous year by 4.5%, 1.8%, 2.5% and 3.2% respectively.

GDP in the primary agricultural sector decreased by 6.0% from the previous year.

**Chart B.3  
Agriculture and Agri-Food System's Contribution to GDP 1997-2014\***



Source: Statistics Canada and AAFC calculations.  
Note: \*2014 data is subject to revisions.

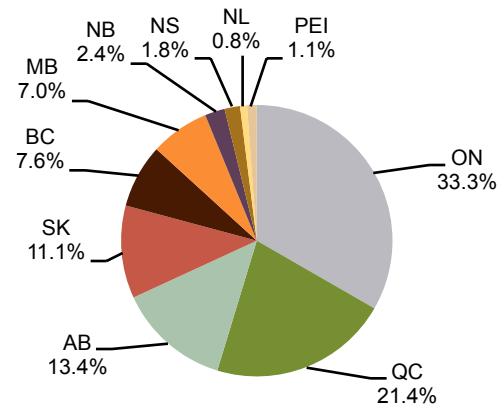


# The primary agriculture and food processing sectors are important contributors to the economies of most provinces.

Of the GDP generated by the Canadian primary agriculture and food processing sectors in 2014, more than half (54.7%) was generated by Ontario and Quebec.

With 33.3%, Ontario accounted for the largest share of the combined GDP of primary agriculture and food processing sectors, while Quebec and Alberta accounted for 21.4% and 13.4% respectively.

**Chart B.4**  
Provincial Distribution of Total Canadian Agriculture and Agri-Food GDP, 2014\*



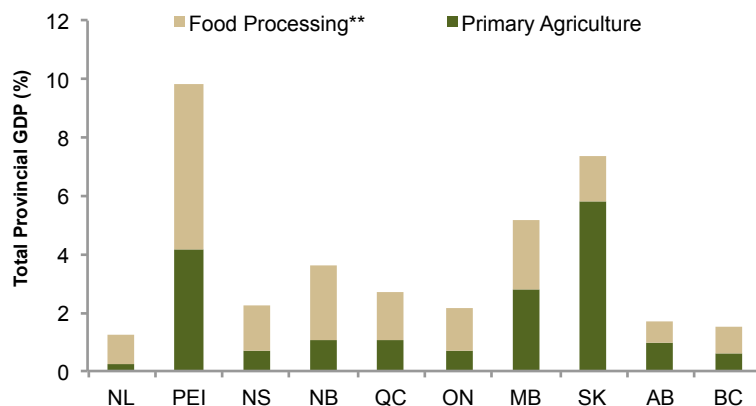
Source: Statistics Canada and AAFC calculations.  
Note: Excludes beverage and tobacco processing.  
\* 2014 data is subject to revisions.

## Primary Agriculture and Food Processing sectors accounted for varying shares of provincial GDP.

In 2014, the primary agriculture and food processing sectors generated the highest economic contribution in both Prince Edward Island and Saskatchewan, accounting for 9.8% and 7.4% of the GDP in those provinces, respectively.

Except in the provinces of Manitoba, Saskatchewan and Alberta, food processing accounted for a larger share of the provincial GDP than did primary agriculture.

**Chart B.5**  
Agriculture and Food Processing Sector's Contribution to Provincial GDP, 2014\*



Source: Statistics Canada and AAFC calculations.  
Note: \*\* Excludes beverage and tobacco processing.  
\*2014 data is subject to revisions.

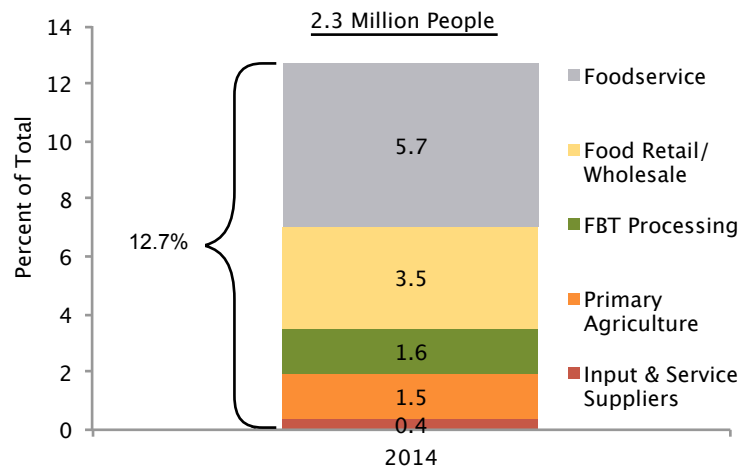
# The agriculture and agri-food system provides jobs to many Canadians.

**In 2014, the AAFS provided one in eight jobs in Canada, employing over 2.3 million people.**

Primary agriculture employed 275,300 people and accounted for 1.5% of all Canadian jobs in 2014. The FBT processing industry employed 288,300 people and accounted for 1.6% of Canadian jobs.

With 1,007,100 workers, the foodservice industry was the largest employer in the AAFS and accounted for 5.7% of Canadian jobs in 2014. The food retail/wholesale industry followed with 3.5% of all Canadian jobs.

**Chart B.6**  
Agriculture and Agri-Food System's Contribution to Employment, 2014



Source: Statistics Canada and AAFC Calculations.

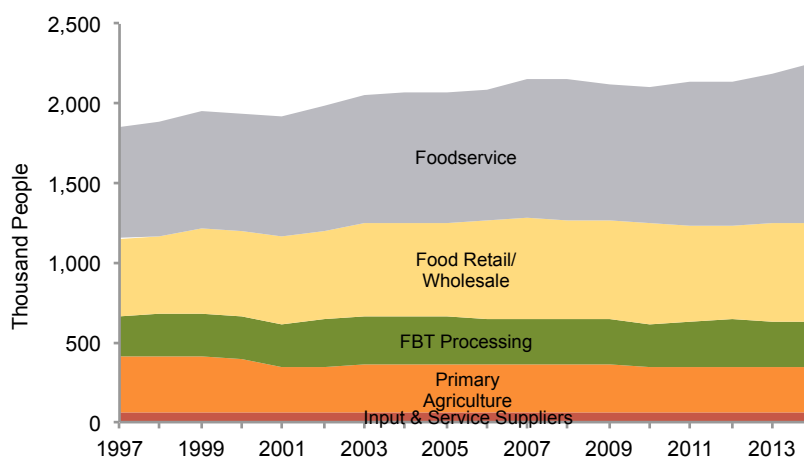
**Employment in the AAFS grew by 7.2 % between 2010 and 2014. In comparison, employment across all sectors of the Canadian economy grew by 4.5% over the same period.**

The AAFS' annual employment growth averaged 1.8% from 2010 to 2014. Employment in the AAFS in 2014 grew by 3.3% over that of the previous year.

Employment by food service providers, food retailers/wholesalers, FBT processors, and input and service suppliers increased in 2014 from the previous year by 6.6%, 2.5%, 1.4% and 1.4% respectively.

Employment in the primary agricultural sector decreased by 3.3% in 2014 from the previous year.

**Chart B.7**  
Employment in the Agriculture and Agri-Food System, 1997-2014



Source: Statistics Canada and AAFC calculations.

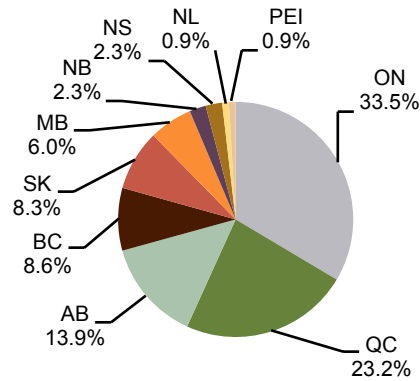
# The agriculture and agri-food system is a major employer in most provinces.

## Ontario and Quebec account for most of the workforce in the primary agriculture and food processing sectors.

In 2014, Ontario accounted for 33.5% of the combined workforce of the primary agriculture and food processing sectors in Canada, while Quebec and Alberta accounted for 23.2% and 13.9%, respectively.

Employment across Canada in the primary agriculture and food processing sectors decreased by 0.6% from 2013 to 2014. Employment growth varied by province, with the largest increase seen in Quebec at 3.8% and the largest decrease of 17.3% in Prince Edward Island.

**Chart B.8**  
Provincial Distribution of Primary Agriculture and Food Processing Employment, 2014\*



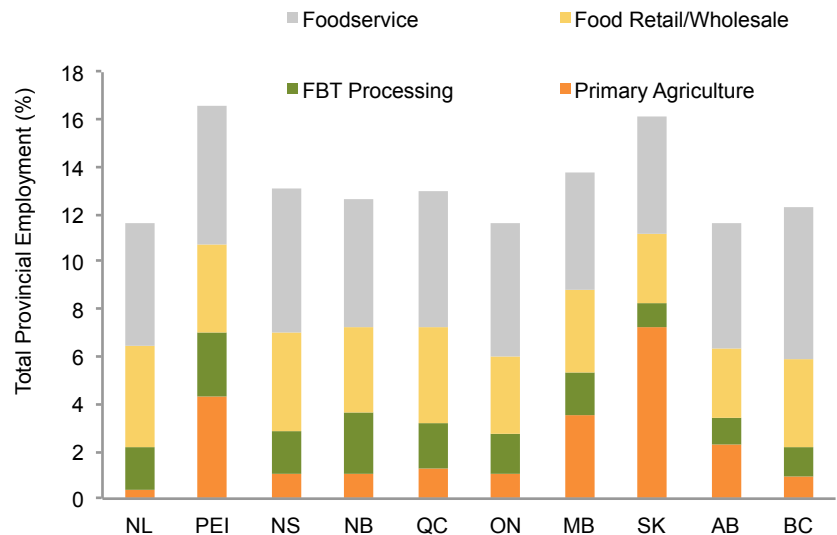
Source: Statistics Canada and AAFC calculations.  
Note: Excludes beverage and tobacco processing.  
\* 2014 data is subject to revisions.

## In 2014, the AAFS' share of provincial employment was highest in Prince Edward Island and Saskatchewan, accounting for 16.6% and 16.1% of total jobs in each province, respectively.

In most provinces, the foodservice industry provided the largest share of AAFS jobs, followed by the food retail/wholesale industry.

The exception was Saskatchewan, where primary agriculture accounted for the largest share (7.2%) of the jobs. In Prince Edward Island and Manitoba, primary agriculture was the second-largest employer (after foodservice).

**Chart B.9**  
Agriculture and Agri-Food System's Share of Provincial Employment, 2014\*



Source: Statistics Canada and AAFC calculations.  
Note: Provincial input and service suppliers have been excluded because of confidentiality agreements with many of its component industries.  
\*2014 data is subject to revisions.

# SECTION C

International Trade

# SECTION C

## International Trade

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### **Introduction:**

As a major producer of many agricultural commodities, Canada's agriculture and agri-food sector depends on export markets for continued growth over and above what is consumed domestically. Canada also relies on imported products to meet consumer demand for a variety of agriculture and agri-food products on a year-round basis.

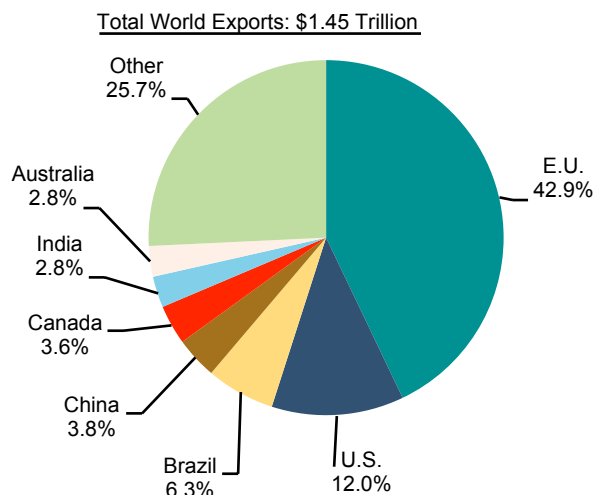
Canadian agriculture and agri-food exports and imports continued to grow in 2014 due to both higher prices and volumes relative to 2013. Exports in 2014 reached \$51.5 billion while imports totaled \$39.4 billion.

# Canada is a major player in the international trade of agriculture and agri-food products.

**Canada was the world's fifth-largest exporter of agriculture and agri-food products after the E.U., the U.S., Brazil, and China in 2014.**

With export sales of \$51.5 billion, Canada accounted for 3.6% of the total value of world agriculture and agri-food exports, which was \$1.45 trillion in 2014.

**Chart C.1**  
**World Agriculture and Agri-Food Export Share by Country of Origin, 2014**



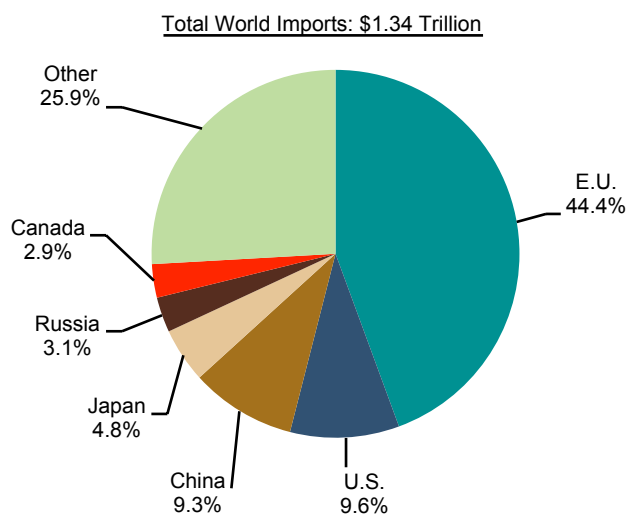
Source: Global Trade Atlas and AAFC calculations.  
Notes: 1) Excludes all seafood - fresh and processed. 2) Includes intra-E.U. trade.

**Canada remained the world's sixth-largest importer of agriculture and agri-food products after the E.U., the U.S., China, Japan and Russia.**

Canadian imports of agriculture and agri-food products amounted to \$39.4 billion in 2014, representing 2.9% of the total value of world imports, which was \$1.34 trillion.

The E.U. trade shares reflect total trade between the twenty-eight individual members of the E.U. in addition to trade between the E.U. and the rest of the world.

**Chart C.2**  
**World Agriculture and Agri-Food Import Share by Country of Destination, 2014**



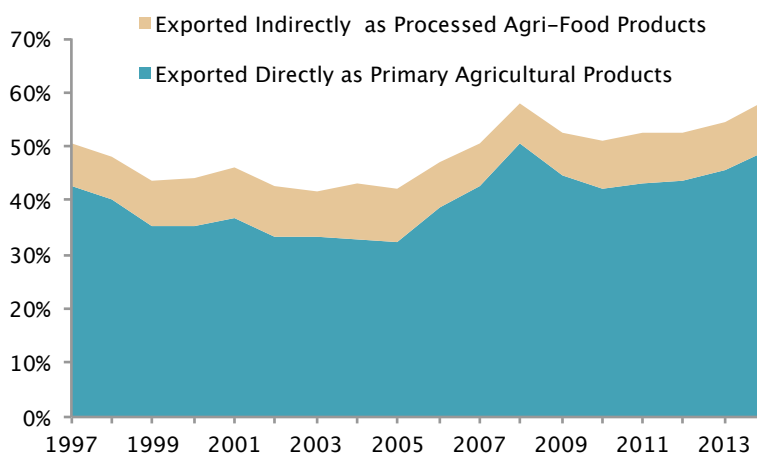
Source: Global Trade Atlas and AAFC calculations.  
Notes: 1) Excludes all seafood - fresh and processed. 2) Includes intra-E.U. trade.

# The Canadian agriculture and agri-food sector is highly export-focused.

**On a value basis, it is estimated that in 2014 approximately 58% of the value of primary agricultural production in Canada was exported, either directly as primary agricultural commodities or indirectly as processed food and beverage products.**

The estimated export share of primary agricultural production increased from 47% in 2005 to 58% in 2008 due to an increase in the value of direct primary exports over this period. The export share has since remained above pre-2005 levels.

**Chart C.3**  
Estimated Share of Canadian Primary Agriculture Production that is Exported Directly and Indirectly, 1997–2014



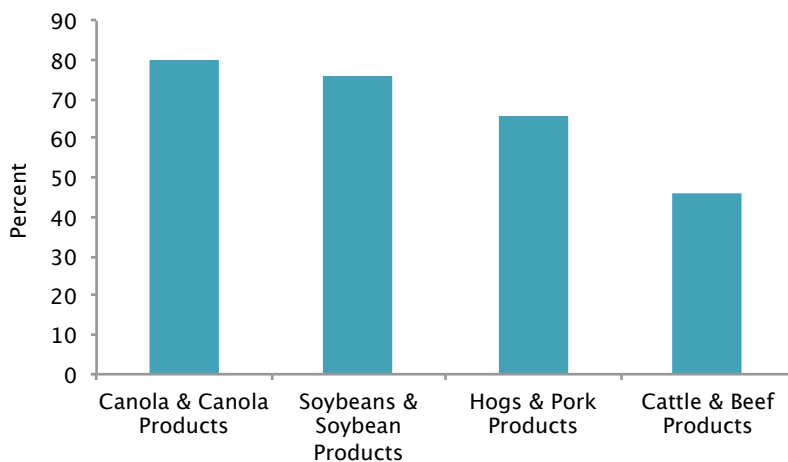
Source: AAFC.

**The level of export dependence varies by agricultural commodity, with canola, soybean, swine and cattle being the most export oriented.**

Agriculture and agri-food product exports are comprised of primary commodities, such as wheat, canola or live animals, and of further processed products, such as flour, canola oil or meat.

On a volume basis, over the 2012 to 2014 period, 46% of cattle and beef products, 66% of hogs and pork products, 76% of soybeans and soybean products and 80% of canola and canola products were exported.

**Chart C.4**  
Estimated Shares of Primary and Processed Agricultural Products that are Exported, Volume-Basis, Average 2012–2014



Source: AAFC.



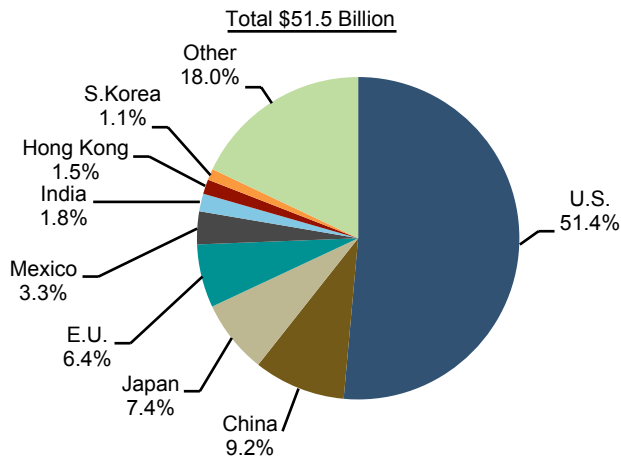
# The U.S. remained Canada's largest and the most important agriculture and agri-food trading partner in 2014.

**In 2014 the U.S. accounted for 51.4% of the value of all Canadian agriculture and agri-food exports.**

China, Japan, the E.U. and Mexico accounted for an additional 26.3% of Canadian agriculture and agri-food exports. One hundred sixty-nine countries accounted for the remaining 22.3% of Canadian export sales.

In 2014, Canada accounted for the largest share of the U.S. agriculture and agri-food import market (20.3%), followed by Mexico with 17.7%.

**Chart C.5  
Canadian Agriculture and Agri-Food Exports by Country of Destination, 2014**

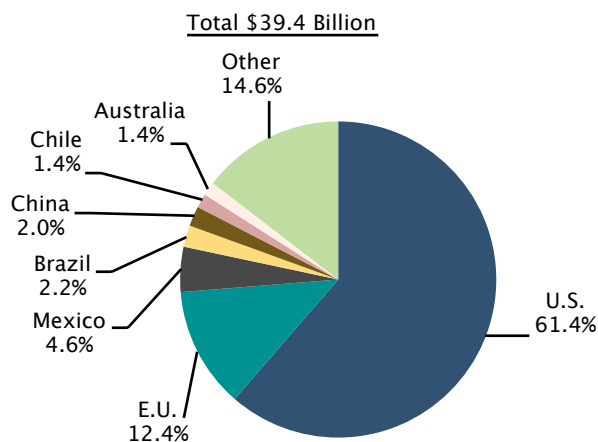


Source: Statistics Canada and AAFC calculations.

**The U.S. accounted for 61.4% of the value of Canadian agriculture and agri-food imports in 2014.**

The E.U. accounted for 12.4% of total imports, while Mexico, Brazil, China, Chile and Australia collectively accounted for 11.6% of the value of Canadian imports.

**Chart C.6  
Canadian Agriculture and Agri-Food Imports by Country of Origin, 2014**



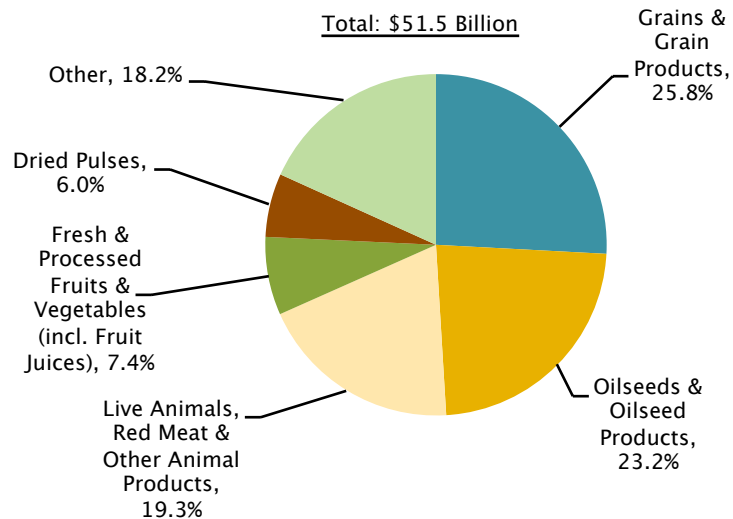
Source: Statistics Canada and AAFC calculations.

# Three main commodity groups accounted for over two-thirds of all Canadian agriculture and agri-food exports.

Of the \$51.5 billion in Canadian agriculture and agri-food exports in 2014, grains and grain products accounted for 25.8%, followed by oilseeds and oilseed products at 23.2%, and live animals, red meat and other animal products at 19.3%.

Other important export products included fresh and processed fruits and vegetables, including fruit juices (7.4%) as well as dried pulses (6.0%).

**Chart C.7**  
Commodity Composition of Canadian Agriculture and Agri-Food Exports Sales, 2014



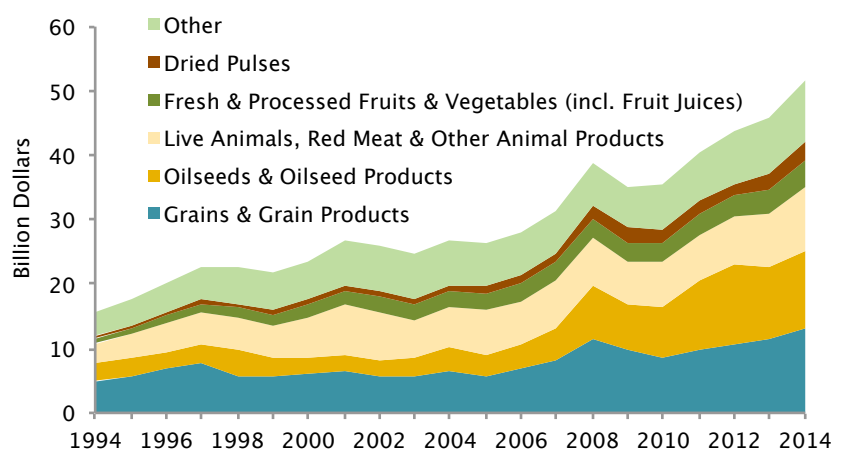
Source: Statistics Canada and AAFC calculations.

Grains and grain product exports grew by 16.1% to \$13.3 billion between 2013 and 2014 while oilseed and oilseed product exports increased by 5.9%, to \$12.0 billion during the same period.

Over the same period, exports of live animals, red meat and other animal products increased by 20.6% to \$10.0 billion, exports of fresh and processed fruits and vegetables (including fruit juices) increased 6.8% to \$3.8 billion, and exports of dried pulses increased 14.0% to \$3.1 billion.

Exports have grown quickly since 2005 after a period of relatively slow growth in the early 2000s. The value of exports grew by 96% between 2005 and 2014, due in large part to a 284% increase in the value of oilseed and oilseed product exports and a 134% increase in the value of grain and grain product exports over this period.

**Chart C.8**  
Canadian Agriculture and Agri-Food Export Sales by Commodity Group, 1994–2014



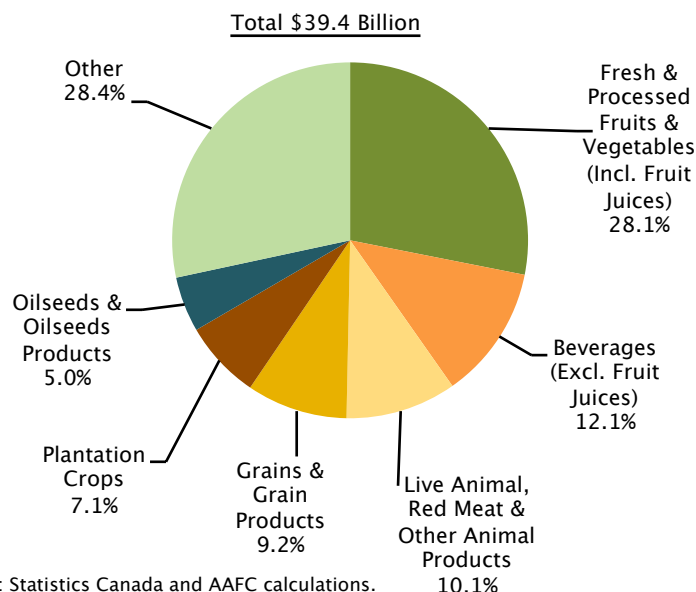
Source: Statistics Canada and AAFC calculations.

# Canada imports a wide variety of agriculture and agri-food products.

## Imports of fresh and processed fruits and vegetables accounted for 28.1% of the total value of Canadian agriculture and agri-food imports in 2014.

Alcoholic and non-alcoholic beverages (excluding fruit juices) (12.1%), and live animals, red meat and other animal products (10.1%) were the next largest import categories by value.

**Chart C.9**  
Commodity Composition of Canadian Agriculture and Agri-Food Import Sales, 2014



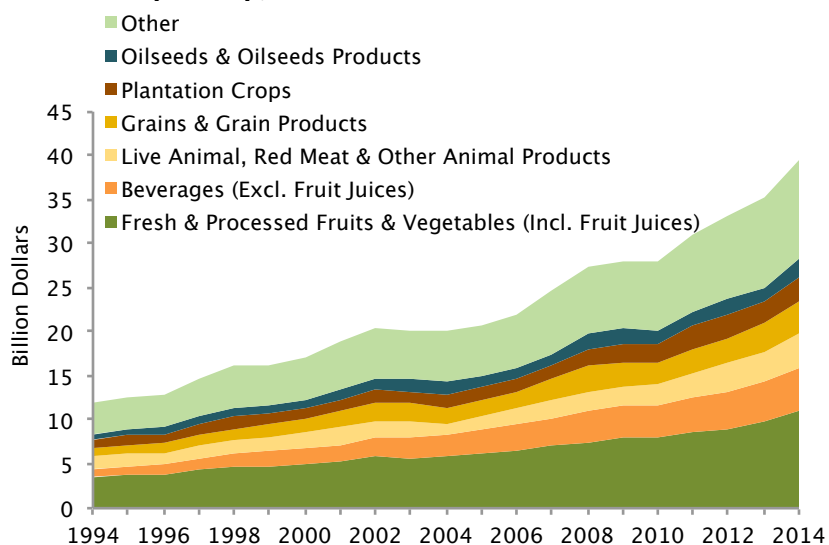
Source: Statistics Canada and AAFC calculations.

## Imports of fresh and processed fruits and vegetables reached \$11.1 billion in 2014, an increase of 11.4% over 2013.

Imports of alcoholic and non-alcoholic beverages (excluding fruit juices) were up 6.7% in 2014 to \$4.8 billion, while imports of live animals, red meats and other animal products increased 15.8% to \$4.0 billion.

The value of imports increased by 89.9% between 2005 and 2014, due in part to a 79.4% increase in the value of imports of fresh and processed fruits and vegetables and an 80.8% increase in the imports of alcoholic and non-alcoholic beverages over this period.

**Chart C.10**  
Canadian Agriculture and Agri-Food Import Sales by Commodity Group, 1994–2014



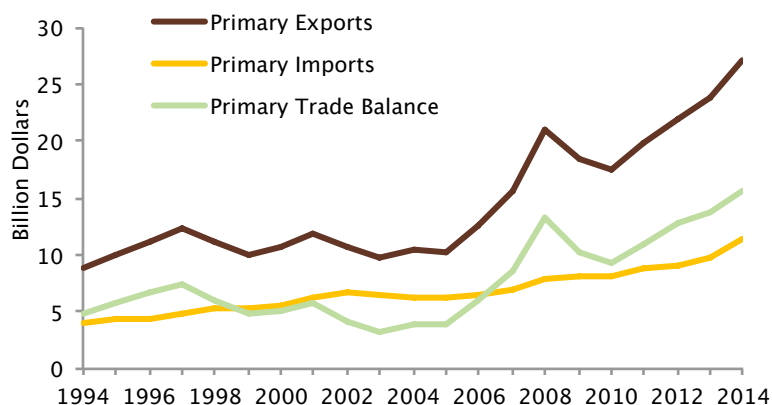
Source: Statistics Canada and AAFC calculations.

# Primary agriculture and processed agri-food trade continued to grow in 2014.

**Canada's trade surplus in primary agriculture increased from \$13.8 billion to \$15.7 billion between 2013 and 2014.**

Canadian exports of primary agricultural products (i.e. exports directly from the farm sector) increased from \$23.7 billion to \$27.2 billion between 2013 and 2014 while import sales of primary agricultural products increased from \$9.9 billion to \$11.5 billion over the same period.

**Chart C.11  
Canadian Primary Agriculture Exports, Imports and Trade Balance, 1994–2014**



Source: Statistics Canada and AAFC calculations.

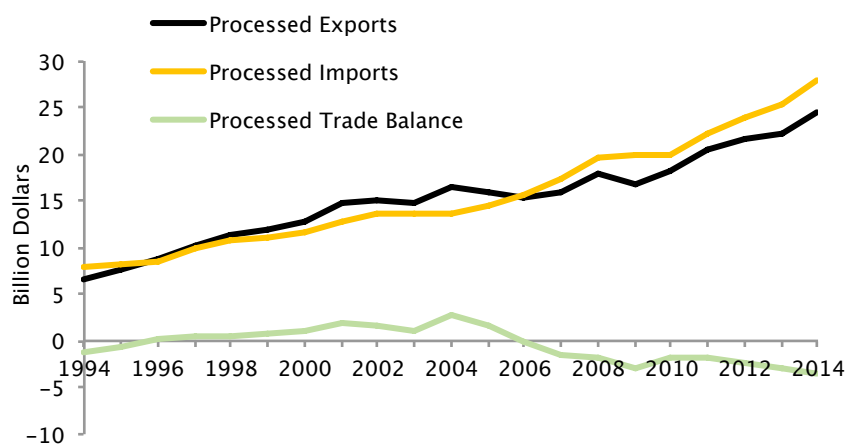
**Canada's trade deficit in processed agricultural products was \$3.5 billion in 2014, up from \$3.0 billion a year prior.**

Exports of processed agri-food products (i.e. agri-based products that have gone through processing) increased from \$22.3 billion in 2013 to \$24.4 billion in 2014.

Imports of processed agri-food products to Canada also increased from \$25.3 billion to \$27.9 billion over the same period.

Canada's trade deficit in processed agricultural products has been relatively stable since the mid-2000s.

**Chart C.12  
Canadian Processed Agri-Food Exports, Imports and Trade Balance, 1994–2014**



Source: Statistics Canada and AAFC calculations.

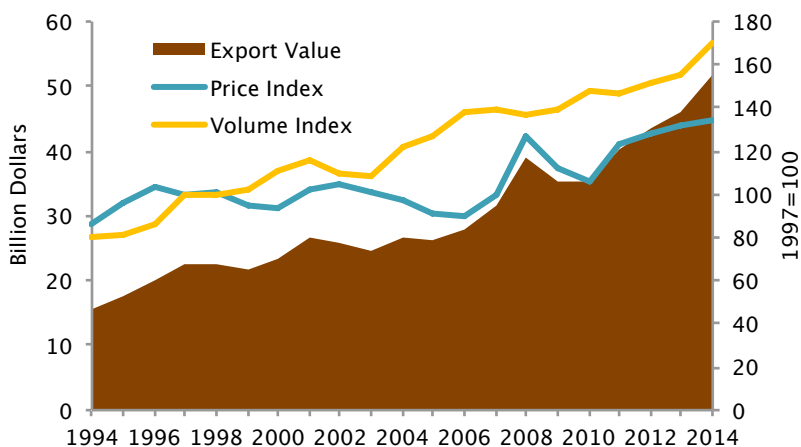
# Values of exports and imports both grew in 2014 due to higher product prices and volumes.

**Export price growth of 2.2% and volume growth of 9.6% contributed to the overall 12% growth in agriculture and agri-food exports in 2014 relative to 2013.**

Growth in both export prices and export volumes contributed to overall export value growth for live animals, red meat and other animal products.

Higher export volumes offset lower export prices, contributing to increased export values for grains and grain products and for oilseeds and oilseed products.

**Chart C.13**  
Prices, Volumes and Values of Canadian Exports of Agriculture and Agri-Food Products, 1994-2014



Source: Statistics Canada and AAFC calculations.

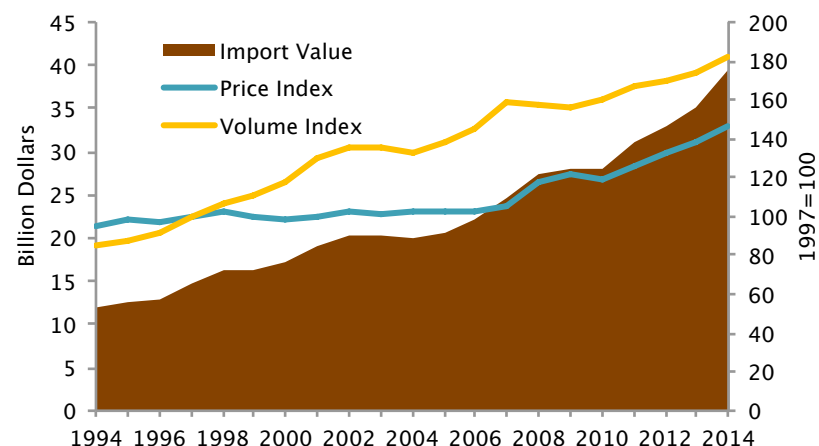
**Import price growth of 6.3% and volume growth of 5.3% contributed to the 12% growth in the value of agriculture and agri-food imports in 2014 relative to 2013.**

Higher import prices were the main contributor to higher import values for fresh and processed fruits and vegetables and for live animals, red meats and other animal products.

Higher import volumes contributed to growth in the import value of beverages.

Higher import prices and volumes were observed for grains and grain products and for oilseeds and oilseed products.

**Chart C.14**  
Prices, Volumes and Values of Canadian Imports of Agriculture and Agri-Food Products, 1994-2014



Source: Statistics Canada and AAFC calculations.

# SECTION D

Primary Agriculture

# SECTION D1

## Farm Performance

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### Introduction:

Developments in primary agriculture impact the structure and performance of all sectors along the food supply chain, such as farm inputs, food processing, food retail/wholesale and food service.

Agricultural producers contribute to economic growth in the Canadian economy through these supply chain linkages.

Performance of the primary agriculture sector has been positive for the past four years. Receipts from the sale of agricultural commodities have been trending upward, largely due to higher receipts from grain and oilseed sales and more recently, from red meat sales. Average net operating income has also been increasing, as well as the average net worth of farms.

# Primary agricultural producers have direct links to all stages in the agri-food supply chain.

Both upstream and downstream industries make use of primary agricultural products.

**Chart D.1.1**  
**Disposition of the Value of Primary Agricultural Production in Canada, 2011**



Source: Statistics Canada, Input/Output Model and AAFC calculations. This is a representation of the output flows for the Primary Agriculture sector based on Statistics Canada's Input-Output model for the 2011 base year.



# The composition of agricultural sales has varied over the past decade.

## The share of farm market receipts by agriculture commodity groups has changed since 2004.

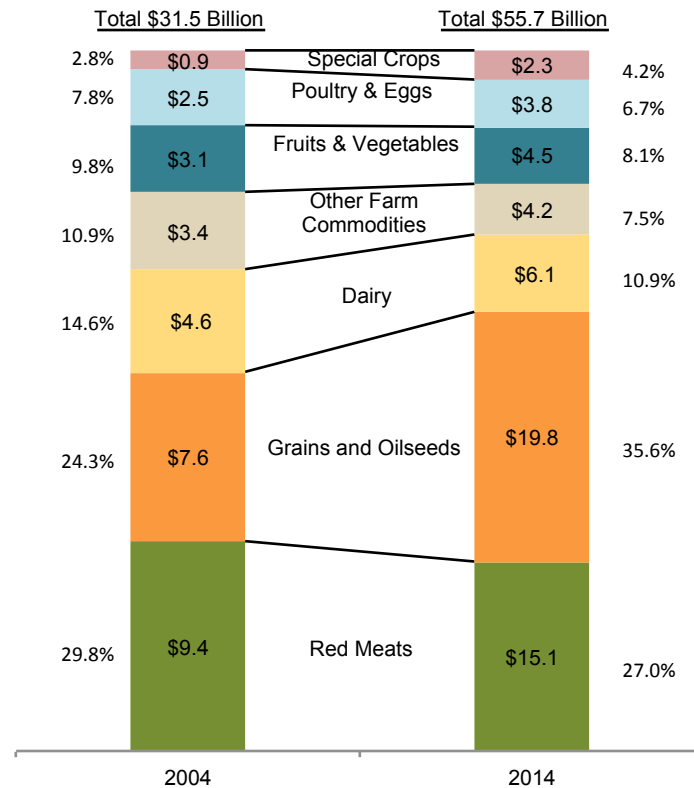
Between 2004 and 2014, the share of total farm market receipts from grains and oilseeds and special crops increased while the share of all other commodity groups decreased.

Over the same period, grain and oilseed receipts also more than doubled in value to reach \$19.8 billion in 2014, and accounted for the largest share (35.6%) of market receipts.

Receipts from the sale of special crops (pulses, mustard, sunflower and canary seed) more than doubled between 2004 and 2014 and accounted for 4.2% of all market receipts in 2014, up from 2.8% in 2004.

While the share of red meat receipts declined from 29.8% in 2004 to 27.0% in 2014, the total value increased by \$5.7 billion.

**Chart D.1.2**  
**Commodity Shares of Total Farm Market Receipts, 2004 and 2014**



Source: Statistics Canada.

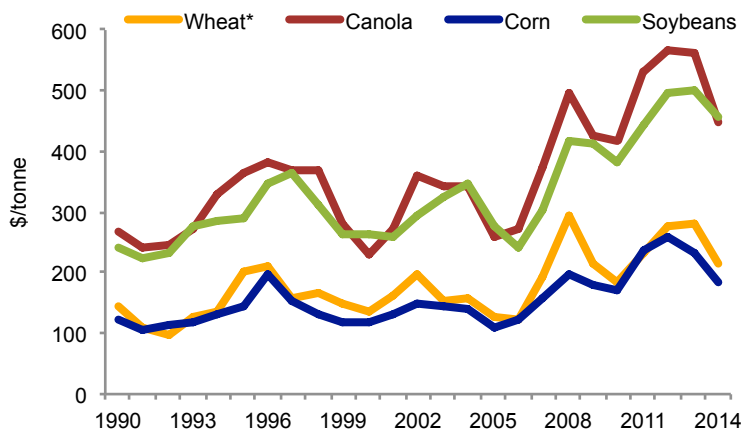
# Prices for agricultural commodities have remained at historically high levels.

## Grain and oilseed prices have softened but remain at historically high levels.

Between 1990 and 2012, wheat, canola, corn and soybean prices in Canada increased by 91.1%, 112.7%, 108.7% and 105.4%, respectively.

Conversely, in 2013 and 2014, abundant harvests in major producing countries, especially in Canada, expanded worldwide stock levels and led to a softening in prices during 2014.

**Chart D.1.3**  
Canada Wheat, Canola, Corn and Soybean Prices, 1990-2014



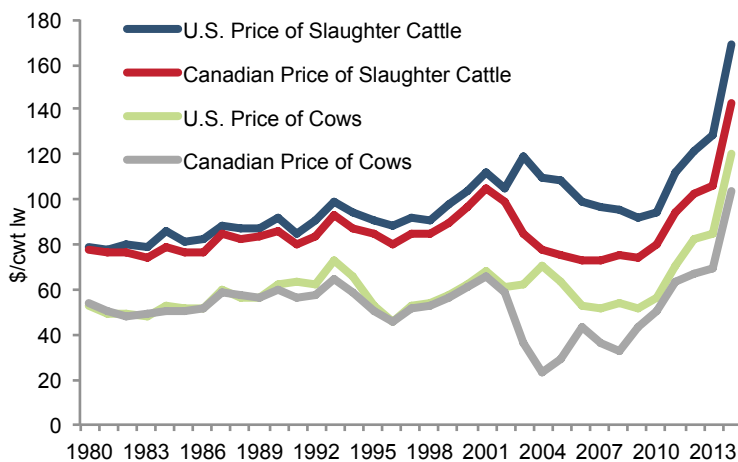
Source: Statistics Canada.  
\*Note: Wheat includes durum wheat.

## Red meat prices continued their upward trend in 2014.

The Canadian and U.S. cattle markets are highly integrated, which is why cattle prices on both sides of the border have been closely linked historically. However, some events have disrupted these price linkages over the past decades.

The ban on animal trade from Canada by the U.S. in 2003 following the outbreak of bovine spongiform encephalopathy (BSE), and the implementation of the U.S. Country-of-Origin Labelling (COOL) standard in 2008, exerted downward pressure on cattle prices in Canada, which in turn, led to large cattle price differentials between the two countries.

**Chart D.1.4**  
Cattle Price Cycle, 1980-2014



Source: USDA ERS, Canfax and AAFC calculations.

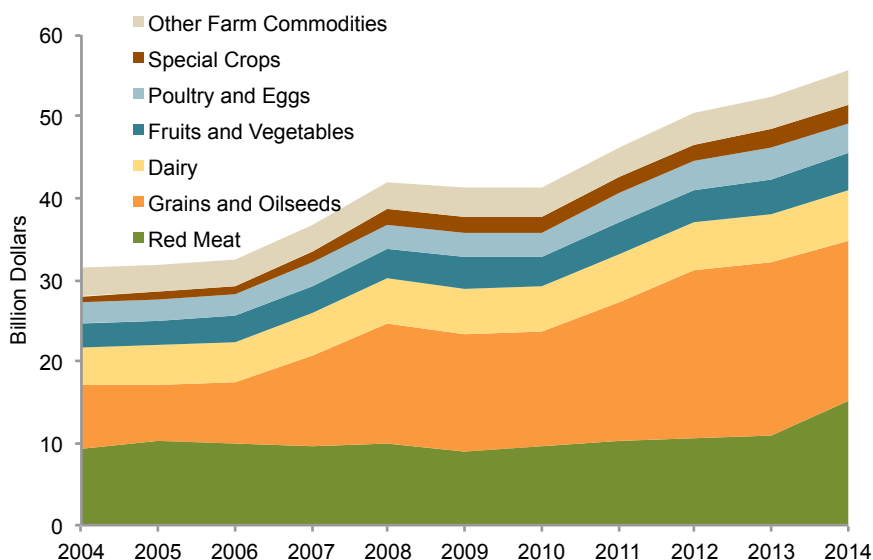
## Farm market receipts increased in 2014, largely driven, by strong red meat prices.

**Farm market receipts reached a record \$55.7 billion in 2014, 6.0% higher than 2013 and the fourth consecutive annual increase.**

Although grain and oilseed receipts declined by 6.2% in 2014, they were 13.8% higher than the 2009-2013 average. Lower grain and oilseed prices were the main reason for the decline.

The decline in grain and oilseed receipts was more than offset by a 37.2% increase in red meat receipts. Cattle receipts, driven by strong prices, increased 44.4% in 2014. Strong hog prices also contributed to a 25.2% increase in hog receipts in 2014.

**Chart D.1.5**  
**Farm Market Receipts by Commodity, 2004-2014**



Source: Statistics Canada.

### The distribution of farm market receipts among commodity groups varies by region.

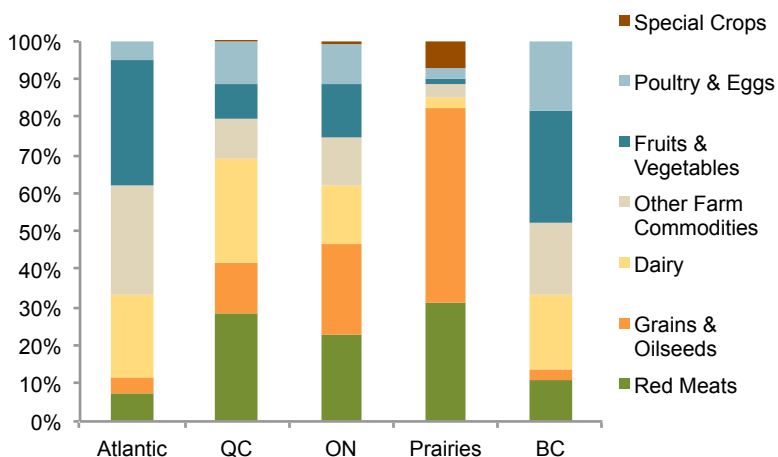
In the Atlantic region and British Columbia, fruit and vegetable receipts accounted for the largest share of farm market receipts in 2014, at 33.3% and 28.9% respectively.

In Quebec, the red meat industry accounted for the largest share (28.3%) of farm market receipts.

In Ontario and the Prairies, the largest share of market receipts came from the sale of grains and oilseeds, (23.7% and 51.1% respectively).

In 2014, the share of red meat sales increased compared with 2013 in all regions because of higher prices.

**Chart D.1.6**  
**Regional Farm Market Receipts by Commodity, 2014**



Source: Statistics Canada and AAFC calculations.

# Net cash income reached a record high level in 2014.

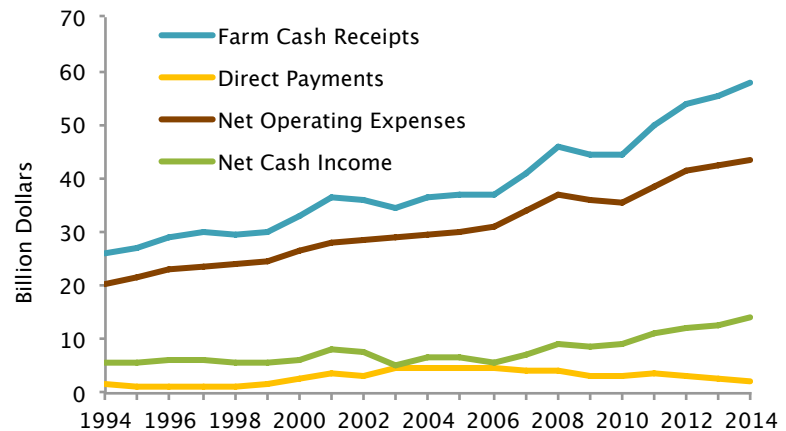
**In 2014, growth in farm cash receipts outpaced growth in farm operating expenses, pushing net cash income to \$14.2 billion—32.5% above the 2009-2013 average.**

Farm cash receipts, which include market receipts and direct program payments, increased by 4.7% in 2014, the fourth consecutive yearly increase.

Similarly, net operating expenses increased for the fourth consecutive year reaching \$43.6 billion in 2014, a year-over-year increase of 2.1%. Declines in feed and crop and hail insurance premiums were more than offset by a 47.8% increase in livestock purchases.

Direct program payments to producers include payments to help stabilize farm income and to help offset production losses. Program payments declined by 21.8% in 2014, following a similar decline in 2013, because of healthy market returns in the last few years.

**Chart D.1.7**  
**Farm Cash Receipts, Net Operating Expenses and Net Cash Income, 1994–2014**



Source: Statistics Canada.

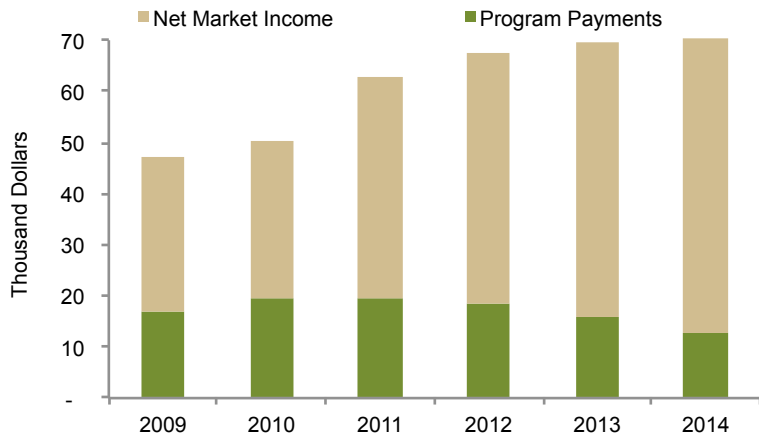
# At the farm level, average net operating income has increased in recent years but varies by province.

**Average net operating income has increased over time, mainly due to an increase in net market income.**

In 2014, the average net operating income was \$71,500 per farm.

On average, 82.0% of all farm operating income in 2014 came from the market, up from 64.5% in 2009.

**Chart D.1.8  
Average Net Operating Income, 2009-2014**



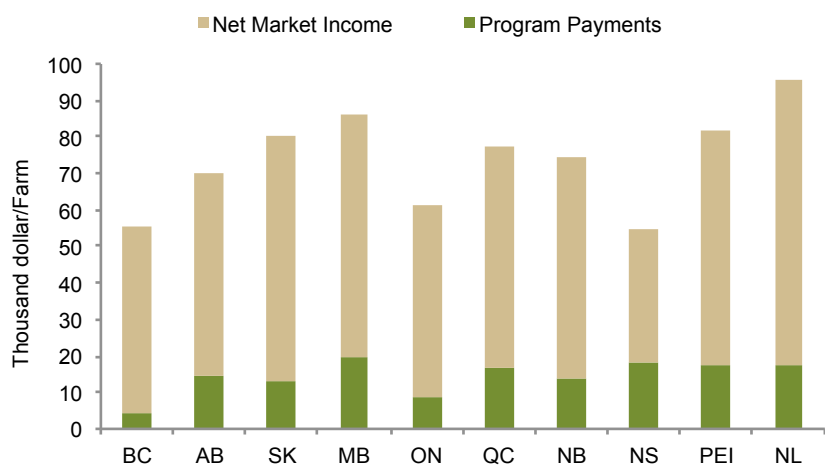
Source: Statistics Canada, Taxation Data Program.  
Note: Includes farms with \$25,000 or more in gross revenues.

**In 2014, Newfoundland and Labrador had the highest average net operating income per farm, followed by Manitoba.**

Nova Scotia was the province with the lowest average net operating income per farm.

The contribution of market receipts to average net operating income varies by province; it was 84.0% or more in Saskatchewan, Ontario and British Columbia, as opposed to 57.9% in Nova Scotia.

**Chart D.1.9  
Average Net Operating Income by Province, 2014**



Source: Statistics Canada, Taxation Data Program.  
Note: Includes farms with \$25,000 or more in gross revenues.

Program payments also varied by province, due in part to differences in farm support programming across provinces. In 2014, British Columbia farmers received the lowest program payments per farm, while Manitoba farmers received the highest.

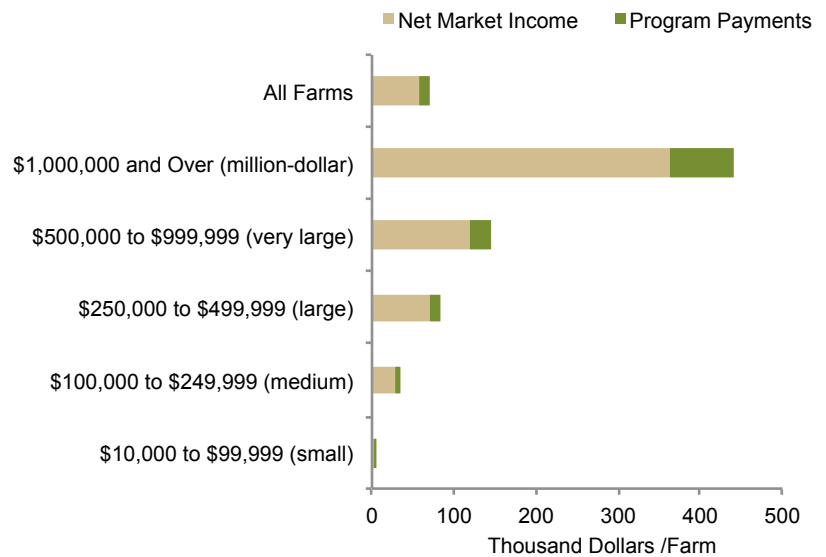
# Average net operating income varies by farm size and type.

**The average net operating income per farm ranged from \$1,600 among small farms to \$441,000 among million-dollar-plus farms.**

For all farm sizes except small farms, market income accounts for over three-quarters of the average net operating income.

About 82.0% of the net operating income of million-dollar farms came from the market, with the remainder coming from program payments. For small farms (farms with revenues between \$10,000 and \$99,999), program payments accounted for close to half (45%) of average net operating income.

**Chart D.1.10**  
Average Net Operating Income by Revenue Class, 2014



Source: Statistics Canada, Taxation Data Program.  
Note: Includes farms with \$25,000 or more in gross revenues.

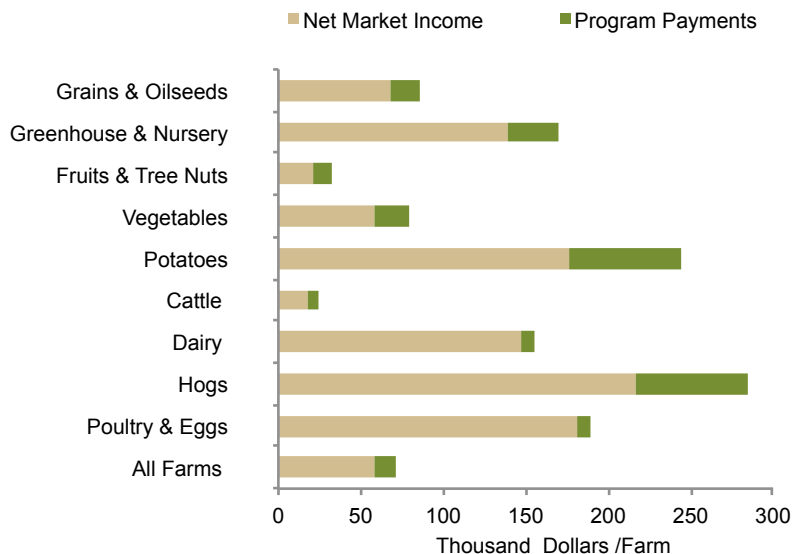
**Average net operating income also varies by farm type due mostly to differences in prices, farm size and market conditions that take place from year to year.**

Hog, potato, and poultry and egg farms reported the highest average net operating incomes in 2014.

Cattle farms, and fruit and tree nut farms reported the lowest average net operating incomes.

About one-quarter of average net operating incomes were from program payments for hog, cattle, vegetable and potato farms with fruit and tree nut farms receiving just over one-third of their net operating incomes from program payments, in 2014.

**Chart D.1.11**  
Average Net Operating Income By Farm Type, 2014



Source: Statistics Canada, Taxation Data Program.  
Note: Includes farms with \$25,000 or more in gross revenues.

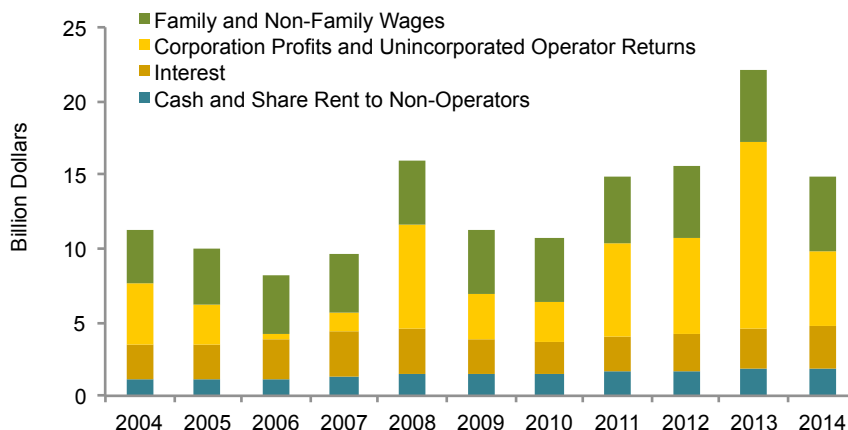
## Net value added in agriculture declined in 2014, following three consecutive years of increases.

**In 2014, net value added in agriculture totaled \$14.9 billion — in line with the 2009-2013 average, but 32.9% lower than the record level attained in 2013.**

Value added in agriculture is a measure of the contribution to national GDP made by the primary agriculture sector. Net value added is equal to the value of output less expenses on inputs, business taxes and depreciation. It reflects the return to the various factors of production, including rent to non-operator landlords, interest to lenders and wages to family and non-family members as well as profits to corporations and unincorporated operators.

In 2014, the returns to most factors of production were higher than the 2009-2013 average, except for corporation profits and unincorporated operator returns which declined by 18.8%.

**Chart D.1.12**  
**Net Value Added in Agriculture, 2004-2014**



Source: Statistics Canada.

Note: Starting in 2005, changes were made to the net value added methodology so that resales are no longer included in agricultural sales to other farms or in expenses on inputs from other farms.

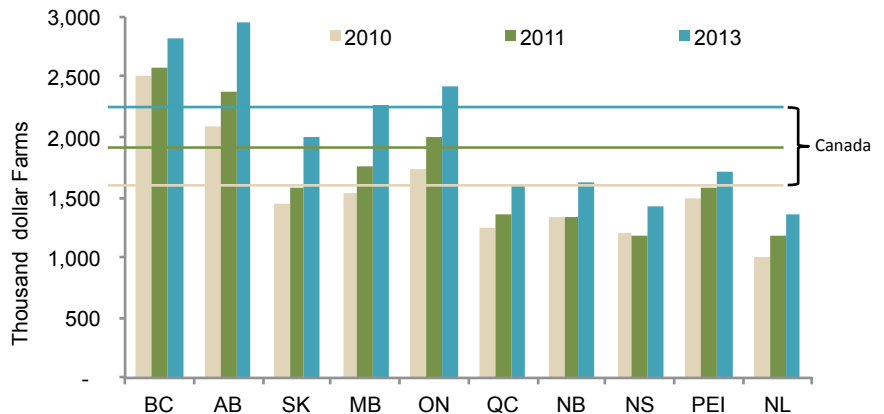
# Net worth of farms continued to increase in 2013, and varied by province and by farm type.

**In 2013, the average net worth for all farms was \$2.2 million, an all-time high.**

Overall, Canadian farms have a strong balance sheet as they report low debt levels in comparison to their net worth.

The average net worth per farm increased in all provinces in 2013. Increases in farm debt have been more than offset by increases in farm asset values in all provinces. The increase in farm asset values reflects, in part, a general optimism in the sector.

**Chart D.1.13**  
Average Farm Total Net Worth By Province, 2010-2013



Source: Statistics Canada, Farm Financial Survey 2010 to 2013 and AAFC calculations.

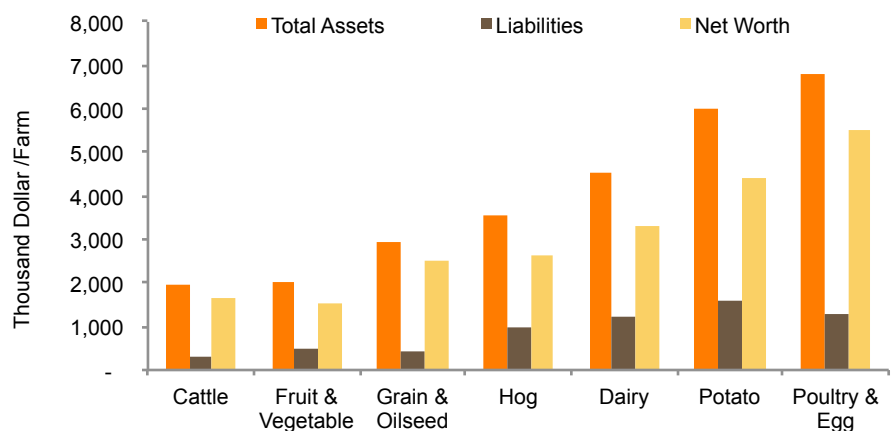
**The average net worth of farms varies depending by farm type. This reflects differences in capital intensity and average farm size among the various farm types.**

For supply-managed farms, the quota, and the land and buildings account for 43% and 41% of farm assets, respectively.

Cattle farms are predominantly small farms and thus tend to report lower farm net worth and debt.

Poultry and egg farms on the other hand are predominantly large farms tend to report higher farm net worth and debt.

**Chart D.1.14**  
Average Assets, Liabilities and Net Worth by Farm Type, 2013



Source: Statistics Canada, Farm Financial Survey 2013 and AAFC calculations. Note: Includes farms with \$25,000 or more in gross revenues.



## Rates of return in farming also vary by farm type.

**The return on assets measures the annual net income generated with a given amount of asset, while the return on equity indicates how many cents are returned to owners for every dollar invested.**

In 2013, the median return on assets was 3.4% for grain and oilseed farms with gross revenues of \$25,000 or more. The median return on equity for this group of farms was 4.1%. These rates of return are based on the assets' estimated by market value.

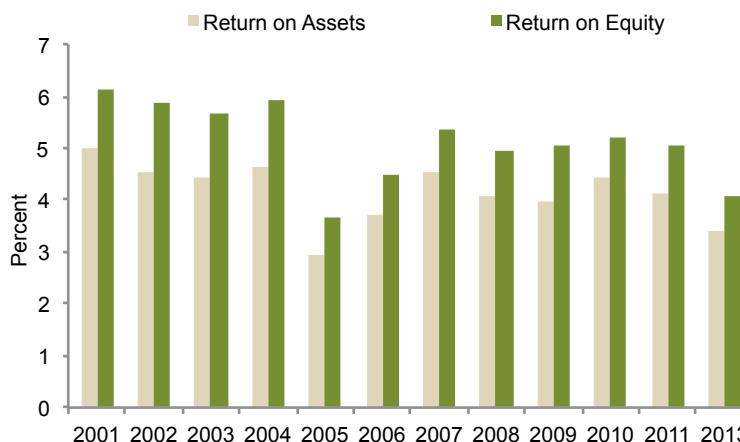
The rates of return for grain and oilseed farms have declined recently, as farm asset and equity values have increased more rapidly than net incomes. Increased asset values partly reflect general optimism in the sector.

### The hog sector had significant fluctuations in returns.

In 2013, the median return on assets was 3.9% for hog farms with gross revenues of \$25,000 or more. The median return on equity for this group of farms was 5.7%.

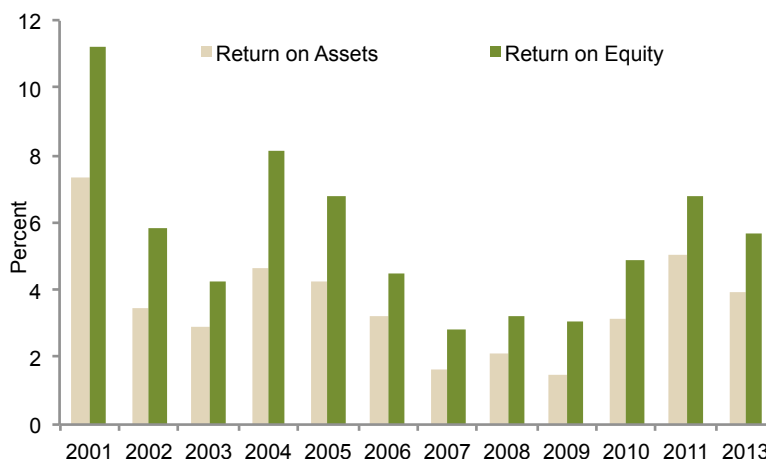
The rates of return on assets and equity have declined recently, as farm asset and equity values have increased faster than net incomes. Increased asset values partly reflect the general increase in the size of hog farms.

**Chart D.1.15**  
Rates of Return for Grain and Oilseed Farms, 2001-2013



Source: Statistics Canada, Farm Financial Survey, various years.  
Notes: (1) Includes farms with \$25,000 or more in gross revenues.  
(2) Farm asset values are producers' estimates of market values.

**Chart D.1.16**  
Rates of Return for Hog Farms, 2001-2014



Source: Statistics Canada, Farm Financial Survey, various years.

# SECTION D2

## Farm Inputs

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### Introduction:

Farm input suppliers and service providers also play a major role in the Canadian agriculture and agri-food system. Access to affordable inputs and services is particularly important for the profitability of the primary agriculture sector.

Primary agriculture producers have seen their operating costs increase substantially over the past ten years, as increased global demand for agricultural commodities has led to higher input prices. The four fastest growing operating expenses over this period were commercial seed, fertilizer and lime, livestock and poultry purchases, and machinery fuel.

In 2014, the top four operating expenses for agricultural producers were commercial feed, hired labour, fertilizer and lime, and interest payments.

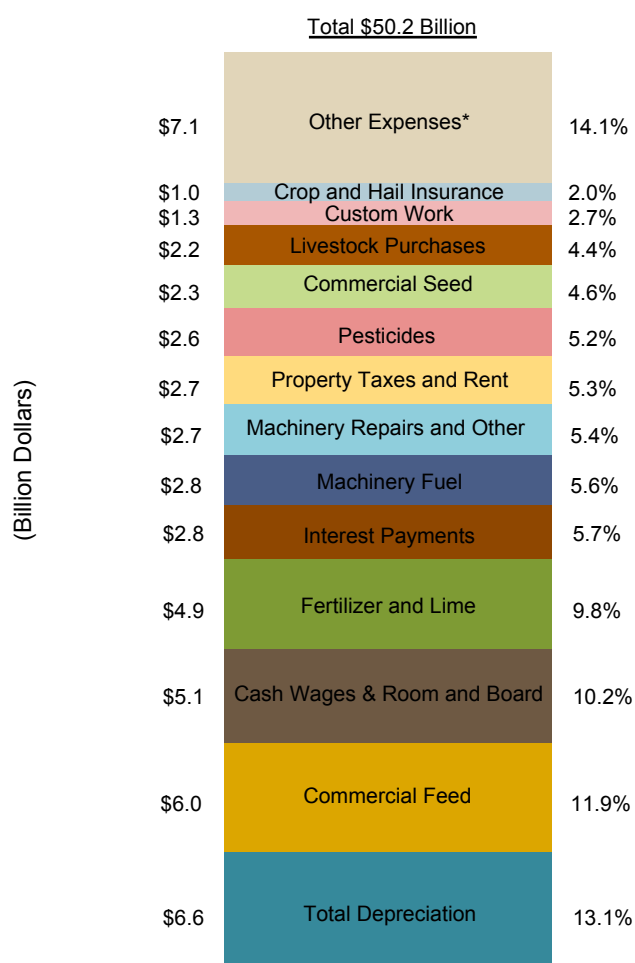
## Most farm operating expenses increased moderately in 2014.

**In 2014, farm net operating expenses and depreciation reached a record \$50.2 billion, an increase of 2.4% from the previous year.**

Commercial feed was the single largest operating expense (\$6.0 billion) for agricultural producers in 2014 despite its decline (-2.5%) from 2013. This was followed by hired labour (\$5.1 billion), fertilizer and lime (\$4.9 billion), interest payments (\$2.8 billion), and machinery fuel (\$2.8 billion).

Total depreciation reached \$6.6 billion in 2014, an increase of 3.9% over 2013. As farms become more capital intensive, depreciation gradually increases.

**Chart D.2.1  
Farm Net Operating Expenses, 2014**



Source: Statistics Canada.

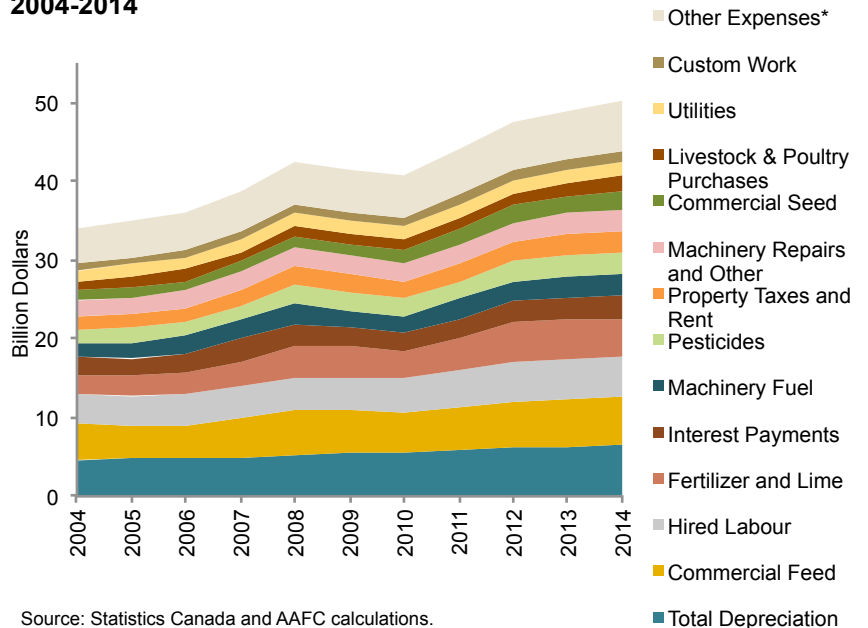
Note: \*Other Expenses is the sum of smaller-value categories including: Legal and Accounting Fees, Repairs to Buildings and Fences, Irrigation, Twine, Wire and Containers, Crop and Hail Insurance, Artificial Insemination Fees & Veterinary, Business Insurance and Stabilization Premiums.

# Farm operating expenses continued their upward trend over the past decade.

**Producers saw their overall operating costs increase by 47.5% between 2004 and 2014.**

The expense that increased the most by (107.2%) between 2004 and 2014, was commercial seed. Fertilizer and lime, livestock and poultry purchases and machinery fuel increased by 102.6%, 90.5% and 70.9%, respectively, over the same period.

**Chart D.2.2  
Farm Net Operating Expenses and Depreciation,  
2004-2014**



Source: Statistics Canada and AAFC calculations.

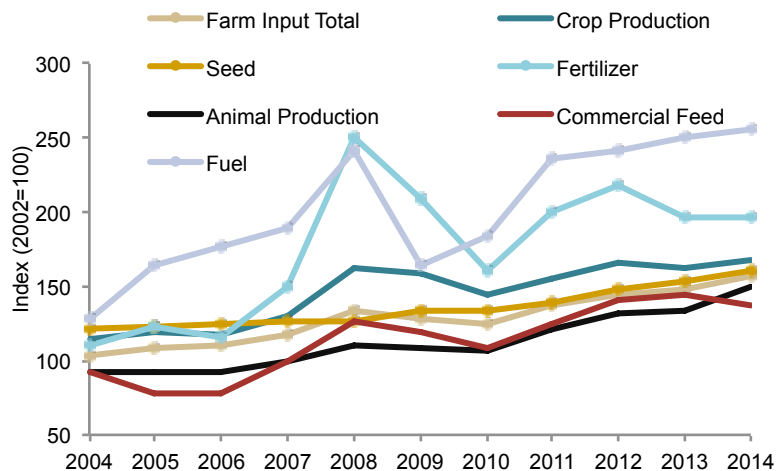
Note: \*Other Expenses is the sum of the smaller-value categories including: Legal and Accounting Fees, Repairs to Buildings and Fences, Irrigation, Twine, Wire and Container, Crop and Hail Insurance, Artificial Insemination Fees & Veterinary, Business Insurance and Stabilization Premiums.

**Most key inputs had higher costs in 2014, leading to an increase in operating expenses. Costs for animal production led the increase in the farm input price index with a 12.6% change year-over-year, mainly because of the higher prices for purchasing feeder cattle, calves and hogs.**

Prices for commercial seed and machinery fuel continued to increase in 2014.

Fertilizer prices remained stable in 2014. Relatively high seasonal demand and challenges with respect to rail logistics led to higher fertilizer prices in the Prairies during the spring of 2014. However, this increase was offset by lower fertilizer prices during the second half of the year, attributed to lower demand for fertilizer.

**Chart D.2.3  
Farm Input Price Index, 2004-2014**



Source: Statistics Canada.

# Changes in fertilizer prices and land values have implications for farm operating expenses.

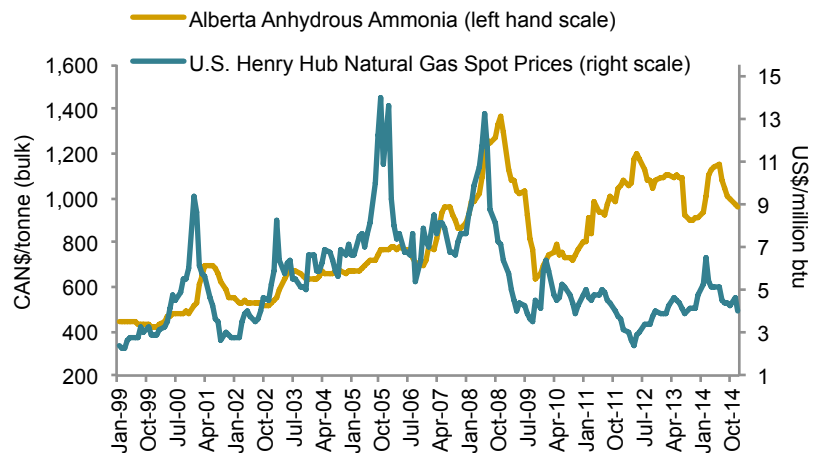
**Historically, the price of fertilizer has followed the price of natural gas, but this trend has changed.**

Since 2010, ammonia prices have generally increased whereas natural gas prices have remained low.

China is the largest user and also a significant supplier of fertilizers. Thus, any shifts in the Chinese supply/demand balance could have a major impact on global fertilizer markets.

Fertilizer prices have been more tied to international demand and supply factors than to natural gas prices in recent years.

**Chart D.2.4  
Anhydrous Ammonia and Natural Gas Spot Prices, 1999-2014**



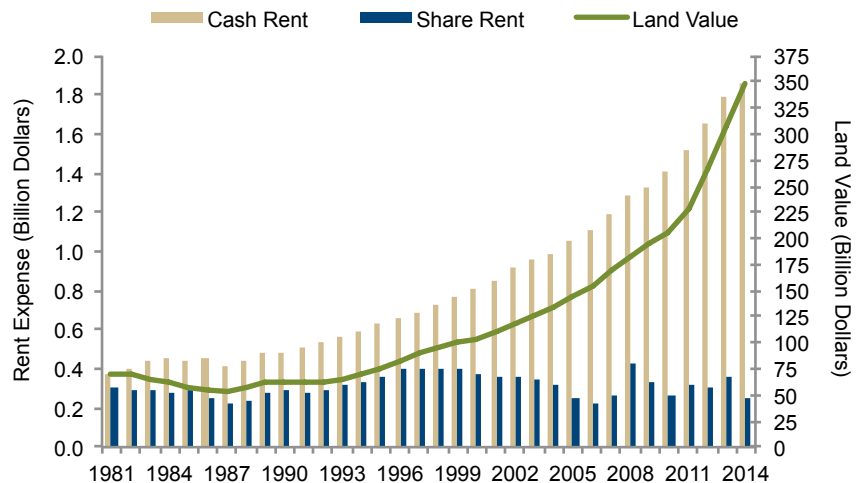
Source: Alberta Agricultural Input Monitoring System (AIMS) and the United States Energy Information Administration.

**Farmland values have risen considerably in recent years.**

Land values have increased at an average annual rate of 14.0% since 2010 to reach \$348.7 billion in 2014. This is higher than the 10-years (2004-2013) average annual growth rate of 9.6%.

While cash rent and farm land values have trended upward together, the value of share rent has declined at an average annual rate of 1.5% between 2010 and 2014.

**Chart D.2.5  
Total Rent and Farmland Value, 1981-2014**



Source: Statistics Canada and AAFC calculations.

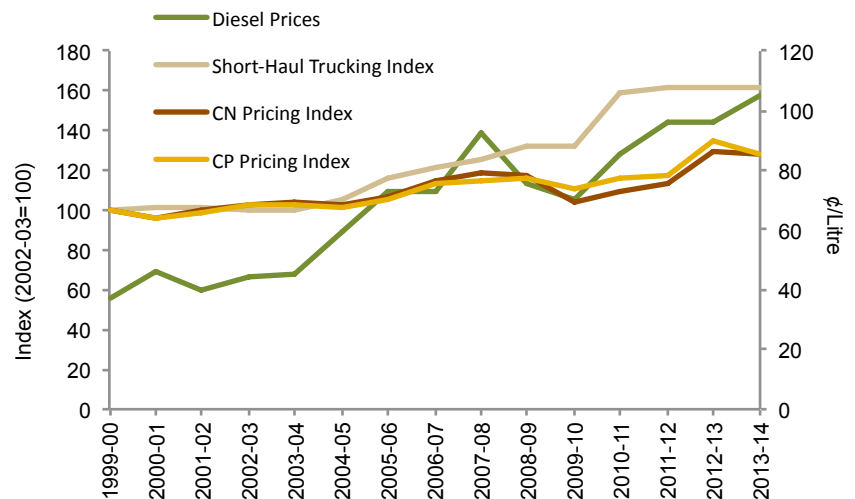
## Transportation costs, a key component of farm operating expenses, have moderated for rail and trucking in Western Canada.

**In western Canada, the cost of shipping grain by rail has decreased recently, while it has remained stable for short-haul trucking.**

Short-haul rates increased significantly in 2010-2011 over the previous year, but they have remained relatively stable since, even though diesel prices increased by 23% between 2010-2011 and 2013-2014.

After three years of annual increases, rail rates decreased slightly in 2013-2014, between 1.4% and 4.5%. However, they still remain higher than the 2009-2010 rates.

**Chart D.2.6**  
**Rail and Trucking Rate Index, Western Canada, 1999-2000 to 2012-2013**



Source: Quorum Corporation, various grain companies; Weekly Petroleum Price Survey; AAFC calculations.

# SECTION E

Farm Level Innovation

# SECTION E

## Farm Level Innovation

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### Introduction:

Farm level innovation is a key driver of farm productivity growth and efficient use of natural resources leading to a profitable and sustainable primary agriculture sector.

New products, processes and practices were introduced on about half of Canadian farms between 2011 and 2013. Canadian farmers rely on own experience and advice from peers when deciding whether to adopt an innovation and will typically wait until a few of their peers have tried an innovation prior to adopting it by themselves.

The majority of Canadian agricultural production is generated on farms that innovate early with large farms being most likely to be early adopters of on farm innovation.



## Farmers innovate through the development and adoption of new or significantly improved products processes and practices.

Farmers adopted new or significantly improved products such as new crop varieties and livestock breeds, or processes and practices, such as soil management methods, fertilizer application methods, precision farming and marketing methods, on their farm operation.

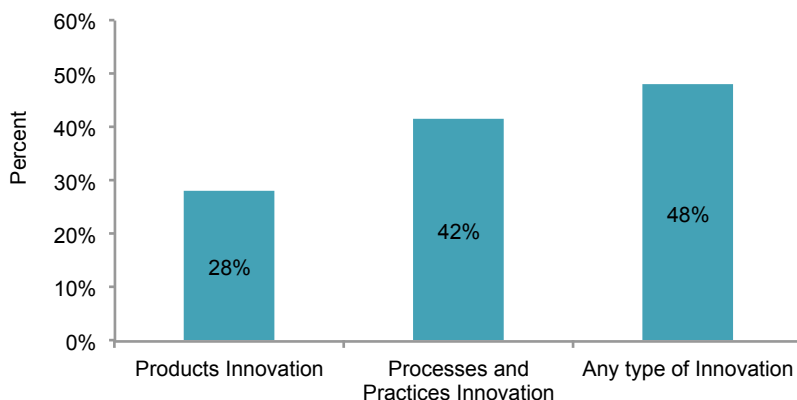
At least one type of new or significantly improved product, process or practice was introduced on about half of Canadian farms (48%) between 2011 and 2013. The new processes and practices were introduced by a greater share of Canadian farms (42%), compared to the share of farms that introduced new product innovations (28%), during this period.

**New or improved products, processes or practices are more likely to be introduced on larger farms than on smaller farms.**

New processes or practices were introduced on nearly two-thirds (63%) of million-dollar farms, compared to only about one-fourth (24%) of smaller farms (in the \$ 25,000 to 99,999 size class).

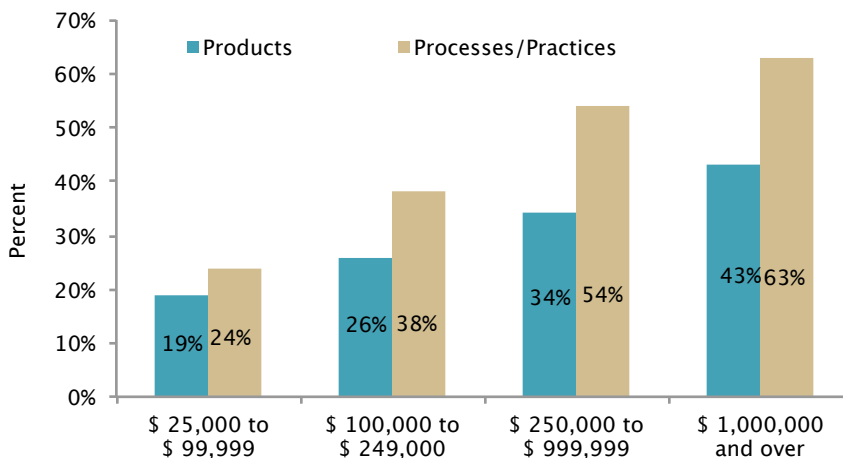
Product innovations were also introduced on about 43% of million dollar farms compared to less than 20% of smaller farms in the \$ 25,000 to 99,999 size class.

**Chart E.1**  
Percentage of Farm Operations that Introduced New or Significantly Improved Products Processes or Practices, Between 2011 and 2013



Source: Statistics Canada, 2013 Farm Financial Survey.

**Charts E.2**  
Percentage of Farmers that Introduced New or Significantly Improved Products or Processes, By Farm Size, Between 2011–2013



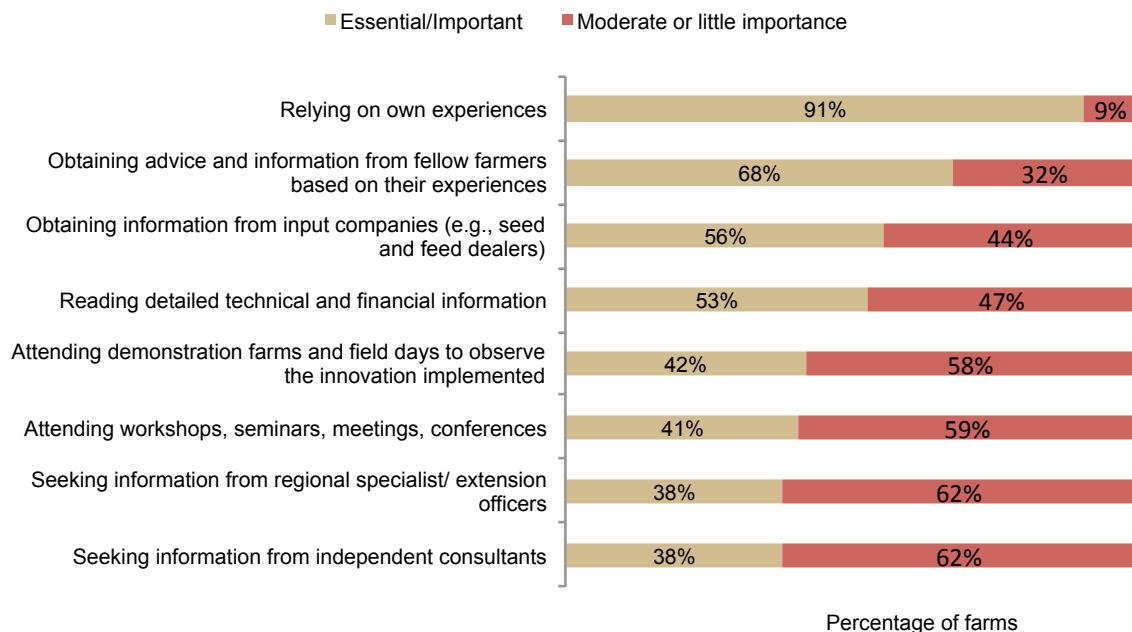
Source: Statistics Canada, 2013 Farm Financial Survey.

## When deciding on whether to develop and/or adopt an innovation, many farmers rely on their own experience and advice from peers.

Almost all farm operators (91%) stated that relying on their own experience is essential or important in their decision to implement an innovation. In addition, more than two thirds of the operators (68%) indicated the importance of seeking advice and information from fellow farmers.

The activities used to seek information to adopt innovation vary by farm size. In the decision to implement innovation, seeking information from specialized third parties such as regional specialists, extension officers or independent consultants is essential or important for a greater share (61%) of the million dollar farm operators than the operators of smaller farms (24%) in the revenue class of \$25,000 to \$99,999.

**Chart E.3**  
**Importance of Selected Activities in Seeking Information for Making a Decision to Introduce Innovation, Between 2011 and 2013**



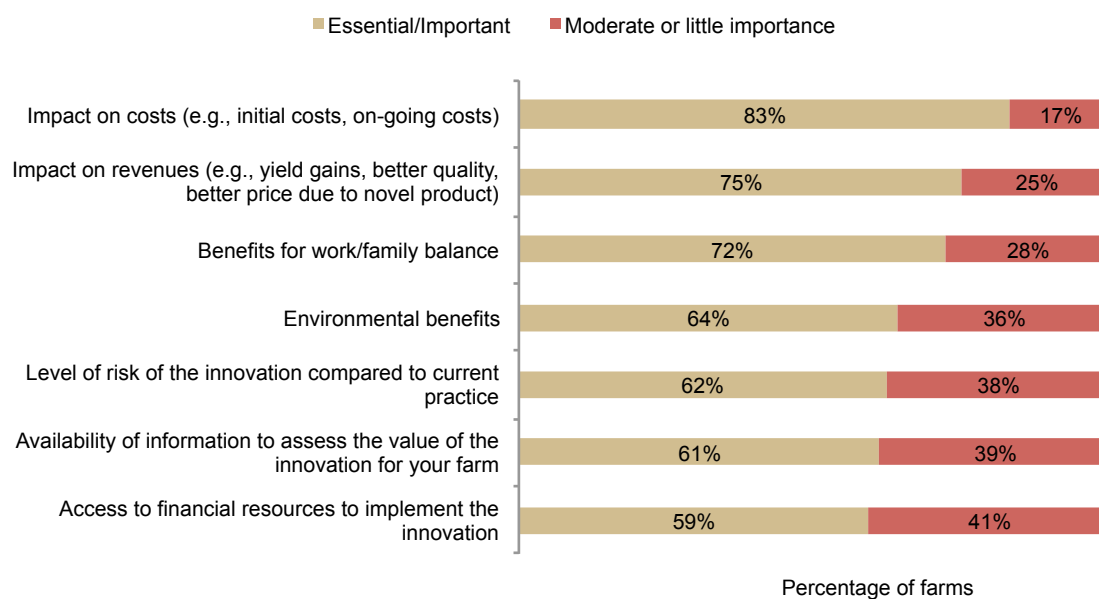
Source: Statistics Canada, Farm Financial Survey, 2013.

## Impact on the bottom line is the most influential factor on farm operators' decision to implement an innovation.

For the majority of farm operators, the impacts on cost (83%) and on revenue (75%) are the most important reasons for implementing an innovation. Some non-financial benefits such as “work/family” balance (72%) and environmental benefits (64%) were also considered to be critical for a significant majority of farms in their decision to introduce an innovation.

For 59% of farm operators, financing was a critical factor influencing their decision to implement an innovation. However, a greater share of million dollar farm operators (72%) stated that financing was a critical factor compared to only 44% of operators of smaller farms in the revenue class of \$ 25,000 to \$99,999.

**Chart E.4**  
**Importance of Selected Factors in Deciding on Implementing an Innovation, Between 2011 and 2013**

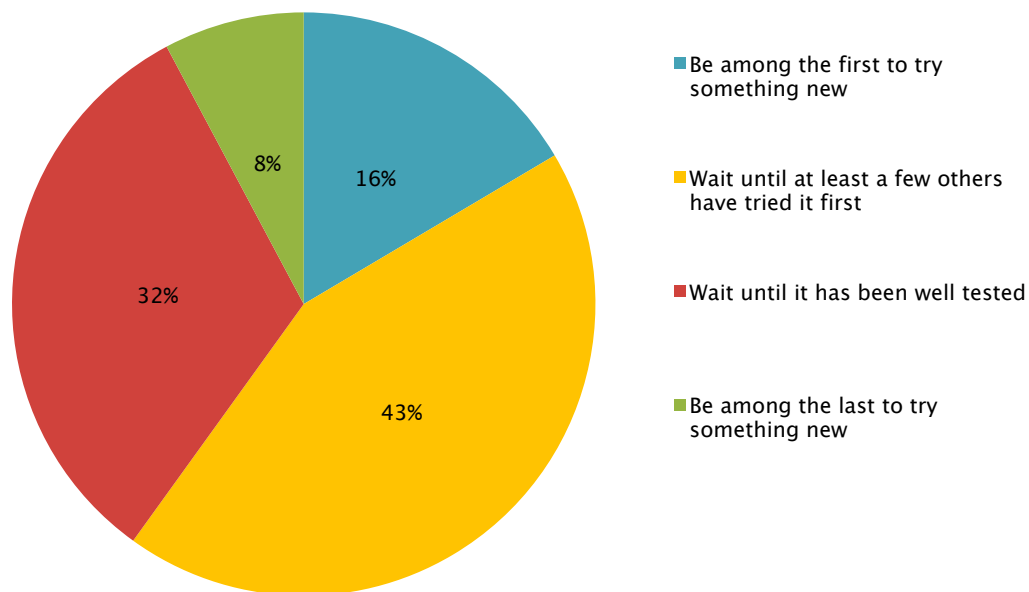


Source: Statistics Canada, Farm Financial Survey, 2013.

## Before adopting an innovation, the majority of farmers will wait until at least a few others have tried it or will wait until the innovation has been well tested.

About 16% of farm operators were among the first to try new or significantly improved products, processes and practices and another 43% of farm operators wait until a few of their colleagues have tried it first, whereas 32% will even wait longer until the innovation has been well tested. About 8% of farm operators were among the last to try new innovation.

**Chart E.5**  
**Distribution of Adopters Based on Timing of the Adopting of New or Significantly Improved Product, Processes and Practices on Canadian Farms, Between 2011 and 2013**



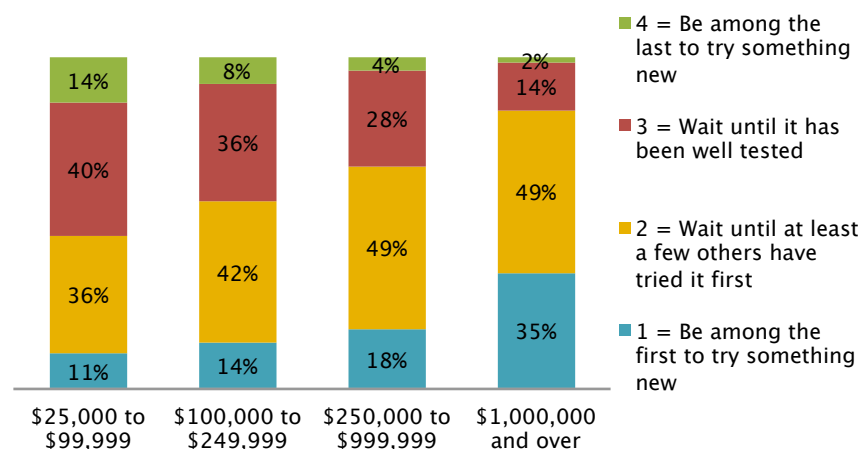
Source: Statistic Canada, 2013 Farm Financial Survey.

## Larger farm operators and younger farm operators are more likely to be early adopters of innovations.

**More than one - third of million dollar farm operators are among the first to adopt an innovation, compared to only about one- tenth of operators of small farms (\$ 25,000 to \$ 99,999).**

The majority (54%) of farm operators of small size farms either wait until the innovation is well tested or among the last to adopt, compared to 16% of operators of million-dollar farms who either wait until the innovation is well tested or among the last to adopt.

**Chart E.6**  
The Categories of Adopters Based on Timing of The Adoption of New or Significantly Improved Products, Processes and Practices in Canadian Farms, By Farm Size, 2011–2013



Source: Statistics Canada, 2013 Farm Financial Survey.

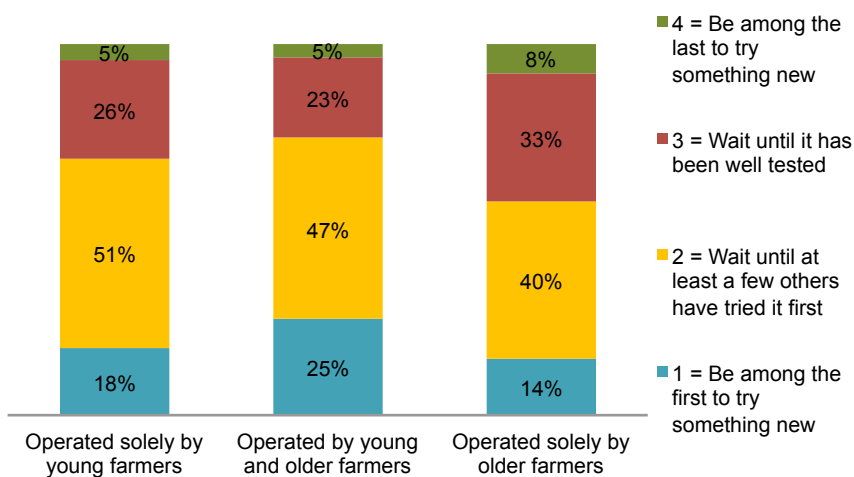
**Speed of innovation adoption is, to some degree, associated with the operator's age.**

About 18% of the farms operated solely by young operators (less than 40 years old) try something new first. Another 51% adopt an innovation after a few others have done so.

For farms operated solely by older operators (more than 40 years old) 14% try something new first while 40% wait until a few others have adopted.

Multigenerational farms (farm operators young and older farmers) are more likely to be early adopters. About 25% of such farmers were among the first to try something new.

**Chart E.7**  
The Categories of Adopters Based on the Timing of The Adoption of New or Significantly Improved Products, Processes and Practices in Canadian Farms, By Average Operator Age, Between 2011 and 2013



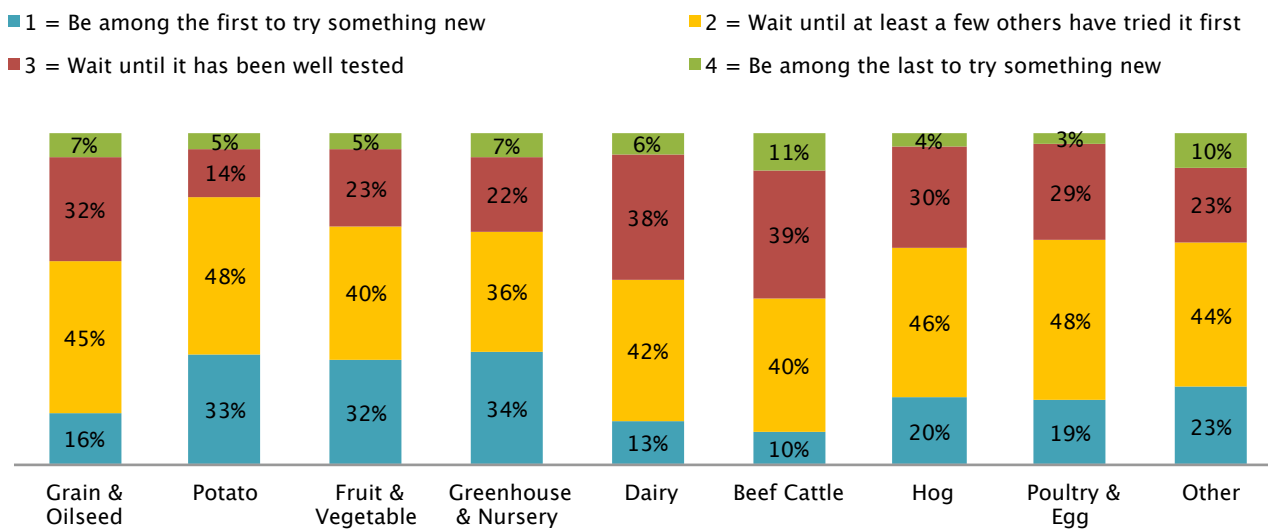
Source: Statistics Canada, 2013 Farm Financial Survey.

## Horticultural and potato farms are more likely to be early adopters of innovations than livestock or grain and oilseed farms.

About one-third of the farms in potato, fruits and vegetables, and greenhouse farm operations are among the first to adopt an innovation.

Before adopting an innovation, the majority among any farm type will wait until at least a few others have tried the innovation first. Yet, more than one-third of the dairy and beef cattle operations will wait until the innovation has been well tested.

**Chart E.8**  
**The Categories of Adopters Based Timing of The Adoption of New or Significantly Improved Products, Processes and Practices on Canadian Farms, by Commodity Group, Between 2011 and 2013**



Source: Statistics Canada, 2013 Farm Financial Survey.

# SECTION F

Post Farm Gate

# SECTION F1

## Food and Beverage Processing

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### Introduction:

The food and beverage processing industry produces processed goods using both primary and processed products as inputs, which are then distributed to food manufacturers for further processing, to food retailers, to foodservice establishments, and ultimately to consumers. In an effort to supply the market with the products and attributes most in demand, the industry has become increasingly integrated across the supply chain, in both domestic and global markets.

The food and beverage processing industry is a significant contributor to the Canadian economy, with \$27.7 billion or 16.0% of total manufacturing GDP. The industry is the largest manufacturing employer, providing 16.6% of total manufacturing jobs.

However, the industry continues to face significant challenges arising from commodity price volatility, tight labour markets, increases in input costs, competition and structural changes, including the entrance of new retailers, the expansion of existing retailers, and the closure and/or merger of some processing establishments.

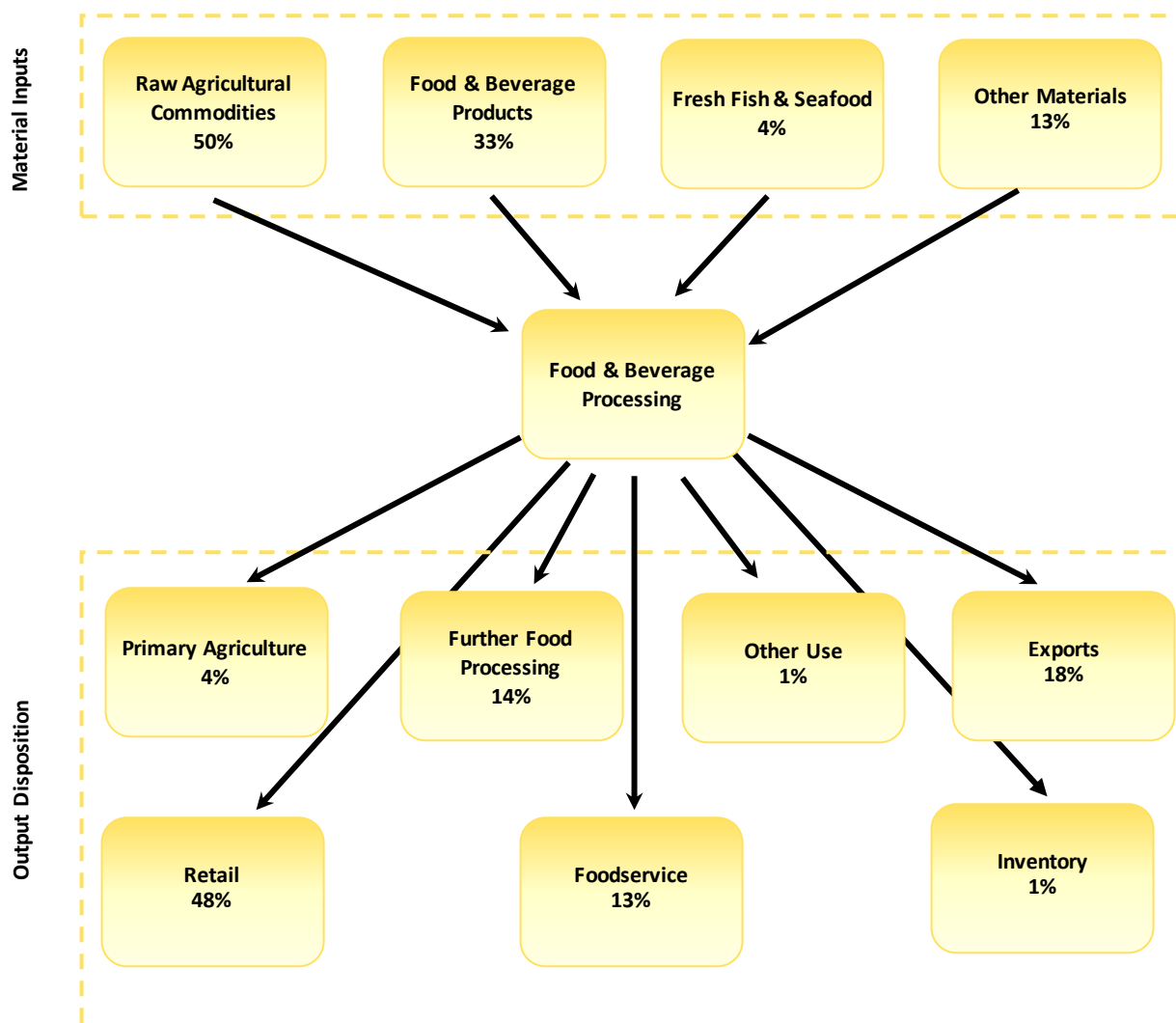


The food and beverage processing industry is an important component of the agriculture and agri-food system, transforming agricultural commodities into value-added products that are sold in Canada and abroad.

Raw agricultural commodities accounted for about 50% of the total value of material inputs used by the Canadian food and beverage processing industry in 2011.

Processed food and beverage products made up 33% of the total value of all material inputs, while fresh fish and seafood accounted for another 4%. The remaining 13% came from other materials, such as packaging materials, energy, chemical additives and ingredients.

**Chart F.1.1**  
Food Processing Input Composition and Output Disposition, 2011



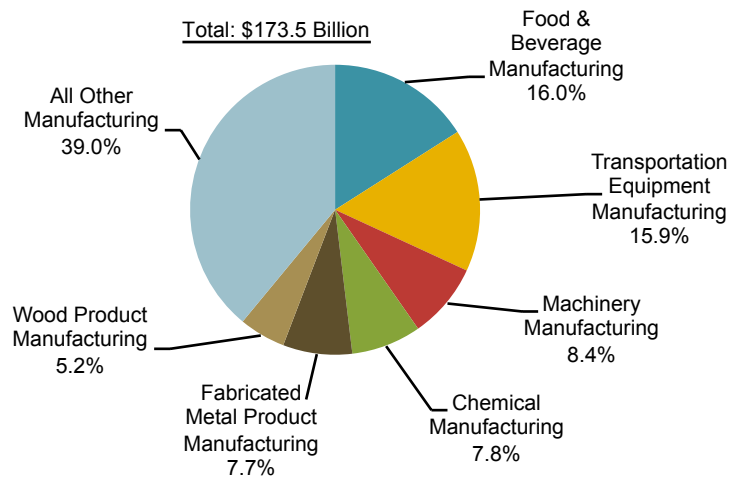
Source: Statistics Canada Input/Output Model and AAFC calculations.  
Note: Does not add up to 100% due to missing confidential data. These estimates are a representation of the input and output flows of the food and beverage processing industry based on Statistics Canada's Input-Output model for the 2011 base year.

# The food and beverage processing industry is the largest manufacturing industry in Canada.

**The food and beverage processing industry accounted for the largest share (16.0%), of the \$173.5 billion in total manufacturing sector GDP in 2014.**

With a GDP of \$27.7 billion, the food and beverage processing industry accounted for 16.0% of the total manufacturing sector GDP, slightly above that of the transportation equipment manufacturing industry, which had a GDP of \$27.6 billion and represented 15.9% of the total manufacturing GDP.

**Chart F.1.2  
Distribution of Total Manufacturing GDP by Industry, 2014**

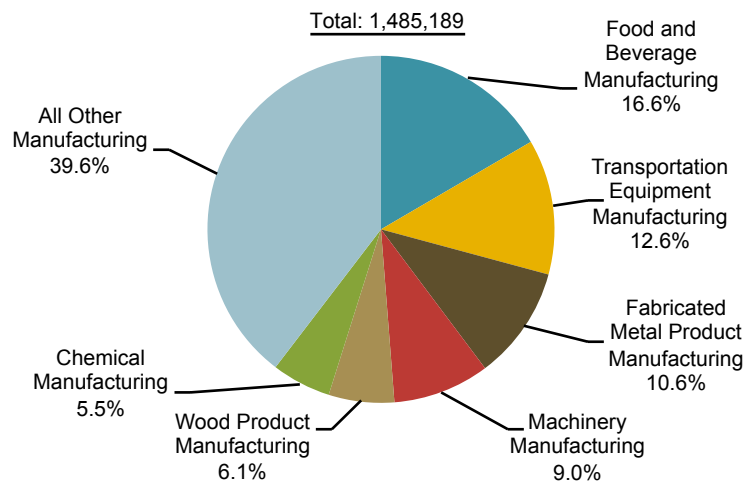


Source: Statistics Canada and AAFC calculations.

**In terms of providing jobs in the Canadian manufacturing sector, the food and beverage processing industry ranked first, ahead of the transportation equipment manufacturing industry.**

The food and beverage processing industry employed 246,414 people in 2014 and accounted for 16.6% of total manufacturing sector employment.

**Chart F.1.3  
Distribution of Total Manufactory Employment by Industry, 2014**



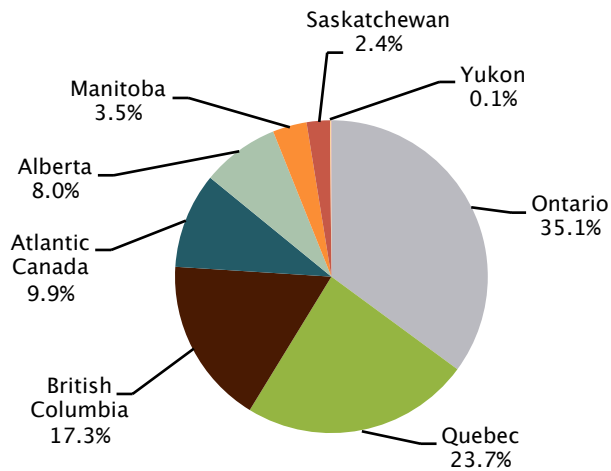
Source: Statistics Canada and AAFC calculations.

# The food and beverage processing industry operates across all Canadian provinces.

**More than half of all Canadian food and beverage processing establishments in 2014 were located in Ontario (35.1%) and Quebec (23.7%).**

A large number of these establishments in Ontario and Quebec were bakeries, and meat product processing plants. Other provinces/ regions with a significant number of food processing operations included British Columbia (17.3%), the Atlantic region (9.9%) and Alberta (8.0%).

**Chart F.1.4  
Distribution of Food and Beverage Manufacturing Establishments by Province, 2014**



Source: Statistics Canada and AAFC calculations.

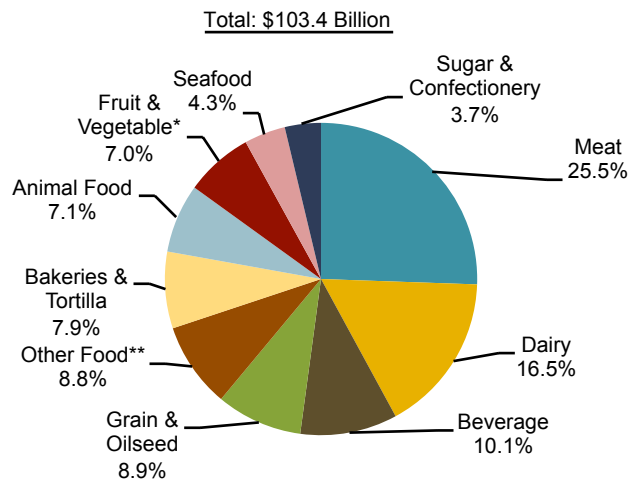
# The food and beverage processing industry produces a wide variety of products, and shipments have steadily increased in value over the past two decades.

**Collectively, meat, dairy, and beverages accounted for more than half of the total value (\$103.4 billion) of shipments by the food and beverage processing industry in 2014.**

Shipments of meat products alone accounted for almost one-quarter (25.5%), while shipments of dairy products and beverage accounted for 16.5% and 10.1%, respectively of total food and beverage processing shipments.

Shipments by the grain and oilseed milling sub-industry were also significant, representing 8.9% of total food and beverage product shipments.

**Chart F.1.5  
Distribution of Food and Beverage Manufacturing Shipments by Sub-Industry, 2014**



Source: Statistics Canada and AAFC calculations.  
 Note: Data is subject to revisions based on the Monthly Survey of Manufacturing.  
 \* Fruit and vegetable preserving and specialty food manufacturing.  
 \*\* Other food: Includes snack food, coffee and tea, flavoured syrup and concentrates, seasoning and dressings, and all other food manufacturing.

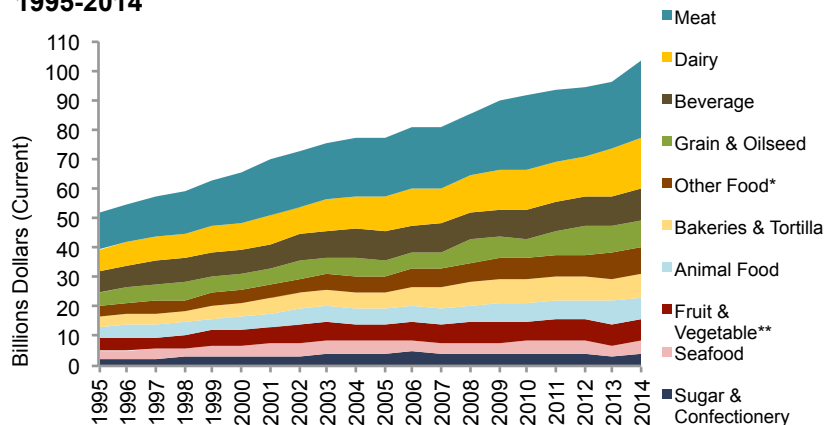
**The value of shipments by the food and beverage processing industry has almost doubled, growing from \$52.0 billion in 1995, to \$103.4 billion in 2014.**

Growth in the value of shipments by the food processing industry varies by sub-industry.

The value of shipments of meat, dairy, animal food, bakeries and tortilla products have more than doubled over the 1995-2014 period.

Meat shipments have increased 114.5%, dairy has increased 117.4%, grain and oilseed increased 88.1%, and bakeries and tortilla increased 125.5% over this period.

**Chart F.1.6  
Food and Beverage Processing Shipments by Sub-Industry, 1995-2014**



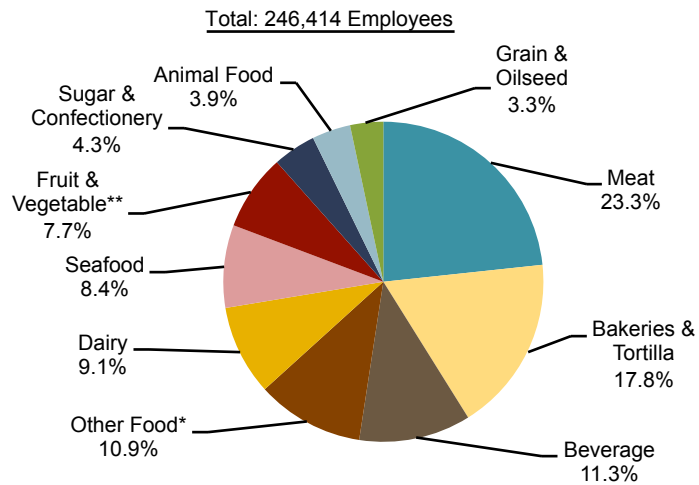
Source: Statistics Canada.  
 \* Other Food; Includes snack food, coffee and tea, flavoured syrup and concentrates, seasoning and dressings, and all other food manufacturing.  
 \*\* Fruit and vegetable preserving and specialty food manufacturing.

# Employment in the food and beverage processing industry is distributed across the different sub-industries.

Overall, half of the total food and beverage processing industry employment is within the meat, bakery and tortilla, and beverage sub-industries.

Employment in the meat processing sub-industry alone accounted for 23.3% of all the jobs in the food and beverage processing sector. The bakery and tortilla processing sub-industry followed with 17.8% of the jobs.

**Chart F.1.7**  
Food and Beverage Processing Employment by Sub-Industry, 2014

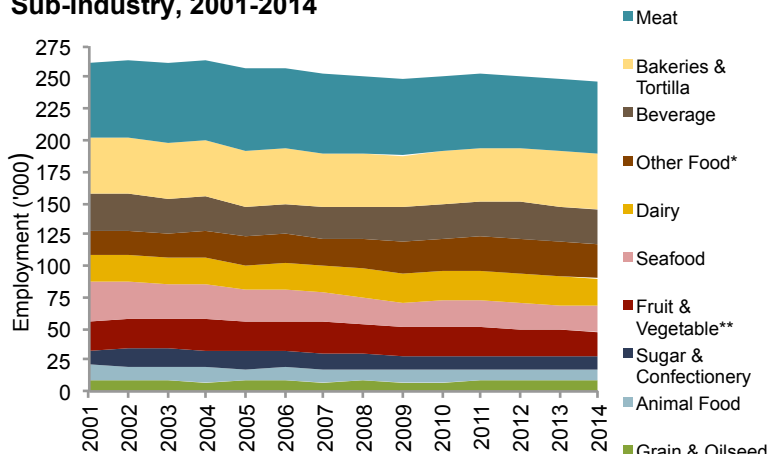


Source: Statistics Canada and AAFC calculations.  
\* Other food: includes snack food, coffee and tea, flavoured syrup and concentrates, seasoning and dressings, and all other food manufacturing.  
\*\* Fruit and vegetable preserving and specialty food manufacturing.

Over the 2001-2014 period, employment in the food and beverage processing industry decreased by almost 6.0%, from 262,080 employees to 246,414.

Employment in the "Other Food" category has grown the most, by 35.6% over the 2001-2014 period, followed by the dairy processing industry, which has increased by 7.4% over the same period. Employment in the seafood processing industry on the other hand, has experienced the greatest decline, by 33.6%, over the same period.

**Chart F.1.8**  
Food and Beverage Processing Employment by Sub-Industry, 2001-2014



Source: Statistics Canada.  
\*Other food: includes snack food, coffee and tea, flavoured syrup and concentrates, seasoning and dressing, and all other food manufacturing.\*\* Fruit and vegetable preserving and specialty food manufacturing.

## Materials and supplies continue to be the largest variable input cost in the food and beverage processing industries.

Of the variable input cost reported by Statistics Canada that are used by the food and beverage processing industries, materials and supplies were the largest expense, accounting for 84.5% of publicly available variable input costs for 2013.

Materials and supplies increased by 0.1% in 2013, relative to 2012 levels. Labour (salaries and wages) accounted for 15.5% of reported variable input costs in 2013, a decline of 0.7% relative to 2012 levels.

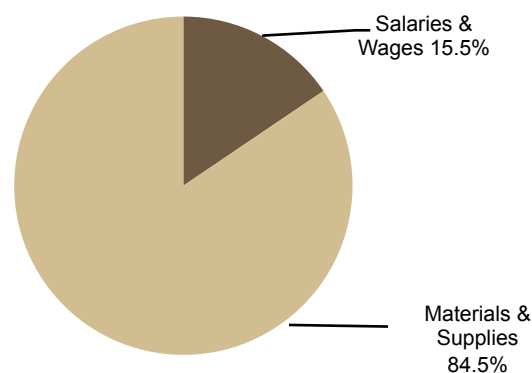
Energy, water utilities and vehicle fuel, the third variable input cost category (not available at the time of publishing), has historically averaged 2.9% over the 2004-2012 period.

### Variable input costs vary by sub-industry.

In 2013, for variable costs reported by Statistics Canada, the cost of materials and supplies ranged from a low of 69.4% in the bakery sub-industry, to a high of 94.9% in the grain and oilseed sub-industry. Across all sub-industries, the average cost of materials and supplies was 82.6%.

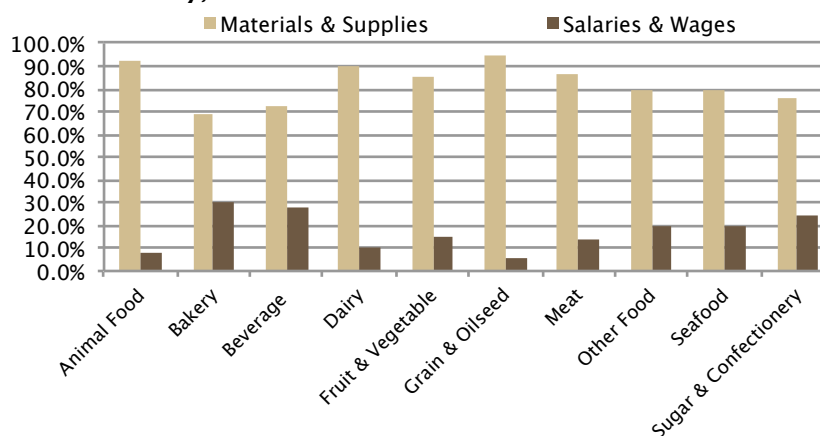
The cost of salaries and wages ranged from a low of 5.1% in the grain and oilseed sub-industry, to a high of 30.6% in the bakery sub-industry. Across all sub-industries, the average cost of salaries and wages was 17.4%.

**Chart F.1.9**  
Variable Input Costs in the Food and Beverage Processing Industries, 2013



Source: Statistics Canada and AAFC calculations.  
Note: 2013 data is subject to revisions and does not include variable costs relating to energy, water utility and vehicle fuel. Over the 2004-2012 period, this category accounted for between 2.7% and 3.1% of total variable costs.

**Chart F.1.10**  
Food and Beverage Processing Variable Costs, by Sub-Industry, 2013



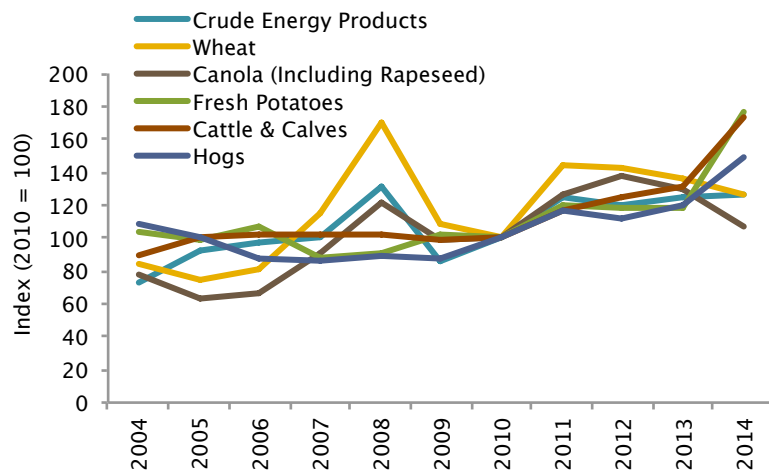
Source: Statistics Canada and AAFC calculations.

# Price changes for raw materials and labour, have implications for the cost competitiveness of the food processing industry.

**The cost of material inputs was affected by the price of raw materials and other inputs, such as agricultural commodities and energy, which rose sharply in 2008 and have remained above average over the last 10 years.**

The Raw Materials Price Index (RMPI), which measures price changes for raw materials purchased by food manufacturers in Canada fell in 2014 for wheat and canola, but increased sharply for fresh potatoes, cattle, and hogs. It increased minimally for crude energy products.

**Chart F.1.11**  
Raw Material Price Index for Selected Commodities, 2004–2014



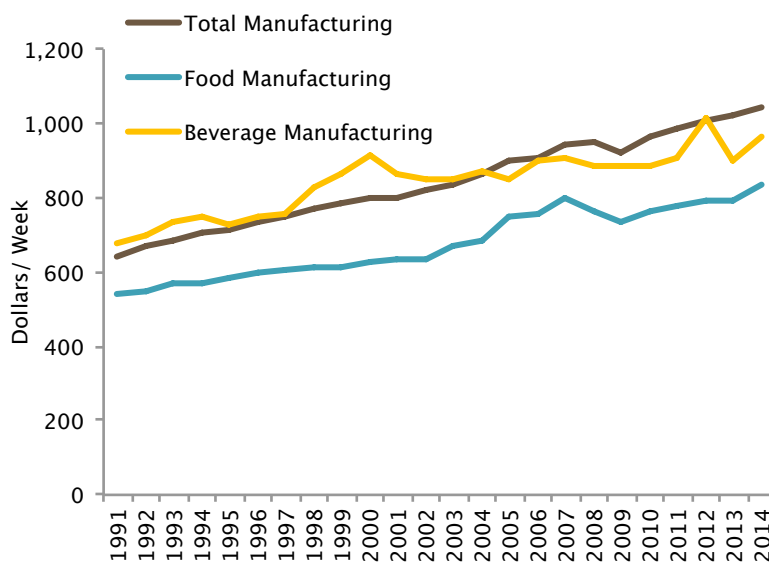
Source: Statistics Canada.

**The cost of labour, which decreased due to the economic recession of 2009, increased in both in the food and beverage processing industry and across the whole of the manufacturing sector.**

After more than a decade of successive labour earnings gap increases between the total manufacturing sector and the food manufacturing industries, the wage earnings gap narrowed slightly over the 2002-2007 period, though it widened again over the 2009-2014 period.

During the 2008-2009 recession, average weekly wage earnings fell more dramatically in the food processing industry than in the overall manufacturing sector, but they have since recovered. Since the 1990s, the average weekly earnings in the food processing industry have consistently remained below those found in the overall manufacturing sector and in the beverage processing industry.

**Chart F.1.12**  
Average Weekly Earnings to Labour in Food and Beverage Manufacturing and Total Manufacturing, 1991–2014



Source: Statistics Canada.

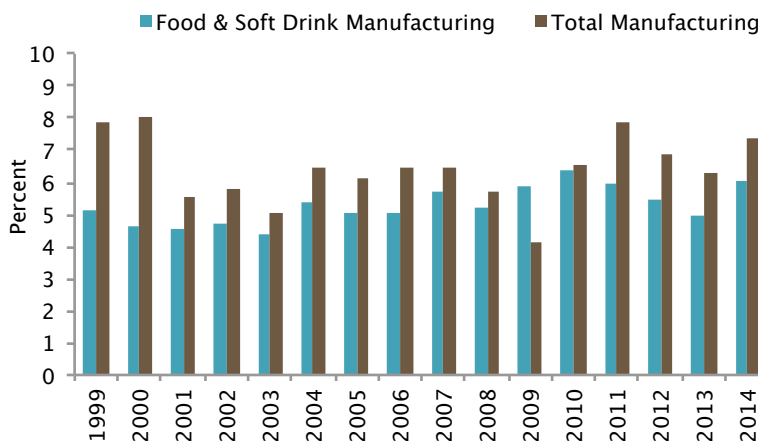
# In 2014, food and beverage processors experienced relatively higher profit margins and marginally higher debt-to-equity ratios than in 2013.

**Profit margins in the processed food and soft drink industry improved from 5.0% in 2013 to 6.0% in 2014, whereas profit margins in the overall manufacturing sector rose from 6.3% in 2013 to 7.3% in 2014.**

Profit margins for the food and beverage processing industry and the total manufacturing sector have recovered from the 2009 recession.

The processed food and soft drink industry was less impacted than the rest of the manufacturing sector during the recessionary period.

**Chart F.1.13  
Profit Margins in Food and Soft Drink and Total Manufacturing, 1999–2014**

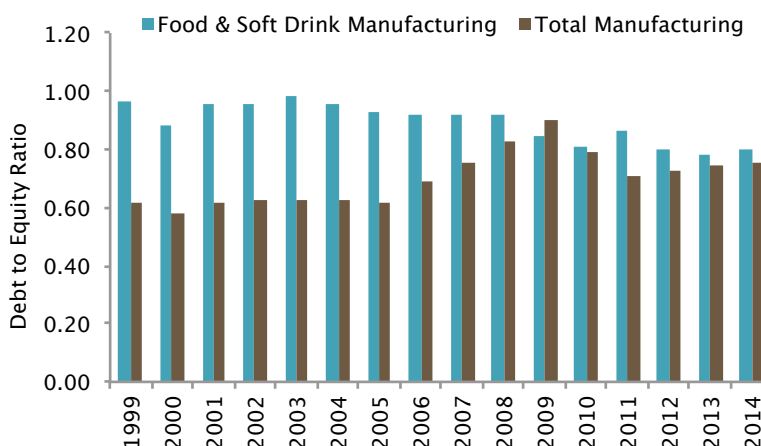


Source: Statistics Canada and AAFC calculations.

**An industry’s financial health can be reflected in its debt-to-equity ratio. The debt-to-equity ratio of the processed food and soft drink industry dropped to a 20-year low of 0.79 in 2013, increasing marginally to 0.80 in 2014.**

The debt-to-equity ratio of the overall manufacturing sector also worsened slightly, increasing from 0.74 in 2013 to 0.75 in 2014.

**Chart F.1.14  
Debt-to-Equity Ratio in Food and Soft Drink Processing and Total Manufacturing, 1999–2014**



Source: Statistics Canada and AAFC calculations.



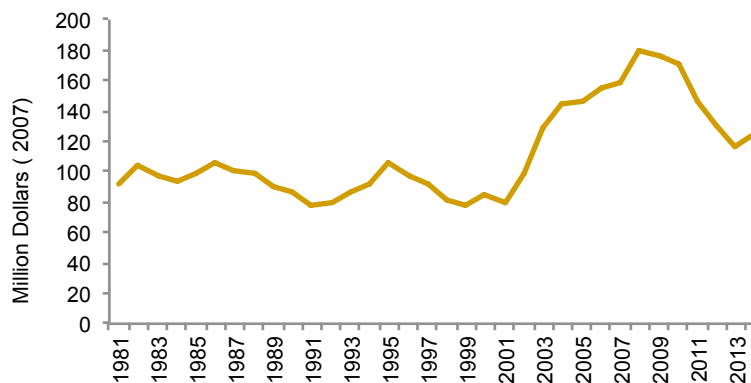
## Private-sector R&D investments in the food and beverage processing industry have grown considerably since 1980.

**Real private-sector R&D expenditures in the food processing industry were estimated to have reached \$125.9 million in 2014, representing an increase of \$13 million over that of 2013.**

Real private-sector R&D spending averaged \$92.1 million annually between 1981 and 2000 and \$139.7 million between 2001 and 2014.

The food processing sector has benefited from innovations in various areas, including food waste reduction, lean manufacturing, and new uses for by-products. Products are also being improved continually with the use of new ingredients and innovative packaging.

**Chart F.1.15**  
**Real Private Sector R&D Expenditures in Food Processing, 1981-2014**



Source: Statistics Canada and AAFC calculation.

# SECTION F2

## Food Retail, Wholesale and Services

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### Introduction:

The food retail/wholesale and foodservice industries are vital participants in Canada's agriculture and agri-food system. Food retailers are constantly adapting to new consumer demands, a highly dynamic marketplace, and new competitors. This often means restructuring to maintain or increase market share while at the same time forming alliances and networks along the supply chain to ensure that consumer demand for food safety, quality and other product attributes are met.

Foodservice establishments are also frequently modifying and updating their goods and services to meet changing consumer tastes and preferences. Already a fiercely competitive industry, the restaurant industry now faces increasing competition from the food retail industry, whose wide array of prepared foods and take-home meals offer the same convenience that consumers could previously only get by dining out.

Notwithstanding this increased competition, commercial foodservice sales continued to climb, and reached \$57.6 billion in 2014, an increase of 5.5% over 2013 levels.

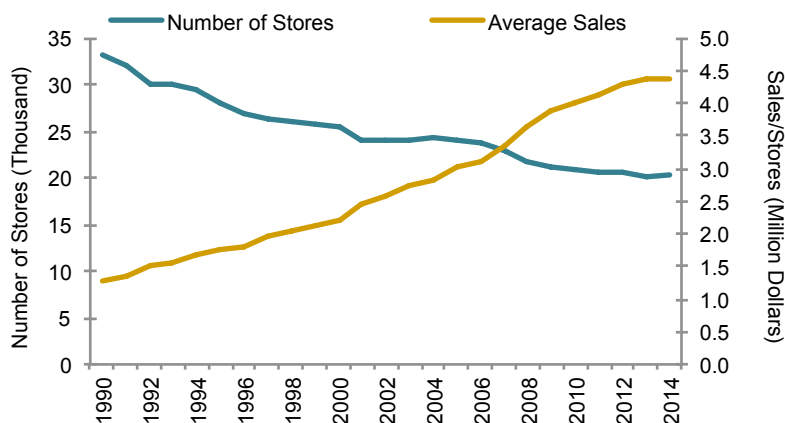
# Food retailers continued to consolidate their operations in 2014.

**Significant store rationalization and consolidation have occurred over the past two decades, with a move to larger operations, due to increased competition.**

In 2014, Canada's three top food retailers had \$33.6 billion in sales across 1,142 stores, 23.9 billion in sales across 1,500 stores, and \$11.6 billion in sales across 588 stores, respectively.

The consolidation trend is expected to continue as large food retailers compete for market share and profit margins.

**Chart F.2.1  
Number of Canadian Food Stores and Average Sales, 1990-2014**



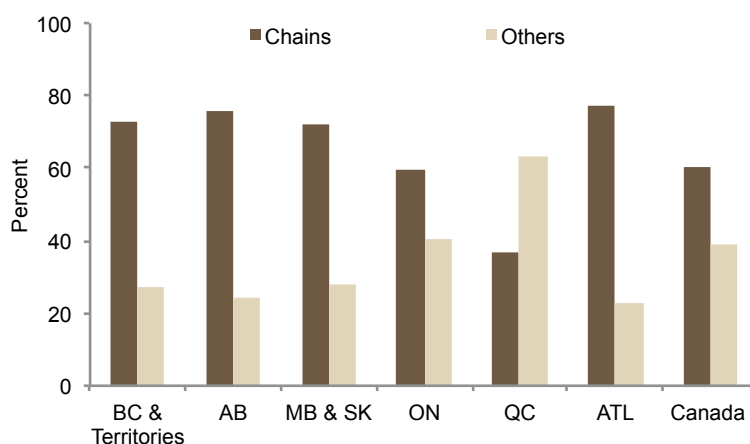
Source: Canadian Grocer, Statistics Canada and AAFC calculations.  
Note: 2014 figures are subject to revisions.

**Grocery store chains dominated food store sales in all provinces except Quebec.**

Overall, 60.7% of all food store sales in Canada were made by Canada's top two food retailers and other grocery store chains. The composition of the total food store sales, however, varies by province.

Overall, chains are very important in the Atlantic region, with 77.4% of sales, and in Alberta with 76.0% of sales, but much less so in Quebec, with 36.8% of sales. In most provinces, the share of all food store sales by chains increased slightly in 2014 over the previous year, except in Alberta, where it remained the same.

**Chart F.2.2  
Share of Canadian Food Store Sales, Chains versus Others by Region, 2014**



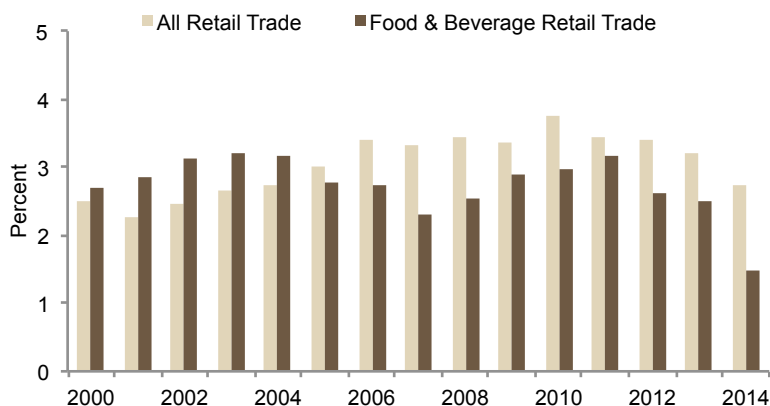
Source: Canadian Grocer Magazine, February 2015.

## Profit margins among food and beverage retailers continued their downward trend since 2011, remaining below those of the overall retail sector.

Until 2005, the profit margins of food and beverage retailers exceeded those of other retailers. This trend has since reversed, due in part to increasing competition from non-traditional food retailers, such as Walmart and Costco.

The average profit margin ratio of food and beverage retailers in 2014 was 1.5%, below the 2000-2013 average of 2.8%, and lower than the average of 3.1% for all retailers.

**Chart F.2.3**  
**Average Profit Margin Ratio for Food and Beverage Retailers, 2000-2014**



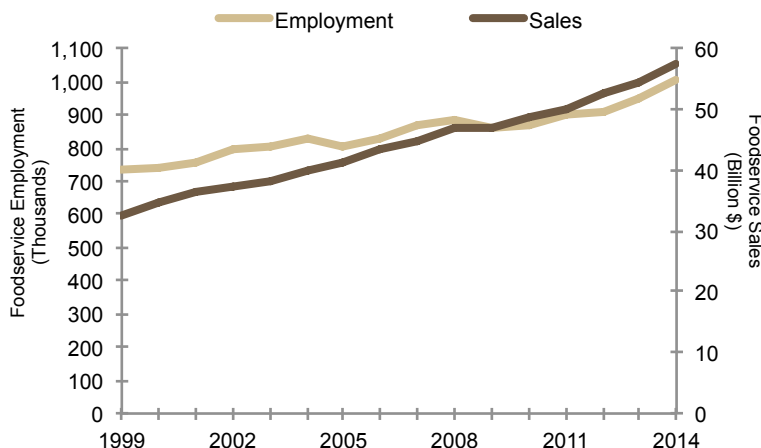
Source: Statistics Canada, Quarterly Financial Statistics for Enterprises.

# Profit margins and sales for the foodservice industry continued to trend upward.

## Commercial foodservice sales have steadily increased over the last 16 years.

Commercial foodservice sales were valued at \$57.6 billion in 2014, representing a 5.5% increase from the previous year. In 2014, employment in foodservice was 1,007,100 – 6.6% higher than the 944,900 employed in 2013.

**Chart F.2.4**  
Commercial Foodservice Employment and Sales, 1999-2014

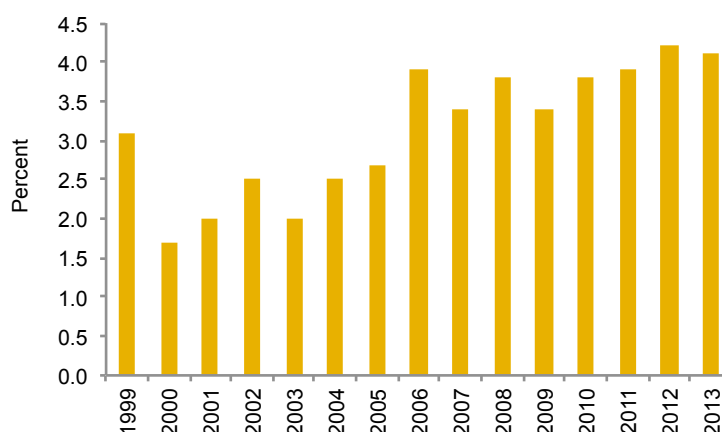


Source: Statistics Canada.

## In 2013, profit margins among Canada's foodservice and drinking establishments remained relatively strong, at 4.1%, despite a slight decline from 2012.

Profit margins among foodservice and drinking establishments have generally trended upward over the last decade, beginning at a low of 1.7% in 2000, peaking at 3.9% in 2006, and then peaking again at 4.2% in 2012.

**Chart F.2.5**  
Profit Margins for Foodservice and Drinking Establishments, 1999-2013



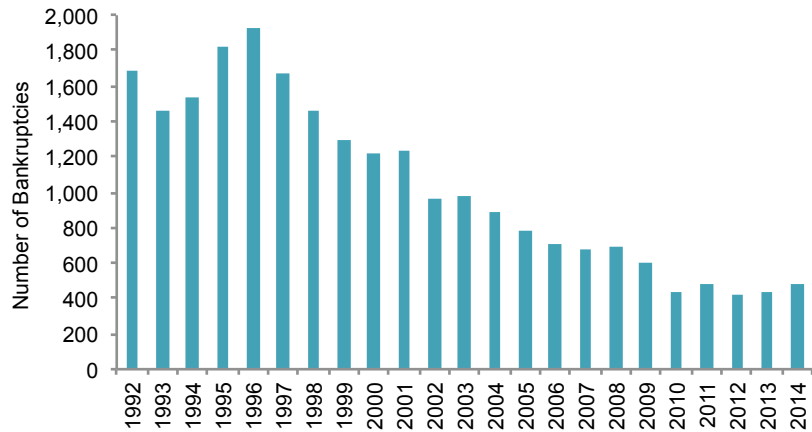
Source: Statistics Canada, Financial and Taxation Statistics for Enterprises, Annual.

# Restaurant bankruptcies remain at historically low levels

## Restaurant bankruptcies were up in 2014 but remain at historically low levels.

Bankruptcies fell from a high of 1,933 in 1996 to a record low of 415 in 2012. Bankruptcies increased by 7.0% in 2014 to 474, above the 2010-2013 average of 443, but still below the high number of bankruptcies in the 1990s.

**Chart F.2.6**  
**Commercial Restaurant Bankruptcies, 1992-2014**



Source: Canadian Restaurant and Foodservices Association, Quarterly InfoStats & Industry Canada, Office of Superintendent.

# SECTION G

Consumers

# SECTION G

## Consumers

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### Introduction:

Spending on food—both in stores and in restaurants—continued to rise in 2014. This was due in part to higher food prices as the inflation rate of retail food prices increased and remained above the overall inflation rate.

Despite these food price increases, Canadian household expenditures on food remained low relative to most other developed countries as a percentage of total household expenditures.

At the grocery store, Canadian consumers continued to look beyond staple foods for food products with characteristics reflecting their diverse and changing preferences and values.



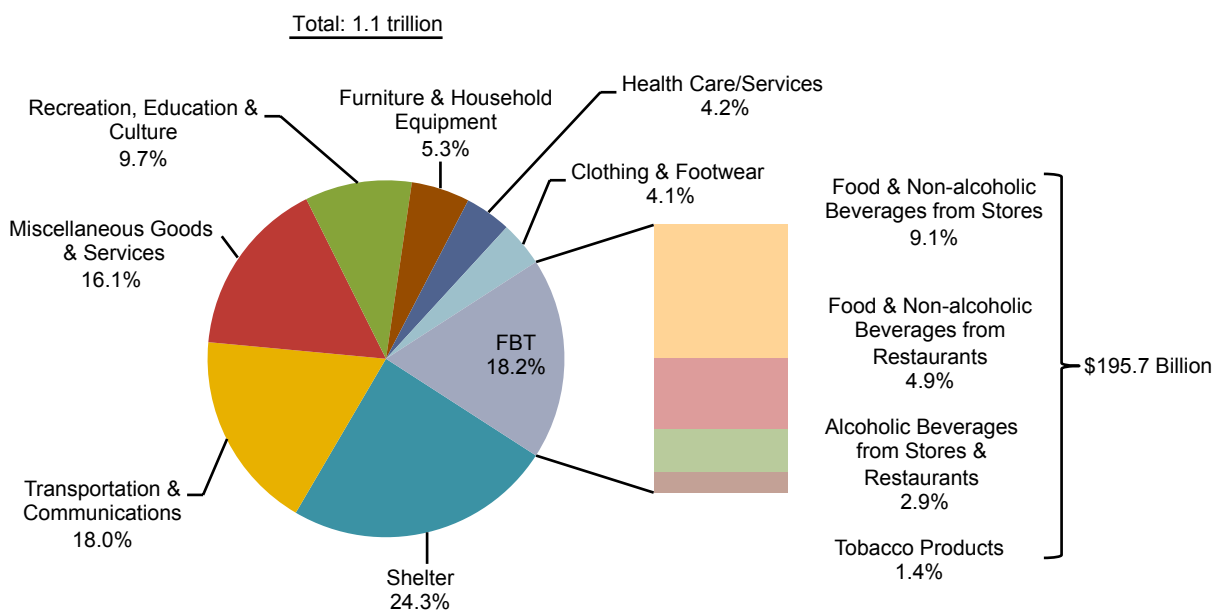
## Food, beverages and tobacco products made up the second-largest household expenditure category in 2014.

Canadian household spending on goods and services in 2014 totalled \$1.1 trillion, of which 18.2%, or \$195.7 billion, was spent on food, beverages and tobacco (FBT) products.

Of the total spent on goods and services, food and non-alcoholic beverages purchased at stores accounted for 9.1%, or \$97.3 billion. In 2013, food and non-alcoholic beverages purchased at stores accounted for 9.2%, or \$94.6 billion. Spending on food purchased in restaurants accounted for 4.9%, or \$52.5 billion in 2014. Spending on alcoholic beverages and tobacco products accounted for 2.9% and 1.4%, respectively, totaling \$45.9 billion.

The largest household expenditure in 2014 was shelter, at \$260.8 billion, representing 24.3% of all spending on goods and services. Other categories which represented sizeable shares of household expenditures included transportation and communication, with 18.0%; miscellaneous goods and services, with 16.1%; and recreation, education and culture, with 9.7%.

**Chart G.1**  
**Distribution of Household Expenditures on Goods and Services, 2014**



Source: Statistics Canada and AAFC calculations.

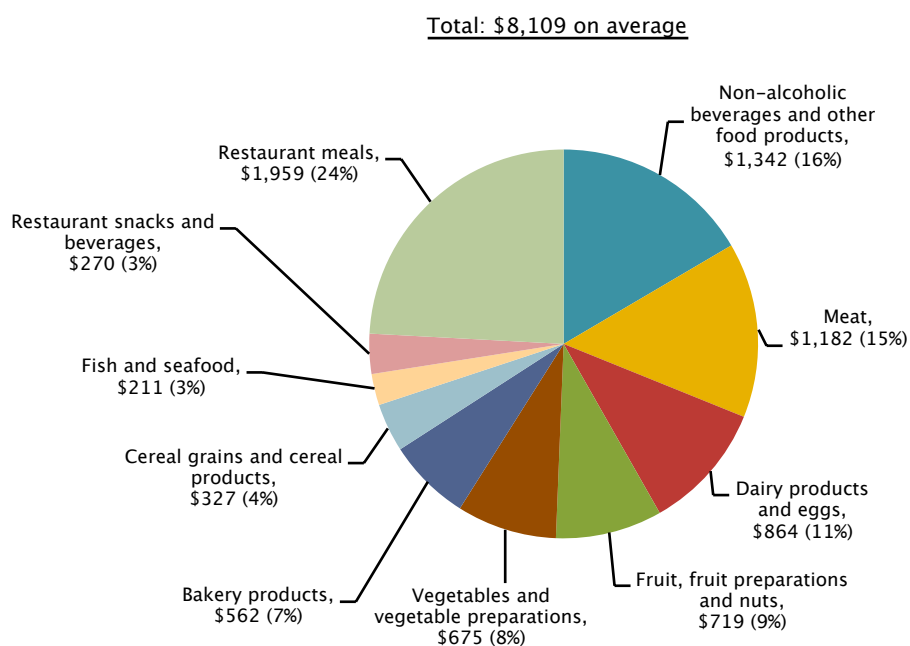
## Canadian households allocate their food and beverage expenditures across a broad range of food products.

Canadian households spent an average of \$8,109 on food and non-alcoholic beverages in 2014, a 2.2% increase over that of 2013. This included both food purchased from stores and meals purchased from restaurants.

Restaurant meals accounted for the largest share, averaging \$1,959 per household, or 24% of total average food and non-alcoholic beverage expenditures. Snacks and beverages from restaurants amounted to an additional \$270 (3%) per household.

The largest share of expenditures on food and beverage products purchased from stores was for non-alcoholic beverages and other food products such as sugar and confectionery, oils and fats, condiments, spices, and prepared meals (16%). This was followed by meat (15%) and dairy products and eggs (11%).

**Chart G.2**  
**Average Value and Distribution of Canadian Household Expenditures on Food and Non-Alcoholic Beverages, 2014**



Source: Statistics Canada and AAFC calculations.

## Expenditures on food alone represented a small proportion of all household spending.

**Real spending on food and non-alcoholic beverages increased by 2.2%, from \$122.3 billion in 2013 to \$125.0 billion in 2014.**

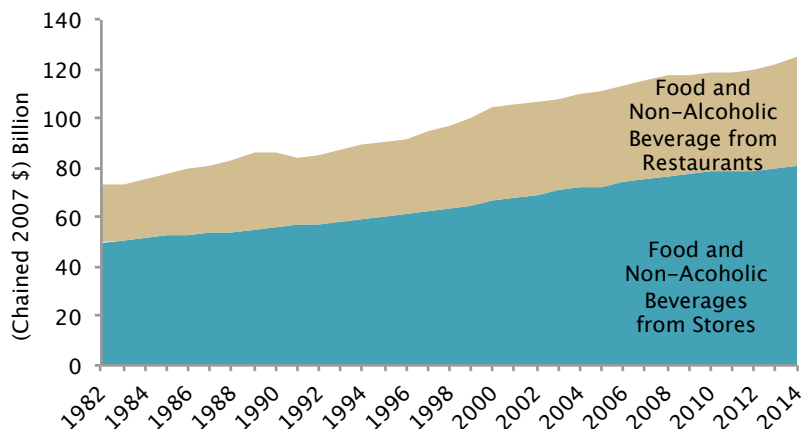
Real personal spending on food and non-alcoholic beverages from stores increased from \$79.5 billion in 2013 to \$80.8 billion in 2014, a 1.6% increase. Real personal spending on food and non-alcoholic beverages from restaurants increased by 3.3% from \$42.8 billion in 2013 to \$44.2 billion in 2014.

Since 1982, Canadians have consistently spent about 34% of their annual household food and non-alcoholic beverage expenditures at restaurants and the other 66% at stores.

**Of the total household expenditures allocated to goods and services in 2013, only food expenditures from both stores and restaurants accounted for 10.1% in Canada.**

This, however, varied by income quintile. Food expenditures accounted for 7.8% of all household spending on goods and services among Canadian households with an income in the top 20.0% (the fifth quintile) and 13.8% among the lowest income households (the first quintile).

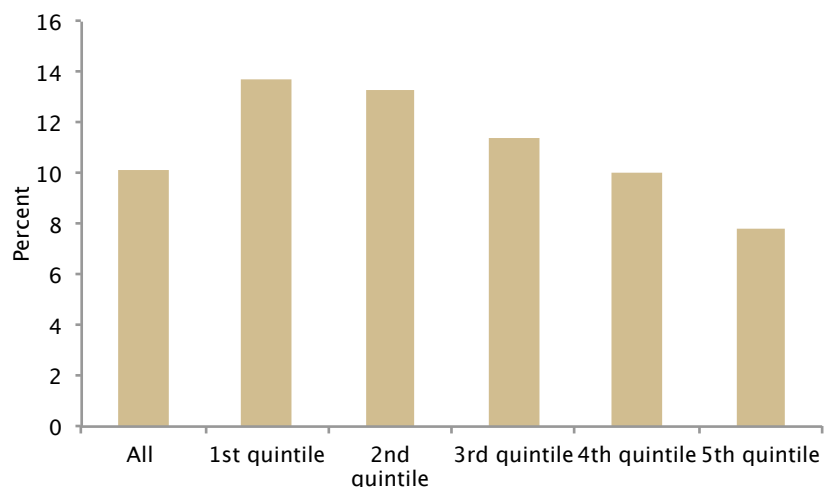
**Chart G.3  
Real Household Expenditures on Food and Non-Alcoholic Beverages, 1982–2014**



Source: Statistics Canada and AAFC Calculations.

Note: Does not include expenditures on alcoholic beverages and tobacco.

**Chart G.4  
Share of Household Expenditures on Total Food by Income Quintiles in Canada, 2013**



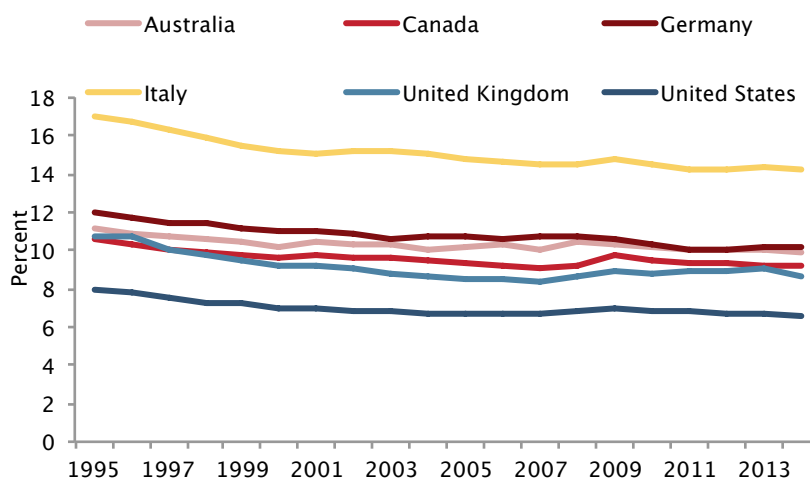
Source: Statistics Canada and AAFC Calculations.

## Household expenditure shares on food and non-alcoholic beverages have decreased in Canada and many OECD countries.

**Canadians spent a smaller share of household expenditures on food and non-alcoholic beverages from stores in 2014 than many other OECD countries.**

Among selected OECD countries in 2014, households in Italy spent the largest share (14.2%) of their household expenditures on food and non-alcoholic beverages from stores, followed by Germany (10.2%), Australia (9.9%), Canada (9.2%) and the United Kingdom (8.6%). Households in the United States spent the smallest share of their expenditures on food and non-alcoholic beverages from stores (6.6%).

**Chart G.5**  
Household Expenditures on Food and Non-Alcoholic Beverages from Stores in Selected OECD Countries\*, 1995–2014



Source: OECD.

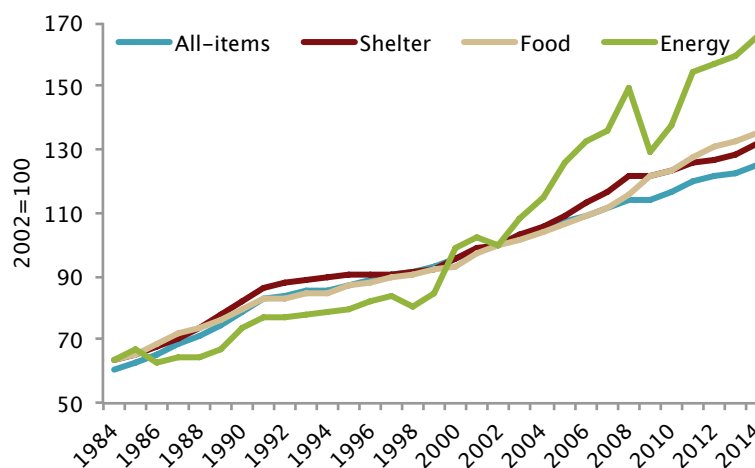
Note: \* Does not include expenditures on food and non-alcoholic beverages from restaurants.

**The retail price inflation rates for food, shelter and energy increased slightly in 2014. This contributed to increased overall price inflation of 2.0% in 2014, which was higher than the 0.9% increase in 2013.**

The retail price inflation rate for food however, was lower than that for shelter and energy. In 2014, retail food prices rose by 2.3%, after rising by 1.2% in 2013. Energy prices increased by 3.6% in 2014, after increasing by 1.5% in the previous year. The cost of shelter rose by 2.7% in 2014.

Over the past decade, the retail price inflation for food has generally tracked the "All Items" inflation rate and has been far less volatile than that of energy.

**Chart G.6**  
Consumer Price Indices (CPIs) for Food, Shelter, Energy and All Items, 1984–2014



Source: Statistics Canada.

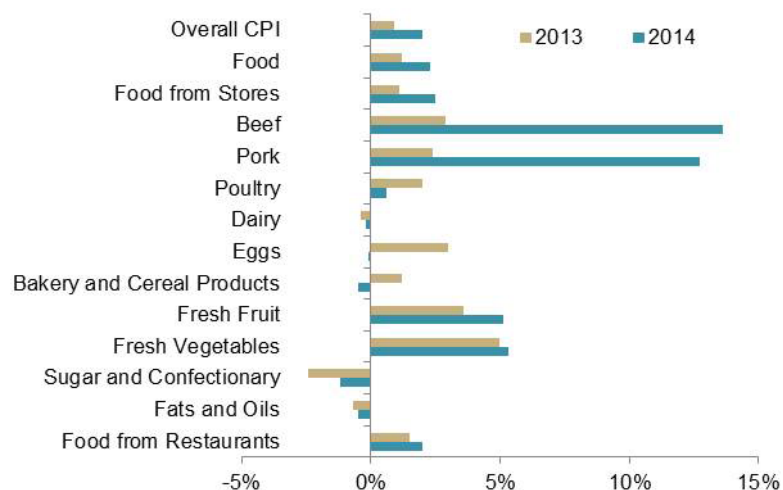
## The increase in food expenditures in 2014 is partly due to an increase in retail food price inflation in Canada in 2014.

**In 2014, growth in retail food prices was driven in large part by significantly higher prices for beef (13.6%) and pork (12.7%) over 2013.**

Prices rose for both food from stores (2.5%) and food from restaurants (2.0%) in 2014.

In contrast to beef and pork, retail prices for dairy, eggs, bakery and cereal products, sugar and confectionery products, and fats and oils declined in 2014 relative to 2013.

**Chart G.7**  
Canadian Retail Food Price Inflation by Category, 2013 and 2014

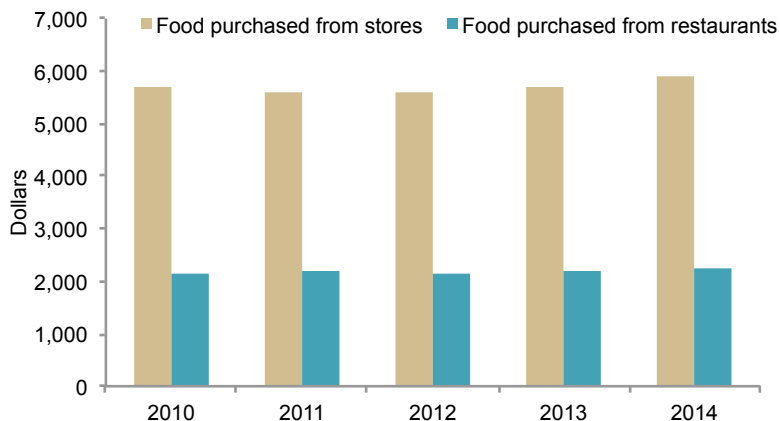


Source: Statistics Canada and AAFC calculations.

**Average spending on food by households increased by 3.7%, from \$7,823 in 2010 to \$8,109 in 2014.**

Average household spending on food from stores increased from \$5,693 in 2010 to \$5,880 in 2014, a 3.3% increase. Average household spending on food from restaurants increased by 4.6% from \$2,130 in 2010 to \$2,229 in 2014.

**Chart G.8**  
Average Food Expenditures at Stores and Restaurants by Canadian Households, 2010-2014



Source: Statistics Canada and AAFC calculations.

## Canadian food consumption patterns continue to evolve. Consumption of beef and pork has declined over time, whereas poultry consumption continues to increase.

**Food availability is used as a proxy for food consumption and is measured as the total weight of all food made available for human consumption by the food supply chain.**

Beef availability continued to trend downward and decreased by 3.1%, reaching 26.5 kilograms per person in 2014. Pork availability has also generally trended downward and decreased by 1.2%, to reach 20.6 kilograms per person in 2014.

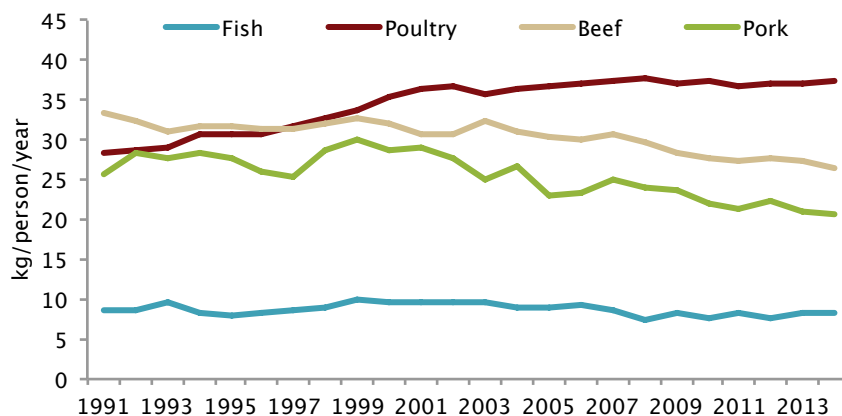
The availability of poultry has exceeded that of beef, pork and fish every year since 1997. Per capita poultry availability was 37.5 kilograms per person in 2014, an increase of 0.6% from the previous year.

**In 2014, availability of vegetable products, fruit products and dairy products declined while availability of fats and oils remained relatively stable.**

Vegetable product availability declined 6.2% in 2014 reaching 161.9 kilograms per person. Similarly, fruit product availability decreased by 1.4% to 141.5 kilograms per person in 2014.

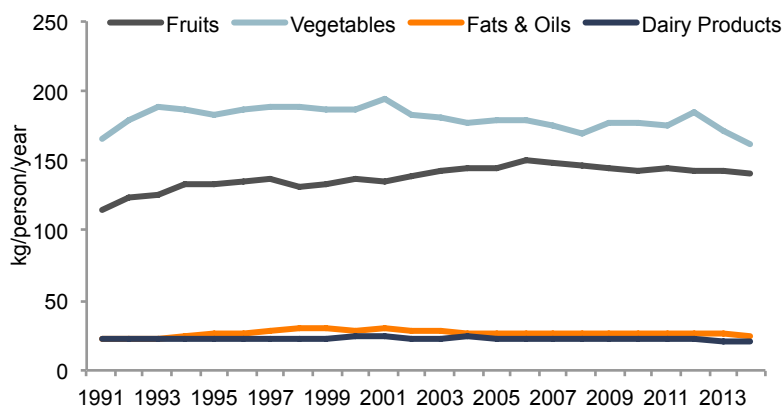
Availability of dairy products decreased by 4.0% to 20.7 kilograms per person, while that for fats and oils decreased marginally by 0.3% to 25.4 kilograms per person.

**Chart G.9**  
Estimated Per Capita Consumption of Beef, Pork, Poultry and Fish, 1991–2014



Source: Statistics Canada and AAFC calculations.

**Chart G.10**  
Estimated Per Capita Consumption of Dairy Products, Fruits and Vegetables, Fats and Oils, 1991–2014



Source: Statistics Canada and AAFC calculations.

# SECTION H

Government Expenditures and Support

# SECTION H

## Government Expenditures and Support

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### Introduction:

Government (federal and provincial) expenditures measure how much the government spends on the agriculture and agri-food sector. They cover an array of activities such as program payments to producers, research, innovation, safety and control measures, and rural and market development. These expenditures vary greatly across provinces.

Although government expenditures have declined over the past decade, they remain historically strong. Expressed in dollar terms, government expenditures in support of the agriculture and agri-food sector are expected to decrease to \$5.3 billion in 2015-2016 fiscal year. Good market conditions were responsible for lowering producers support in Canada. As a share of the agricultural GDP, government expenditures are estimated to be 26.0% in 2015-2016.

Support to producers, measured by the Producer Support Estimate, is the sum of transfers from policies that provide payments to producers (budgetary payments) and that maintain domestic prices for farm goods at levels higher than those at the country's border (market price support). Agricultural policies in Canada and other countries have evolved over time. Changes have been made, not only to decrease the level of support, but also to modify the type of support.

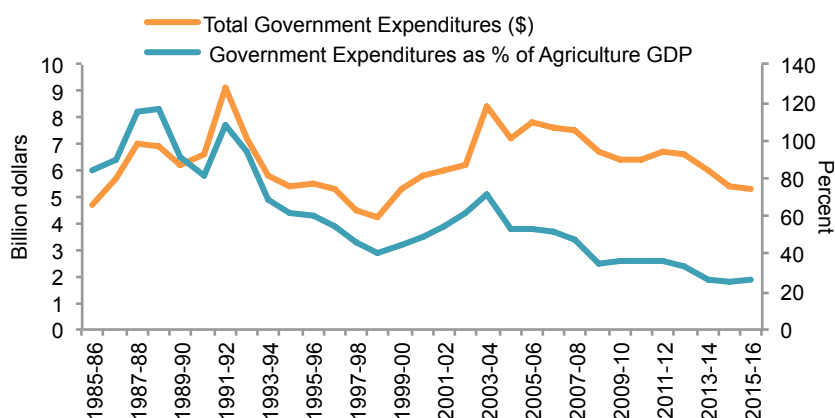


# Government expenditures in support of the agriculture and agri-food sector have slowly declined over the past decade but are still at historically high levels.

**Government expenditures in support of the agriculture and agri-food sectors are estimated at \$5.3 billion in 2015-2016, 26.0% of the agricultural GDP.**

Throughout most of the 1990s, government expenditures declined, both in dollar terms and as a share of the agricultural GDP. However, both indicators began to increase in 1998-1999, peaking in fiscal year 2003-2004 as a result of programs stemming from the 2003 Bovine Spongiform Encephalopathy (BSE) crisis. Since 2003, both government expenditures (in dollars) and government expenditures as a share of the agricultural GDP have been on a declining trend.

**Chart H.1**  
Total Government Expenditures in Support of the Agriculture and Agri-Food Sector as a Share of Agriculture GDP, 1985-1986 to 2015-2016

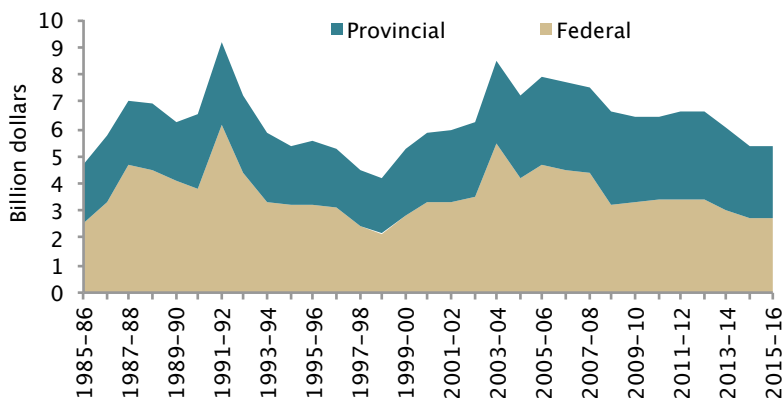


Source: AAFC.  
Note: Figures for fiscal year 2015-2016 are estimates.

**The federal government has provided, on average, \$3.6 billion per year over the past three decades in support of the agriculture and agri-food sector. The provincial governments have provided on average, \$2.7 billion per year.**

Both federal and provincial expenditures have been on a declining trend since 2003-2004. However, federal expenditures are expected to slightly increase in 2015-2016 while provincial expenditures are expected to further decline. The federal share of expenditures is expected to slightly increase from 50.2% in 2014-2015 to 51.1% in 2015-2016, but this is still below the average for the last three decades (57.3%).

**Chart H.2**  
Total Government Expenditures (Federal and Provincial) in Support of the Agriculture and Agri-Food Sector, 1985-1986 to 2015-2016



Source: AAFC.  
Note: Figures for fiscal year 2015-2016 are estimates.

## Provincial government expenditures in support of the agriculture and agri-food sector vary considerably.

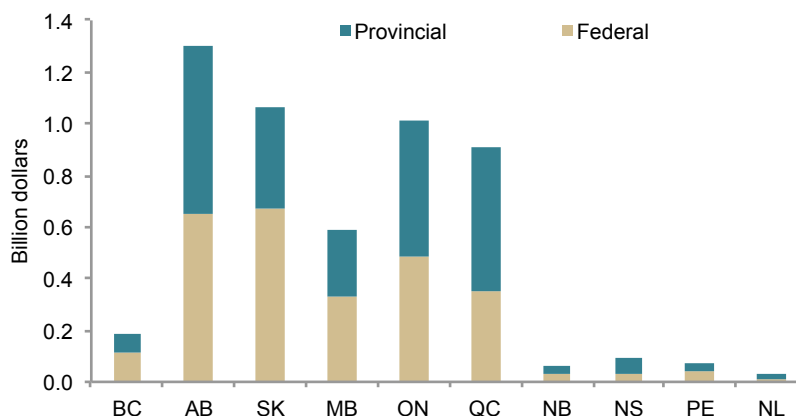
**In fiscal year 2015-2016, total government expenditures in support of the agriculture and agri-food sector varied from \$33.6 million in Newfoundland and Labrador to almost \$1.3 billion in Alberta.**

The share of federal expenditures is higher than that of provincial expenditures in British Columbia, Saskatchewan, Manitoba, New Brunswick and Prince Edward Island. Saskatchewan has the highest share of federal expenditures with respect to total expenditures. On the other hand, Newfoundland and Labrador has the highest share of provincial expenditures.

**In fiscal year 2015-2016, total government expenditures in support of the agricultural and agri-food sector accounted for 26.0% of the agricultural GDP at the national level but varied across provinces.**

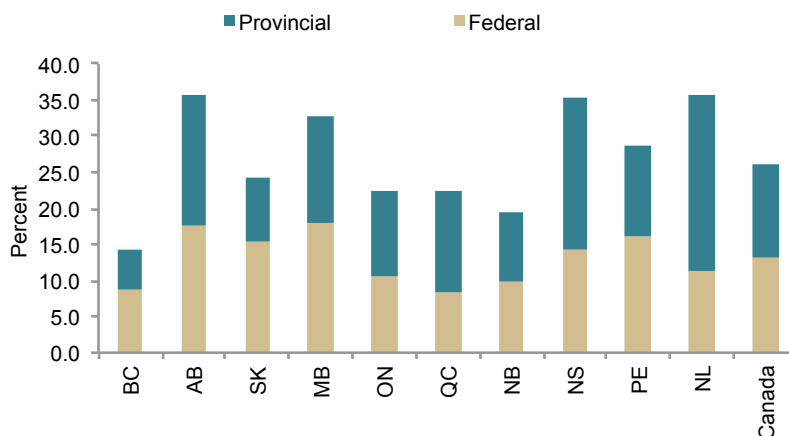
Total agriculture and agri-food government expenditures, expressed as a percentage of agriculture GDP, were lowest in British Columbia at 14.3%, and highest in Alberta, and Newfoundland and Labrador at 35.6%.

**Chart H.3**  
Total Government Expenditures (Federal and Provincial) in Support of the Agriculture and Agri-Food Sector by Province, 2015-2016



Source: AAFC.  
Note: Fiscal Year 2015-2016 Figures are estimates.

**Chart H.4**  
Total Government Expenditures in Support of the Agriculture and Agri-Food Sector as a Share of Agricultural GDP, Canada and by Province, 2015-2016



Source: AAFC.  
Note: Fiscal Year 2015-2016 Figures are estimates.

## Government expenditures are not evenly distributed among activities.

**For the 2015-2016 fiscal year, program payments to producers are estimated to account for the largest share of both federal and provincial government expenditures.**

At both the federal and provincial level, program payments are expected to exceed \$1 billion in 2015-2016. At the federal level, expenditures in research and innovation and safety and control measures account for the second and third largest share of total government support totaled \$1.2 billion.

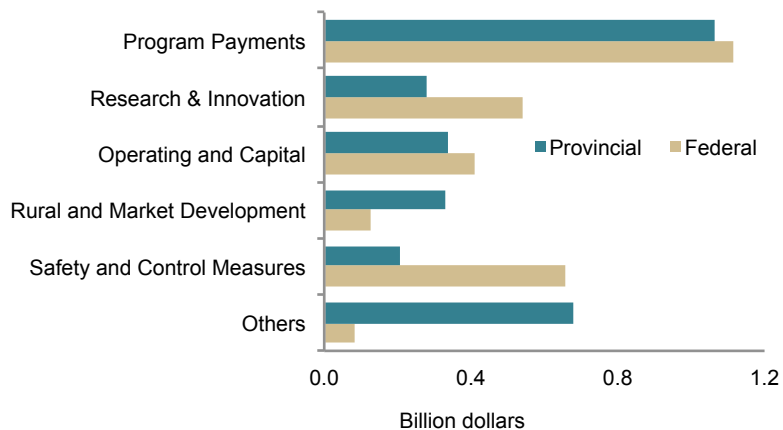
The distribution of provincial expenditures differed from the federal level. Other expenditures, including mostly tax, extension and education spending, were minor at the federal level (\$80 million), but much larger provincially (\$675 million).

**The composition of support has changed over time, but program payments continue to be an important component of support to the agriculture and agri-food sector.**

The largest shares of expenditures in 2015-16 were in program payments (37.4%); safety and control measures (14.8%); and research and innovation (14.1%).

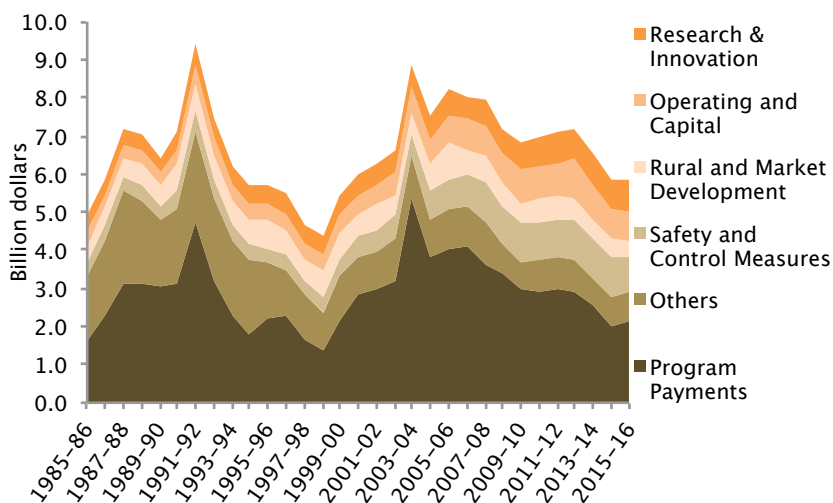
The level and share of expenditures for program payments and for research and innovation are expected to increase in 2015-2016 while the level and share of expenditures for safety and control measures are expected to decline.

**Chart H.5**  
Federal and Provincial Government Expenditures in Support of the Agriculture and Agri-Food Sector by Major Category, 2015-2016



Source: AAFC.

**Chart H.6**  
Federal and Provincial Government Expenditures in Support of the Agriculture and Agri-Food Sector by Major Category, 1985-1986 to 2015-2016



Source: AAFC.

## Government investment in agriculture and agri-food R&D is important for innovation in the sector.

**Public funding of research in support of the agriculture and agri-food sector, is estimated to increase to \$649.5 million in the fiscal year 2015-2016.**

Federal and provincial spending are expected to increase to \$466.4 million and \$183.1 million respectively in 2015-2016.

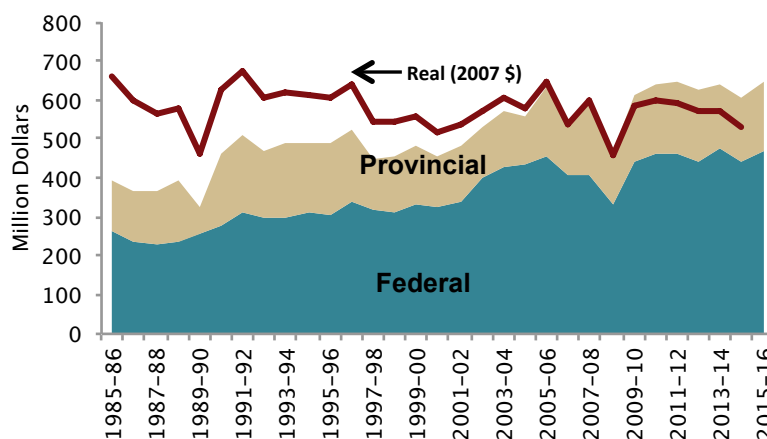
In constant 2007 dollars, total public research expenditures have been trending downward since 2010-2011.

The share of federal research expenditures was consistently larger than that of provincial governments, averaging 69.4% and 30.6% respectively between 1985-86 and 2015-16.

**Canada's public R&D spending in the agriculture and agri-food sector, as a share of gross farm receipts (GFR), has continued to decrease. It is currently lower than that of Australia, but higher than that of the USA.**

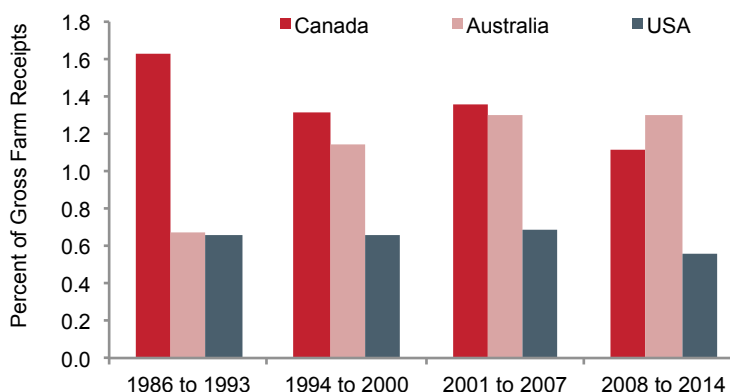
During the 2008-2014 period, Canada's public agricultural R&D spending averaged 1.1% as a share of GFR, a decrease from the average of 1.4% over the 2001-2007 period.

**Chart H.7**  
Public R&D Spending in Support of the Agriculture and Agri-Food Sector, Canada 1985-1986 to 2015-2016



Source: AAFC and Statistics Canada.

**Chart H.8**  
Public R&D Spending in Support of the Agriculture and Agri-Food Sector as a Share of Gross Farm Receipts for Selected Countries, 1986 to 2014



Source: OECD Producer and Consumer Support Estimates, 1986-2014.

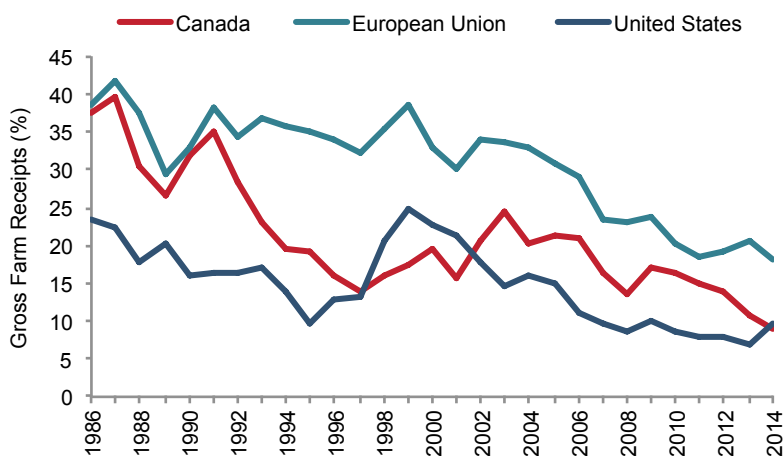
## Total support to Canadian producers has declined in recent years, due in part to higher commodity prices.

**In 2014, the Producer Support Estimate (PSE) for Canada was 9.0% of Gross Farm Receipts (GFR).**

Policy reforms, combined with good market conditions were responsible for lowering producers support in Canada, the E.U. and the U.S. during the 1986-2014 period.

For the first time since 2002, Canada's PSE as a percentage of GFR (9.0%) was lower than that of the U.S. (9.8%), and it was also the lowest recorded during the 1986-2014 period.

**Chart H.9**  
Percent of Producer Support Estimates (PSEs) in Selected Countries, 1986-2014



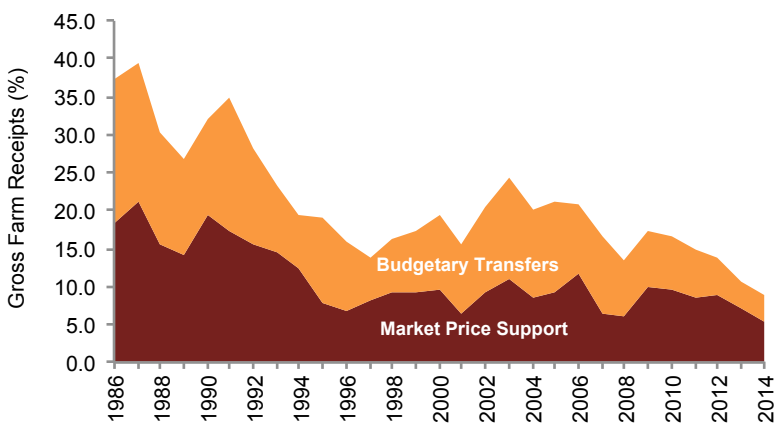
Source: OECD Producer and Consumer Support Estimates, 1986-2014.

**In 2014, 59.4% of the total support to producers in Canada was provided through market price support (MPS), compared with an average of 52.1% over the 1986-2014 period.**

The removal of transportation subsidies to railways and fiscal deficit reduction explains the drop in the level of support in the 1990s in Canada.

A gradual decrease in budgetary transfers relative to GFR in the last 10 years can be explained by favourable market conditions, the reduction of payments from some BRM program changes, and increasing farm receipts. Any fluctuations in MPS in recent years have been due to changes in domestic and world prices, not policies.

**Chart H.10**  
Composition of Support to Producers (PSE) in Canada, 1986-2014



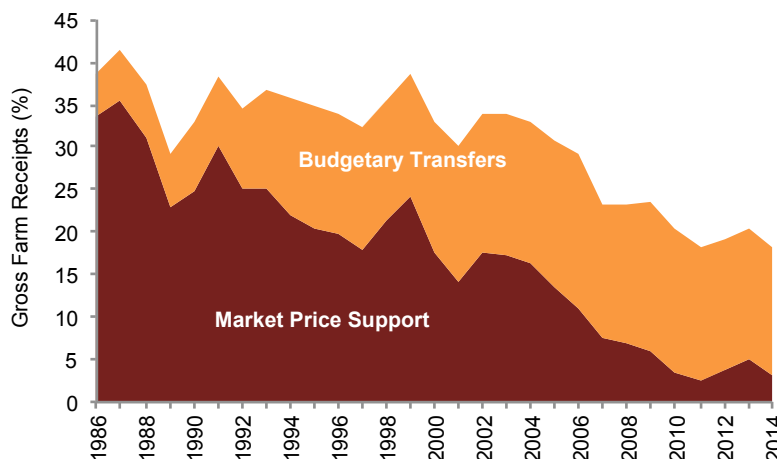
Source: OECD Producer and Consumer Support Estimates, 1986-2014.

## In the E.U. and the U.S., policy reforms coupled with changes in commodity prices have led to a significant reduction in Market Price Support (MPS) and slight increases in Budgetary Transfers.

**In 2014, 82.7% of total support to agricultural producers in the E.U. was provided through budgetary transfers, compared to an average of 48.3% over the 1986-2014 period.**

In 1986, 86.6% of all support to producers in the E.U. was provided through Market Price Support (MPS), compared to just 17.3% in 2014. Significant reforms to the Common Agricultural Policy (CAP) caused increase in payments to producers while decreasing the level of MPS.

**Chart H.11**  
Composition of Support to Producers (PSE) in the E.U., 1986-2014



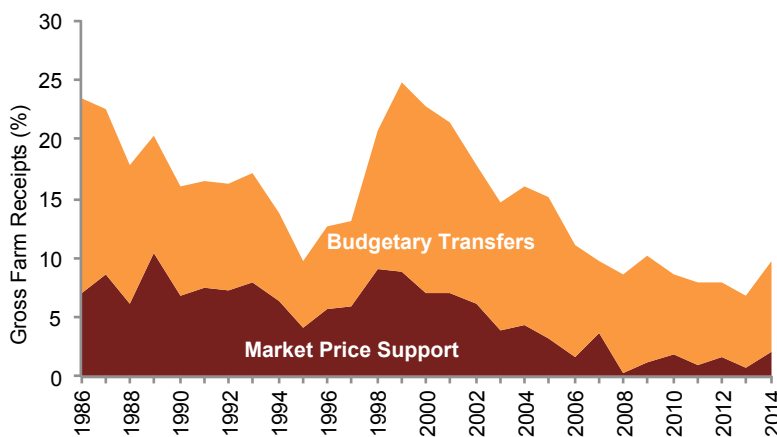
Source: OECD, Producer and Consumer Support Estimates.

**In 2014, 78.0% of the total support to agricultural producers in the U.S. was provided through budgetary transfers, compared to an average of 68.3% over the 1986-2014 period.**

Since 2002, the decline in the U.S. PSE has been primarily due to higher world commodity prices which resulted in lower levels of MPS.

The increase in the 2014 PSE as a share of GFR was due to new Farm Bill funding with some expenditures which were carried over from the 2008 Farm Bill.

**Chart H.12**  
Composition of Support to Producers (PSE) in the U.S., 1986-2014



Source: OECD, Producer and Consumer Support Estimates.

# GLOSSARY

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## SECTION A: Natural Resource Use and the Environment

**GHG:** Greenhouse gases include any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface.

**Emission intensity:** Emission intensity is the average emission rate of a given pollutant from a given source relative to the intensity of a specific activity; for example, the amount of GHG emitted per unit of economic activity (\$ GDP).

**Soil carbon sequestration/sink:** The process to capture and long-term storage of atmospheric carbon dioxide.

**CLI Classes:** The Canada Land Inventory for agriculture is an interpretative system of soil characteristics of land for growing common field crops. There are seven classes indicating the degree of limitations imposed by the soil in its use for agriculture.

**Prime farmland:** Based on the Canada Land Inventory system, the first three classes are considered capable of sustained production of cultivated field crops and are considered prime agricultural land resources.

**Water use:** Water use is any utilization of water regardless of whether it is consumed or returned to its original source.

**Water consumption:** Water consumption refers to water withdrawn but not directly returned to its original source; water that is no longer available because it has evaporated, been transpired by plants, incorporated into products or crops, consumed by people or livestock, or otherwise removed from the immediate water environment.

**Micro irrigation:** Micro irrigation systems deliver water onto the soil surface very close to the crop or below the soil.

**Sprinkler irrigation:** Sprinkler systems distribute water onto crops in a high-velocity, high-volume spray.

**Surface irrigation:** Surface irrigation, also known as flood irrigation, the water flows by gravity over land.

## SECTION B: GDP and Employment

### Agriculture and Agri-Food Sector

The agriculture and agri-food sector is composed of all industries whose primary role is to produce food and agricultural products. It encompasses both primary agriculture and food, beverage and tobacco processors.

### Canadian Agriculture and Agri-Food System

The Canadian agriculture and agri-food system is a value chain of industries focused on producing agricultural and food products. It includes agricultural input and service suppliers, primary agriculture, food, beverage and tobacco processors, food retailers/wholesalers, and foodservice establishments.

### Gross Domestic Product (GDP)

The GDP for a country is the total unduplicated value of the goods and services produced in that country during a given period.

## SECTION C: International Trade

### **Agriculture and Agri-Food Exports**

Agriculture and agri-food exports include the export of agriculture commodities, food (excluding fish and fish products), non-alcoholic beverages (including bottled water), alcoholic beverages, tobacco products, and floriculture and nursery.

### **Agriculture and Agri-Food Imports**

Agriculture and agri-food imports include the import of agriculture commodities, food (excluding fish and fish products), non-alcoholic beverages (including bottled water), alcoholic beverages, tobacco products and floriculture and nursery.

### **Estimated share of Canadian Primary Production that is Exported Directly as primary agricultural products**

This is the ratio of primary agricultural exports to total farm market receipts

### **Estimated share of Canadian Primary Production that is Exported Indirectly as processed agri-food products**

This is estimated as the ratio of the proportion of primary agriculture products in food processing exports to total farm market receipts. The ratio of the proportion of primary agriculture products in food processing exports is estimated as farm market receipts multiplied by, share of primary agriculture sold to food processing establishments that is exported.

### **Intra-Regional Trade**

Trade between two regions in a given location. For example trade between Canadian provinces or the European Union member countries.

### **Primary Agriculture Product Trade**

Uses the North American Industrial Classification System coding structure as the basis, defines primary agriculture as codes 111 and 112.

### **Processed Agri-Food Product Trade**

Uses the World Trade Organization definition of agricultural trade and the North American Industrial Classification System coding structure as the basis, and defines processed agri-food products as codes 311 and 3121, excluding most products from Seafood Product Preparation and Packaging (NAICS 3117) and including certain processed agricultural products produced by non-food and beverage manufacturing industries.

## SECTION D: Primary Agriculture

### **Average Net Operating Income**

Average net operating income is income level derived by dividing total net operating income by number of farms.

### **Capital Cost Allowance**

Capital cost allowance refers to the amount deducted for depreciable property for tax purposes.

**Cash rent** usually involves a per-acre arrangement between the landowner and the farmer, and are often set for a multi-year period. The same rent is paid regardless of what the output of the land is.



### **Crop Year**

A crop year is a twelve-month period used for collecting data on a particular crop — generally corresponding to the natural planting and marketing cycle for that crop. Usually, a crop year begins in a month other than January.

### **Direct Payments**

Direct payments include the amounts paid under government agricultural programs and agricultural programs funded by the private sector. These include insurance programs funded totally by premiums paid by producers. Only those payments related to current agricultural production and paid directly to individuals involved in agricultural production are included.

### **Farm Cash Receipts**

Farm cash receipts include revenues from the sale of agricultural commodities, program payments from government agencies, and payments from private crop and livestock insurance programs. Receipts are recorded in the calendar year when the money is paid (cash basis) to farmers.

### **Farm Operating Expenses**

Farm operating expenses represent business costs incurred by farm operators for goods and services used in the production of agricultural commodities. All expense information is on a calendar year basis. If direct rebates are paid to farmers to reduce the cost of particular inputs, then the net expense estimates are used in the preparation of net income. As the objective is to produce provincial estimates of net income, flows from one farm to another are excluded from the estimates. The province can be viewed as one large farm.

### **Farm Net Worth**

Farm net worth is measured as the total assets of the farm evaluated at current market value less total liabilities.

### **Market Receipts**

Market receipts are farm cash receipts minus program payments.

### **Net Cash Income**

Net cash income measures farm business cash flow (farm cash receipts minus operating expenses) generated from the production of agricultural goods. Net cash income represents the amount of money available for debt repayment, investment or withdrawal by the owner.

### **Net Value Added**

Net value added measures agriculture's contribution to the national economy's production of goods and services created in a particular year. It is derived by calculating the total value of agricultural sector production, including program payments, and subtracting the related costs of production (expenses on inputs, business taxes and depreciation). Net value added is distributed to the various factors of production, including rent to non-operator landlords, interest to lenders, wages and profits.

### **Net Operating Income**

Net operating income is the profit or loss of the farm operation measured by total operating revenues minus total operating expenses, excluding capital cost allowance, the value of inventory adjustments and other adjustments for tax purposes.

### **Rate of Return on Assets**

The rate of return on assets at the farm level is calculated as net operating income plus interest expense minus capital cost allowance divided by the total value of assets at cost. In the case of dairy and poultry farms, the allowance on eligible capital property for quota was also deducted.

### **Rate of Return on Equity**

The rate of return on equity at the farm level is calculated as net operating income minus capital cost allowance divided by net worth at cost. In the case of dairy and poultry farms, the allowance on eligible capital property for quota was also deducted.

**Share rent**, or share-cropping, involves the landowner and renter sharing in the inputs and outputs of the land. A percentage to be shared is agreed upon between the two parties. The rent paid depends on production decisions made by the two parties and the output of the crop produced on the land.

### **Return on Equity Ratio**

Return on equity ratio at the industry level is calculated as after-tax profit divided by total equity x 100. This ratio measures the level of return to the owners (investors) and it represents their measure of profitability. The earnings figure is the after-tax profit, including a deduction for interest expense (payments to lenders). It is the net profit available to the owners (investors). The ratio indicates how many cents are returned to every dollar invested by the owners.

## **SECTION E: Farm Level Innovation**

### **Product Innovation**

A product innovation is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components or sub-systems. Product innovations must be new to the firm.

### **Process Innovation**

A process innovation is the implementation of a new or significantly improved production process, distribution method or support activity for a firm's goods or services. Process innovations must be new to the firm and exclude purely organizational innovations.

### **Technology**

Technology is broadly defined to include the technical means and know-how required to produce a product or service. It takes the form of equipment, materials, processes, blueprints and knowledge.

## **SECTION F: Post Farm Gate**

### **Capital Stock**

Fixed capital is comprised of buildings, engineering structures and machinery and equipment. Total investment in fixed capital is made up of purchases needed to offset depreciation (replacement needs) and purchases to expand the capital stock. When replacement needs exceed investment, the capital stock falls, since the existing stock is not being maintained. When investment exceeds replacement needs, the stock increases.

### **Chain Stores**

Food retailers are divided into chain stores and non-chain stores. Chain stores are defined as operating in four or more locations in Canada (within the same industry group and under the same legal ownership).

### **Debt-to-Asset Ratio**

Debt-to-asset ratio at the farm level is total debt divided by total assets.

### **Debt-to-Equity Ratio**

Debt-to-equity ratio at the industry level is total debt divided by total equity.

### **Real Prices**

Real (constant) price refers to a value from which the overall effect of a general price inflation has been removed.

### **Value-Added Production**

Value-added production refers to products that have undergone some processing.

## **SECTION G: Consumers**

### **Alcoholic Beverages**

This includes those purchased from stores and restaurants. Also included are expenditures on supplies and fees for self-made beer, wine or liquor. Purchases of alcoholic beverages may be under-reported.

### **Food and Non-Alcoholic Beverages Purchased from Stores**

Food purchased from stores includes supermarkets, food specialty stores (butcher shops, fresh produce stores, bakeries, fish markets, delicatessens, health food stores, markets or stands, and direct purchases from producers and frozen food suppliers, outdoor farmers' markets and stands, and all other non-service establishments), convenience stores, and other (any other type of store that sells food items, such as department stores, club-type stores, drug stores, etc.).

### **Food Away From Home**

Includes food purchased from restaurants including table-service restaurants, fast-food restaurants, cafeterias and other (refreshment stands, snack bars, vending machines, chip wagons, caterers and mobile canteens). They are usually found at supermarkets, theatres, exhibitions, sports events, parks, etc.

### **Household Expenditures on Goods and Services**

Shows the expenses incurred for food, shelter, household furnishings and equipment, clothing, transportation, communications health care and services, recreation, education and culture, tobacco products and alcoholic beverages, games of chance, and a miscellaneous group of items.

### **Personal Expenditure on Consumer Goods and Services**

Household spending on new consumer goods and on consumer services, plus any mark-up on used goods. Real personal spending is personal expenditures adjusted for inflation.

### **Profit Margin**

Profit margin at the industry level is calculated as operating profits divided by total operating revenues. Operating profit is the net result of the principal business activities of a firm. It is calculated before taking into account interest expense, investment income, non-recurring losses from the write-down of assets, gains or losses realized on the disposal of assets, and income tax expense. Profit margin indicates management's ability to generate earnings from the principal business activities of a firm.

## **SECTION H: Government Expenditures and Support**

### **Budgetary Transfers**

Budgetary expenditures from governments providing direct payments to agricultural producers.

### **Government Expenditures**

Government spending (at all levels) on agriculture and food processing in a year, both direct and indirect, to individuals, agencies or associations.

**Gross Farm Receipts (GFR)**

The value of commodity production plus the direct transfers received by producers in the current year.

**Market Price Support (MPS)**

Transfers to agricultural producers from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity.

**Operating and Capital Expenditures**

Include government expenditures on general administration and management, and on policy information and statistical services

**Other Expenditures**

Include government expenditures on food aid and international assistance, extension, and education as well as social program payments and tax expenditures.

**Program Payment Expenditures**

Include payments for income support and stabilization programs, ad hoc and cost reduction programs, agri-insurance and financing assistance programs.

**Producer Support Estimate (PSE)**

A yearly measure of policy support to farm producers. It is the sum of market price support and budgetary payments to producers, expressed as a percentage of the gross farm receipts.

**Research Expenditures**

Include administration and capital expenditures incurred by the government to perform research and inspection activities, as well as grants and contributions issued by the government for work on these activities.

**Total Government Expenditures**

Involves expenditures from both Federal and Provincial governments.

# Industries- North American Industry Classification System

Unless otherwise noted, component stages of the agriculture and agri-food system are defined according to the North American Industrial Classification System (NAICS). A detailed listing of included industries for each component stage of the system is provided below.

## **Input & Service Suppliers**

Agricultural input and service suppliers are composed of the following industries as defined by NAICS:

At the 4-digit level

- 1151 Support Activities for Crop Production
- 1152 Support Activities for Animal Production
- 3253 Pesticide, Fertilizer and Other Agricultural Chemical Manufacturing
- 4171 Farm, Lawn and Garden Machinery and Equipment Wholesaler-Distributors
- 4183 Agricultural Supplies Wholesaler-Distributors

At the 5-digit level

- 33311 Agricultural Implement Manufacturing

## **Primary Agriculture**

Primary agriculture is composed of the following industries as defined by NAICS:

At the 3-digit level

- 111 Crop Production
- 112 Animal Production

At the 4-digit level

- 1111 Oilseed and Grain Farming
- 1112 Vegetable and Melon Farming
- 1113 Fruit and Tree Nut Farming
- 1114 Greenhouse, Nursery and Floriculture Production
- 1119 Other Crop Farming
- 1121 Cattle Ranching and Farming
- 1122 Hog and Pig Farming
- 1123 Poultry and Egg Production
- 1124 Sheep and Goat Farming
- 1125 Animal Aquaculture
- 1129 Other Animal Production

## **Food, Beverage and Tobacco Processing**

Food, beverage and tobacco processing is composed of the following industries as defined by NAICS:

At the 3-digit level

- 311 Food Manufacturing
- 312 Beverage and Tobacco Product Manufacturing

At the 4-digit level

- 3111 Animal Food Manufacturing
- 3116 Grain and Oilseed Milling
- 3113 Sugar and Confectionery Product Manufacturing
- 3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing
- 3115 Dairy Product Manufacturing
- 3116 Meat Product Manufacturing
- 3117 Seafood Product Preparation and Packaging
- 3118 Bakeries and Tortilla Manufacturing
- 3119 Other Food Manufacturing
- 3121 Beverage Manufacturing
- 3122 Tobacco Manufacturing

### **Food Retail/Wholesale**

Food retail/wholesale is composed of the following industries as defined by NAICS:

At the 3-digit level

- 411 Farm Product Wholesaler-Distributors
- 413 Food, Beverage and Tobacco Wholesaler-Distributors
- 445 Food and Beverage Stores

### **Foodservice**

Foodservice is composed of the following industries as defined by NAICS:

At the 3-digit level

- 722 Food Services and Drinking Places

At the 4-digit level

- 4542 Vending Machine Operators

# DATA SOURCES AND REFERENCES

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## SECTION A: Natural Resource Use and the Environment

- A.1 Environment Canada, National Inventory Report 2015; Statistics Canada, CANSIM Table 379-0031
- A.2-A.4 Environment Canada, National Inventory Report 2015; Natural Resources Canada, National Energy Database, 1990-2012
- A.5 Environment Canada, Canada's Second Biennial Report, 2016
- A.6 Geospatial datasets, AAFC
- A.7 Statistics Canada, 2011 Census of Agriculture
- A.8 AAFC Land Cover of Canada circa 2000, Ted Huffman
- A.9 Statistics Canada, Physical Flow Account for Water Use
- A.10 Environment Canada (2004, 2006, 2009) Municipal Water and Wastewater Survey; Statistics Canada (2005, 2007, 2009) CANSIM Table 153-0101 - Water use in Canada, by sector, every 2 years
- A.11 Statistics Canada, Physical Flow Account for Water Use
- A.12 Statistics Canada, Agricultural Water Survey
- A.13-A.14 Statistics Canada, 2011 Census of Agriculture
- A.15-A.20 Statistics Canada, Agricultural Water Survey

## SECTION B: GDP Employment

- B.1 AAFC calculations based on Statistics Canada data
- B.2-B.3 Statistics Canada, CANSIM Table 379-0031 - Gross Domestic Product (GDP) at basic prices by North American Industry Classification System (NAICS); Statistics Canada, Annual Survey of Manufactures and Logging 2012
- B.4-B.5 Statistics Canada, CANSIM Table 379-0030 - Gross Domestic Product (GDP) at basic prices, by North American Industry Classification System (NAICS), provinces and territories, annual
- B.6-B.9 Statistics Canada, Annual Labour Force Survey, special tabulation

## SECTION C: International Trade

- C.1-C.2 Global Trade Atlas and AAFC Calculations
- C.3-C.4 AAFC calculations based on various products from Statistics Canada
- C.5-C.12 Statistics Canada, Canadian International Merchandise Trade Database via AAFC's Trade Data Retrieval System
- C.13-C.14 AAFC calculations based on Statistics Canada, Canadian International Merchandise Trade Database via AAFC's Trade Data Retrieval System

## SECTION D: Primary Agriculture

### SECTION D1: Farm Performance

- D.1.1 Statistics Canada Input/Output Model and AAFC calculations

- D.1.2 Statistics Canada, CANSIM Table 002-0001 - Farm Cash Receipts, annual (dollars)
- D.1.3 Statistics Canada, CANSIM Table 002-0001 - Farm Cash Receipts, annual (dollars);  
and CANSIM Table 001-0041 - Supply and disposition of grains in Canada (metric tonnes)
- D.1.4 United States Department of Agriculture, National Agricultural Statistics Service; Statistics Canada; and  
AAFC, Red Meat Market Information
- D.1.5-D.1.6 Statistics Canada, CANSIM Table 002-0001 - Farm Cash Receipts, annual (dollars)
- D.1.7 Statistics Canada, CANSIM Table 002-0009 - Net farm income, annual (dollars); and  
CANSIM Table 002-0001 - Farm Cash Receipts, annual (dollars)
- D.1.8-D.1.11 Statistics Canada, Taxation Data Program
- D.1.12 Statistics Canada, CANSIM Table 002-0004 - Agriculture value added account, annual (dollars)
- D.1.13 Statistics Canada, Farm Financial Survey, 2010 to 2013
- D.1.14 Statistics Canada, Farm Financial Survey, 2013
- D.1.15-D.1.16 Statistics Canada, Taxation Data Program

## **SECTION D2: Farm Inputs**

- D.2.1-D.2.2 Statistics Canada, CANSIM Table 002-0005 - Farm operating expenses and depreciation charges,  
annual (dollars)
- D.2.3 Statistics Canada, CANSIM Table 328-0015 - Farm input price index, quarterly (index, 2002=100)
- D.2.4 Alberta Agriculture and Food, Economics and Competitiveness Division, Statistics and Data  
Development Unit's Alberta Agricultural Input Monitoring System (AIMS) and the United States Energy  
Information Administration
- D.2.5 Statistics Canada, CANSIM Table 002-0005 - Farm operating expenses and depreciation charges, annual  
(dollars); and CANSIM Table 002-0020 - Balance Sheet of the agricultural sector, annual (dollars)
- D.2.6 Weekly Petroleum Price Survey, the Kent Group Ltd.; and Quorum Corporation, Rail and Trucking Freight  
Rate Index (2002=100): 2013-2014 Annual Report Data Tables, Trucking Rates: Table 4A-1, Composite  
Freight Rates, and Railway Freight Rates: Table 4C-1, Composite Freight Rates

## **SECTION E: Farm Level Innovation**

- E.1 Statistics Canada, 2013 Farm Financial Survey
- E.2 Statistics Canada, 2013 Farm Financial Survey
- E.3 Statistics Canada, 2013 Farm Financial Survey
- E.4 Statistics Canada, 2013 Farm Financial Survey
- E.5 Statistics Canada, 2013 Farm Financial Survey
- E.6 Statistics Canada, 2013 Farm Financial Survey
- E.7 Statistics Canada, 2013 Farm Financial Survey
- E.8 Statistics Canada, 2013 Farm Financial Survey



## SECTION F: Post Farm Gate

### SECTION F1: Food and Beverage Processing

- F.1.1 Statistics Canada Input/Output Model and AAFC calculations
- F.1.2 Statistics Canada, CANSIM Table 379-0031 - Gross Domestic Product (GDP) at basic prices, by North American Industry Classification System (NAICS), monthly (dollars)
- F.1.3 Statistics Canada, CANSIM Table 281-0024 - Employment (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System (NAICS), annual (persons)
- F.1.4 Statistics Canada, CANSIM Table 552-0001 Canadian business patterns, location counts, employment size and North American Industry Classification System (NAICS), national industries, by Canada and provinces, semi-annual (number)
- F.1.5-F.1.6 Statistics Canada, CANSIM Table 304-0014 - Manufacturers' sales, inventories, orders and inventory to sales ratios, by North American Industry Classification System (NAICS), Canada, monthly CANSIM (database) and AAFC calculations
- F.1.7-F.1.8 Statistics Canada, CANSIM Table 281-0024 - Employment (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System (NAICS), annual (persons) and AAFC calculations
- F.1.9-F.1.10 Statistics Canada, CANSIM Table 301-0008, Principal statistics for manufacturing industries by North American Industry Classification System (NAICS), annual
- F.1.11 Statistics Canada, CANSIM Table 330-0008 - Raw materials price indexes monthly (index, 2010=100)
- F.1.12 Statistics Canada, CANSIM Table 281-0027 - Average weekly earnings (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System (NAICS), annual (current dollars)
- F.1.13-F.1.14 Statistics Canada, Statistics Canada, Quarterly Survey of Financial Statistics for Enterprises special tabulation and AAFC calculations
- F.1.15 Statistics Canada, CANSIM Table 358-0024, Business enterprise research and development (BERD) characteristics, by industry group based on the North American Industry Classification System (NAICS) in Canada; CANSIM Table 380-0064 Gross domestic product, expenditure-based

### SECTION F2: Food Retail, Wholesale, and Service

- F.2.1 Canadian Grocer Magazine, Jan/Feb 2001, National Market Survey, Canadian Food Store Sales, 2000, p. 22-31, Julia Drake; Canadian Grocer, Feb 2015 (sales figured for 2014 are estimated based on preliminary Statistics Canada data for supermarkets and Canadian Grocers 2014 Survey of Chains and Groups)
- F.2.2 Canadian Grocer Magazine, February 2015
- F.2.3 Statistics Canada, Quarterly Financial Statistics for Enterprises; Food and Beverage Retail Trade - special tabulation; and All Retail Trade - CANSIM Table 187-0002 – quarterly statement of changes in financial position, by North American Industry Classification System (NAICS), selected financial ratios and selected seasonally adjusted components, quarterly (dollars unless otherwise noted)

- F.2.4 Statistics Canada, CANSIM Table 355-0006, Monthly survey of food services and drinking places, by North American Industry Classification System (NAICS), monthly; and Statistics Canada's Labour Force Survey, special tabulation for AAFC
- F.2.5 Statistics Canada, CANSIM Table 180-0003 - Financial and taxation statistics for enterprises, by North American Industry Classification System (NAICS), annual (dollars unless otherwise noted)
- F.2.6 Canadian Restaurant and Foodservice Association's InfoStats Quarterly, 1991-2002; Industry Canada, Office of the Superintendent of Bankruptcy, 2003-2014

## **SECTION G: Consumers**

- G.1 Statistics Canada, CANSIM Table 380-0067 and CANSIM Table 380-0085 - Household final consumption expenditure on goods and services, annual and AAFC calculations
- G.2 Statistics Canada, CANSIM Table 203-0021 - Survey of household spending (SHS), household spending, Canada, regions and provinces, annual (dollars)
- G.3 Statistics Canada, CANSIM Table 380-0085 Household final consumption expenditure on goods and services, annual and AAFC calculations
- G.4 Statistics Canada, Table 203-0022 - Survey of household spending (SHS), household spending, by household income quintile, annual (dollars)
- G.5 OECD, OLIS Database for Australia, Italy, German, and UK. Statistics Canada, CANSIM Table 203-0022 for Canada. United States Bureau of Labour Statistics, Table 45, Consumer Expenditures in 2014 for the US.
- G.6-G.7 Statistics Canada, CANSIM Table 326-0020 - Consumer price index (CPI), 2012 basket, Annual (2002=100)
- G.8 Statistics Canada, CANSIM Table 203-0021 - Survey of household spending (SHS), household spending, Canada, regions and provinces, annual (dollars)
- G.9-G.10 Statistics Canada, CANSIM Table 002-0011 - Food available in Canada, Annual

## **SECTION H: Government Expenditures and Support**

- H.1-H.6 AAFC, Government Expenditures Database (December 2015)
- H.7 AAFC, Government Expenditures Database (December 2015). Statistics Canada, CANSIM Table 380-0102 – Gross domestic products indexes, implicit price index, final consumption expenditures to deflate government expenditures on R&D in agriculture and agri-food.
- H.8-H.12 OECD, Trade and Agriculture Directorate, Producer and Consumer Support Estimates, OECD Database, 2015. Dairy Product Manufacturing