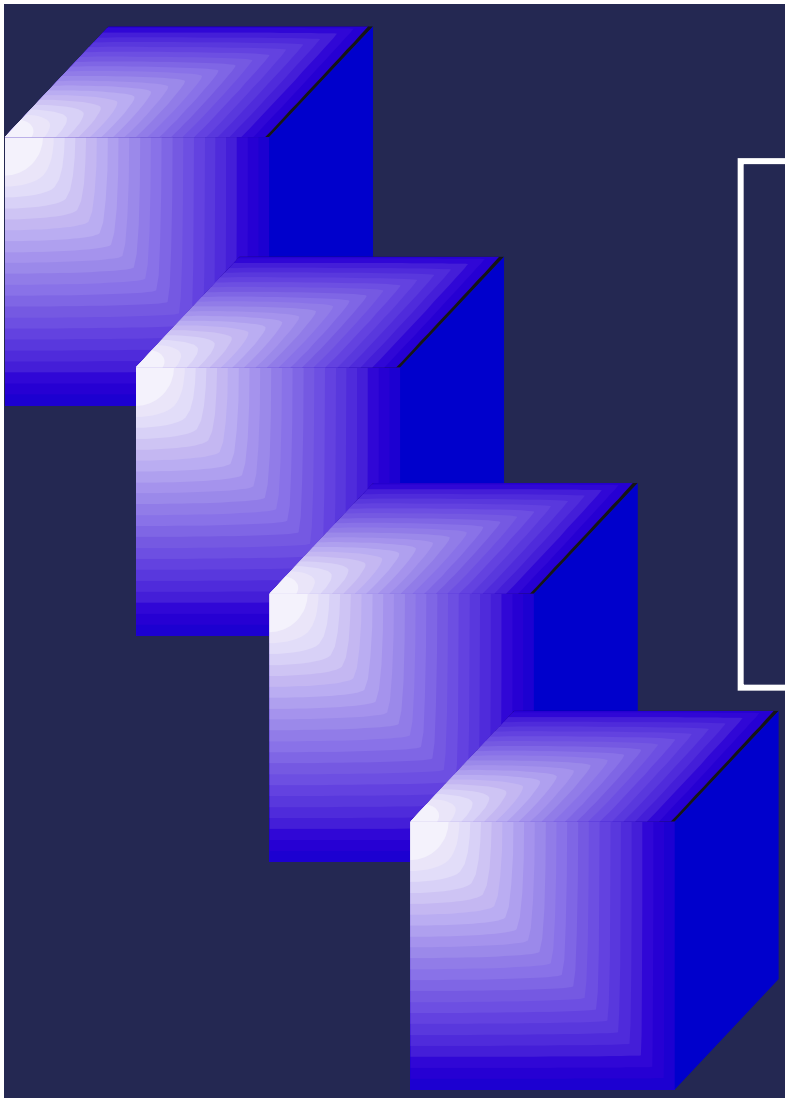

Guelph as a Location for Agri-Food and Agri-Tech Headquarters and Knowledge-Oriented Offices

Prepared for:

Economic Development Services
City of Guelph

Prepared by:

GLOBAL INVESTMENT ATTRACTION GROUP

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Overview

Guelph is a uniquely strong and deeply rooted North American agri-food and agri-tech cluster. At its centre is the internationally-recognized University Guelph, the research and teaching magnet around which other key players are arrayed: the headquarters of the Ontario Ministry of Agriculture, Food and Rural Affairs; major companies; a concentration of industry and producer organizations; leading-edge laboratory, and independent testing and R&D facilities; Conestoga College's Institute for Food Processing Technology; and innovation and commercilization centres. The aggregation of these organizations and the talent pool graduating from the University of Guelph make Guelph an especially attractive North American and Canadian location for leading global agri-food, agri-tech and life sciences firms.

The University of Guelph's well established and respected strengths in food and agricultural sciences, animal and human health, biodiversity and environmental technologies, genomics and computing have come together to provide more life science expertise per capita than at any other post-secondary institution in North America.

There are a spectrum of possible scenarios for businesses -- North American or Canadian headquarters, food production facilities, formulation of animal and pet feeds, and centres of excellence for research, development, testing and training. Also of importance is precision agriculture for which Guelph aims to be an important integrated centre.

Guelph offers proximity and privileged and ready access to:

- Toronto Pearson International Airport, one of North America's top international aviation hubs;
- University of Guelph's globally recognized research and expertise and its mandate as the only Ontario agriculture and food university;
- The world-class talent graduating from the University of Guelph;
- Neighbouring universities and colleges -- such as the University of Waterloo, McMaster University, Wilfrid Laurier University and Conestoga College -- offering often complementary specialities in areas such as medicine, pharmacy, optometry, engineering, mathematics and computer science;
- A strong cluster of business and support infrastructure and services, including:
    - Entities supporting entrepreneurs, technology development and commercialization, including the Agri-Technology Commercialization Centre (ATCC), the University of Guelph's Catalyst Centre, Bioenterprise, and Innovation Guelph;
    - A critical mass of laboratory, testing and research facilities, including the Agriculture and Food Laboratory and the Animal Health Laboratory at the University of Guelph and the Canadian government's Guelph Food Research Centre and the Laboratory for Foodborne Zoonoses; and
    - Industry and producer groups and research consortia.

- Policy makers, regulators and researchers in the Ontario and federal governments, associated with the Ontario Ministry of Agriculture, Food and Rural Affairs, Agriculture and Agri-Food Canada and the Canadian Food Inspection Agency.

Guelph is already the location chosen by a number of international firms, among them Syngenta, Elanco Animal Health, Bayer CropScience, Monsanto, Ceva Animal Care, Johnson & Johnson, and SGS. These firms have recognized the benefits of being located in a notable North American agri-food and agri-tech cluster where they can access research partnerships and build relationships that make them preferred employers among University of Guelph graduates.

An Ontario location also offers:

- low statutory and effective corporate tax rates;
- highly favourable R&D tax incentives; and
- government funding programs that support new investment.

Canada's Comprehensive Economic and Trade Agreement (CETA) with the European Union positions Canadian locations such as Guelph to afford international companies privileged access to both the North American and European marketplaces.

> ***"There is a phenomenal network of agri-food hubs of activity -- of formal networks and informal networks -- to be able to tap into. That's a huge benefit for us."***
>
> **Jay Bradshaw, President, Syngenta Canada**

Table of Contents

1. Canada's and Ontario's Agri-Food Sector

1.1 Advanced, Internationally-Oriented and Consequential

Canada: Canada's highly developed and technically advanced agriculture and agri-food system generated $103.5 billion in 2012, accounting for 6.7 percent of GDP.[1] Nearly one-third of that is attributable to Ontario which is known for its rich soils and diversified outputs. Canada has nearly 70 million hectares (170 million acres) of farm land and the advantage of having the world's largest fresh water resources -- 7 percent of the world's renewable fresh water resources.[2] As the consolidation of farms continues, Canada now has a larger average farm size than the US and Brazil. Farming is steadily more capital intensive.

Food and beverage processing was the country's largest manufacturing sector by employment, accounting for over 245,000 jobs in 2013. Capital investments rose 7 percent to $1.8 billion in 2013, after a 4 percent increase the previous year.

The Canadian agriculture and agri-food sector is internationally-oriented with an estimated half of all primary production being sold for export, either as primary commodities or processed food and beverage products. In 2012, Canada ranked as the world's fifth largest exporter, at $43.6 billion or 3.5 percent of total global agriculture and agri-food exports. Processed food products at $21.7 billion represented nearly half. The US continues to be Canada's most important trading partner, taking nearly half. China, Japan and the European Union (EU) were the second, third and fourth most significant export destinations. Canadian imports stood at $32.3 billion in 2012, with just over 60 percent coming from the US.[3] Over the last decade, imports have grown their share of the Canadian market to 28 percent from 20 percent in 2004.[4]

The processing sector in Canada is diverse, with output of meat products accounting for a quarter (25.4 percent) of shipments, followed by dairy (15.1 percent) and beverages (10.6 percent). Just over three-quarters of shipments are within Canada, while one-sixth is exported to the US (Exhibit 1).[5]

Canada's retail grocery scene is dominated by three large chains -- Loblaws, Sobey's and Metro. These rank well up among the North American leaders, in their size and their capacity for innovation.[6]

[1] Agriculture and Agri-Food Canada, "An Overview of the Canadian Agriculture and Agri-Food System - 2014," (http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2014/?id=1396889920372). Accessed on December 26, 2014.
[2] Environment Canada website (http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=1C100657-1). Accessed on December 28, 2014.
[3] Agriculture and Agri-Food Canada, "An Overview of the Canadian Agriculture and Agri-Food System - 2014," (http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2014/?id=1396889920372). Accessed on December 26, 2014.
[4] Food In Canada, "2014 Canadian Food Industry Report," published by BIG Magazines LP, Toronto, 2014.
[5] Agriculture and Agri-Food Canada, "An Overview of the Canadian Agriculture and Agri-Food System - 2014," (http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2014/?id=1396889920372). Accessed on December 26, 2014.
[6] About.com, "Largest Canada, U.S. Grocery Retailers - Walmart, Kroger, Costco, Target, Loblaw," (http://retailindustry.about.com/od/worldslargestretailers/a/Top-US-Canada-Grocery-Retailers-Walmart-Kroger-Costco-Target-Loblaw-2013-Largest.htm). Accessed on December 27, 2014.

Exhibit 1
Canada and Ontario
Distribution of Food & Beverage Processing Shipments by Sub-Industry, 2012
(Total Shipments Canada = $93.7 Billion & Ontario = $36.9 Billion)

Sub-Sector	Canada	Ontario
Meat Products	25.4%	22.0%
Dairy Products	15.1%	12.4%
Beverages	10.6%	13.9%
Grain and Oilseed Milling	9.7%	10.4%
Bakeries and Tortilla Manufacturing	9.0%	11.9%
Fruit, Vegetable and Speciality Foods	7.4%	7.3%
Animal Feed	6.2%	5.5%
Sugar and Confectionery	4.4%	6.5%
Other[1]	7.6%	5.5%

[1] Snack Foods, Coffee & Tea, Flavouring Syrups & Concentrates, Seasoning & Dressings, and All Others

Source: Statistics Canada and Agriculture and Agri-Food Canada calculations, based on preliminary Monthly Survey of Manufacturers

Ontario: The agri-food sector is a major player in Ontario's economy. It generates $34 billion a year in gross domestic product and sustains 760,000 jobs -- about one in every nine jobs across the province.[7] Even in the face of economic downturns, the agri-food sector in Ontario has registered growth, at an average of about one percent per year. The Ontario Premier, Kathleen Wynne has challenged the industry to double the annual growth rate and create 120,000 jobs by 2020.[8]

Ontario has over 50,000 farms producing more than 200 agricultural commodities, ensuring access to a wide variety of supply chain inputs.

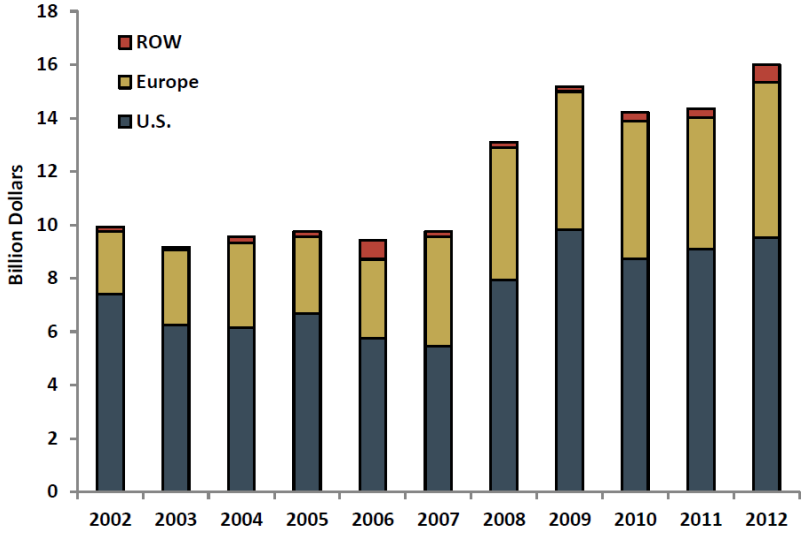
Ontario is home to Canada's largest food processing sector, accounting for 3,000 businesses that employ about 100,000 people across the province.[9]

1.2 Foreign Direct Investment in Canada's Agri-Food Sector

Foreign direct investment (FDI) is an important source of capital and innovation in the Canadian food and beverage processing industry. The total cumulative foreign investment in the sector was $16 billion at the end of the 2012, 59.6 percent from the US and 36.3 percent from Europe (Exhibit 2). Canadian firms are also active investors outside Canada, with their total investments externally amounting to about half of the inward flow. [10]

[7] Ontario Ministry of Agriculture, Food and Rural Affairs, Media Release, December 12, 2014 (http://news.ontario.ca/omafra/en/2014/12/growing-innovative-local-food-projects-in-central-ontario.html). Accessed on January 15, 2015.
[8] Ontario Ministry of Agriculture, Food and Rural Affairs, Website (http://www.omafra.gov.on.ca/english/about/agrifoodchallenge.htm). Accessed on January 15, 2015.
[9] Ontario Ministry of Agriculture, Food and Rural Affairs, Media Release, December 18, 2014 (http://news.ontario.ca/omafra/en/2014/12/recognizing-ontarios-top-food-exporters.html). Accessed on January 15, 2015.
[10] Agriculture and Agri-Food Canada, "An Overview of the Canadian Agriculture and Agri-Food System - 2014," (http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2014/?id=1396889920372). Accessed on December 26, 2014.

Exhibit 2
Stock of Inward FDI in the Canadian Food Processing Industry, by Country or Region of Origin, 2002-2012



Source: Statistics Canada and AAFC calculations
Note: Figures are estimates and subject to revisions by Statistics Canada.

Foreign-affiliated companies that are located in Guelph and are associated with agri-food and agri-tech are:

- Cargill Meat Solutions, part of Cargill Meat Solutions, Wichita, Kansas
- Sleeman Breweries, a subsidiary of Sapporo Breweries, Tokyo, Japan;
- Syngenta Canada, a subsidiary of Syngenta AG, Basel, Switzerland;
- NSF GFTC, a subsidiary of NSF International, Ann Arbor, Michigan;
- Elanco Animal Health, a Division of Eli Lilly Canada Inc., and a subsidiary of Eli Lilly and Company, Indianapolis, Indiana;
- Bayer CropScience Canada, part of the Bay CropScience group in Bayer AG, Leverkusen, Germany;
- Monsanto Canada Inc, a subsidiary of Monsanto, St. Louis, Missouri;
- Nutreco Canada, whose parent company is Nutreco NV, Amersfoort, The Netherlands;
- SGS Agri-Food Laboratories, a subsidiary of SGS SA, Geneva, Switzerland;
- Ceva-Canada Ceva Animal Care, a subsidiary of Ceva Santé Animale, Libourne, France;
- TheDNALab, part of MAXXAM, a subsidiary of Bureau Veritas SA, Paris, France;
- Rothsay, a subsidiary of Darling Ingredients, Irving, Texas;
- Genex Canada, a subsidiary of Genex Cooperative Inc., Shawano, Wisconsin; and
- McNeil Consumer Products, part of Johnson & Johnson.

2. Guelph - The Place To Be for Agri-Food and Agri-Tech

2.1 A Preeminent Cluster

Food and agriculture are synonymous with Guelph, without doubt one of the preeminent North American clusters. Guelph is the location of the largest concentration of expertise and infrastructure dedicated to food research and development in Canada and among the most notable in the Americas. This makes Guelph the place to be for leading global agri-food and agri-tech organizations placing a high priority on innovation and leadership.

The University of Guelph's research and expertise and the highly qualified graduates that it generates anchor Guelph's reputation. This is complemented by a strong and comprehensive array of agri-food and agri-tech resources, businesses and organizations:

- **Agri-Food Policy and Regulation Makers**: Government agencies involved in policy, business support and regulation, including the head office of the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA); the Canadian government's Guelph Food Research Centre; the Canadian Food Inspection Agency; the Ontario Region office of Agriculture and Agri-food Canada; and the Public Health Agency of Canada's Laboratory for Foodborne Zoonoses;

- **Presence of International Companies**: Global players such as Syngenta, Elanco Animal Health, Monsanto, Bayer CropScience, Nutreco, SGS Agri-Food Laboratories and Ceva Animal Health;

- **Commercialization Partners**: Support for innovation from business-focused support organizations such as the University of Guelph Catalyst Centre; Agri-Technology Commercialization Centre (ATCC); Bioenterprise; Ontario Agri-Food Technologies (OAFT); the HUB Incubator Program at CBaSE (Centre for Business & Social Entrepreneurship, College of Business & Economics); Innovation Guelph; and the Gryphons LAAIR (Leading to Accelerated Adoption of Innovative Research) seed funding initiative;

- **Industry Groups**: An extensive range of industry and producer associations and research consortia in livestock, crops, producer inputs, and food processing; and

- **Lab and Research Infrastructure**: A critical mass of laboratories and testing and research facilities, among them the major laboratories run by the University of Guelph under contract with the Ontario government:

    - Agriculture and Food Laboratory (AFL) which has analytical and diagnostic facilities including DNA analysis, microbiological and agrochemical testing, analytical microscopy, nutrient analysis and diagnostic analysis; and

    - Animal Health Laboratory (AHL) providing a full range of veterinary diagnostics.

The critical mass of assets in Guelph allows Guelph-based head offices and R&D facilities to work with a full spectrum of business, research, advisory and regulatory partners present in the community and engaged in research, testing, commercialization, regulation and policy.

Firms located in Guelph benefit from excellent access to Toronto Pearson International Airport, a global airport hub, handling more international passengers than any other North American airport other than JFK. Guelph is also optimally positioned to offer ready access to needed road, rail and shipping facilities.

2.2 North American and Canadian Market Entry and Development

The assets present in the Guelph cluster can support the market entry and business strategies of international agri-food and agri-tech companies in a variety of ways.

In order to reach out to companies considering expanded presence in the North American and Canadian markets, the City of Guelph Economic Development Services and the University of Guelph look the lead to establish the Ontario Food Cluster (OFC), a partnership to aggregate resources to assist firms with entry and growth of their business in the dynamic, competitive and open North America and Canada markets.

The resources that can be readily accessed in Guelph makes it an attractive base for a headquarters operation with ready access to an airport hub, one of the five largest urban economies in the US and Canada, and 150 million North American consumers within a day's drive. For many firms moving to enter the North American or Canada market, the wealth of information and experience available in Guelph from business, academic and government sources will be invaluable to a company in moving quickly to adapt products and services to market needs, understand the market drivers, address regulatory requirements, and evaluate distribution and partnership options. As well, Guelph has a critical mass of companies and university offerings directed to companies' food safety, training, quality control, regulatory and taste testing requirements.

As shown by the presence of a number of global players, research and development centres in Guelph enjoy exceptional access to university and college research partners, along with supportive government programs and a range of organizations fostering innovation and commercialization.

2.3 About the University of Guelph

The roots of the University of Guelph go back to the founding of the Ontario Agricultural College (OAC) by the Ontario government in 1874. The Ontario Veterinary College (OVC) moved from Toronto to Guelph in 1922. These Colleges were brought together to provide a foundation for the creation of the University of Guelph in 1964.

The University of Guelph has broadened into a highly respected comprehensive university with colleges of biological science, social and applied human sciences, business and economics, physical and engineering science, and arts. The University has just over 20,000 students, including 2,500 graduate students, and about 750 faculty.

Long known for its research and teaching excellence in agriculture, food and the bioeconomy, the University's interdisciplinary research reaches to:

- health and well-being in humans and animals, involving genomics, food safety and surveillance, nutrition, biodiversity, zoonoses, biomedical technologies, neurosciences, human aging, and population and public health;

- biodiversity, environment and ecology, embracing natural hazard prediction and remediation, applied evolution, ecosystem science, climate change impacts, sustainable agriculture and food production systems, and water management and pollution control;

- technology and applied sciences, including biomaterials and bioproducts, modelling of biological systems, robotics, synthesis and fabrication of novel molecules and nanostructures, and applications for biodiversity; and

- economic management, governance and public policy, encompassing the economics and business of agriculture and food, health policy, and ethical management.[11]

The Food Institute: The University of Guelph's interface with business is evolving further with the creation of the Food Institute with a mandate to connect business with university expertise on major issues. Spanning all seven colleges at the University and involving faculty experts across campus, the Food Institute is believed to be the first such group to interface at a policy and strategic level with business and others on the big local, national and global issues related to all aspects of food production, safety and security, as well as the impact of food on culture, economies and the environment. The Food Institute will share the University's strengths in food education and research with food producers and processors, consumers, non-governmental organizations and other partners locally, nationally and internationally.

Business, Economics and Food and Agricultural Policy: Perspectives and graduates that will be of special value to agri-food and agri-tech companies can also be found in the University of Guelph's College of Business and Economics and in the Institute for the Advanced Study of Food and Agricultural Policy that is housed in the Ontario Agricultural College's Department of Food, Agricultural and Resources Economics (FARE). Students and faculty from both are engaged with business, including through CBaSE (the Cooperators Centre for Business and Social Entrepreneurship) and the HUB Incubator Program for early-stage companies.

Guelph Food Academy: Availability of Guelph Food Academy training programs, originally offered to Loblaws' President's Choice™ suppliers, has been expanded to the global food processing industry. This comprehensive initiative, offered by the Department of Food Science in the Ontario Agricultural College, covers vital aspects of regulatory affairs, risk analysis and allergen management.

NSF GFTC: NSF-GFTC, part of NSF International headquartered in Ann Arbor Michigan, is a leader in food safety, training, quality and technical solutions. The Guelph presence incorporates the Guelph Food Technology Centre, founded at the University. NSF-GFTC experts audit and consult annually with over 1,500 businesses in the food and beverage industry and train more than 3,000 professionals across the globe to 26 countries in 8 languages. Tailored offerings range from developing new products, to meeting global food safety standards, and to incorporating sustainable practices.

[11] University of Guelph, "Strategic Research Plan 2012-2017," (http://www.uoguelph.ca/research/about-us/fact-figures/strategic-research-plan). Accessed on December 27, 2014.

2.4 Canada's Most Inventive University

The University of Guelph ranks first in Canada for the number of inventions per research dollar and disclosures per faculty member, contributing to the title of being Canada's most "inventive" university. Guelph is also second in Canada for the number of inventions disclosures received from researchers and third in Canada for licences executed per research dollar.[12] With an invention disclosure rate that is twice the national average and by far the lowest cost-per-disclosure, the University of Guelph is an efficient research partner.

In Canada's most widely followed rankings, Guelph is a consistent leader among comprehensive universities and scores highly for its sense of community and the campus atmosphere.

Top Ranked in the World and North America: In 2014, the University of Guelph excelled in US News and World Report's university rankings. Guelph was ranked twelfth in the world, fifth in North America and first in Canada in its survey of the Best Global Universities for Agricultural Sciences, based on the respective reputations and research in the field including horticulture, food science and nutrition, dairy science and agronomy.[13]

A Source of Innovation: University of Guelph research has produced a host of products and technologies. A sampling includes:

- Omega-3 fortified eggs, milk and cheese;[14]
- Nearly 100 varieties of soybeans, many destined for Asian markets for tofu, natto and soymilk, based on numerous partnerships with companies and organizations;[15]
- Cattle vaccine against shipping fever (Bovine Respiratory Disease Complex), recently licenced to Boehringer Ingelheim Vetmedica Inc.;[16]
- Human immunotherapies against Clostridium difficile (C. diff) licenced to Stellar Biotechnology;[17]
- The world's first edible, organic, monodisperse nanomaterial derived from corn with applications in personal care and nutraceuticals;[18]
- Mars Horsecare's Perform'N Win electrolyte drink for race horses;[19]
- Yukon Gold Potatoes;[20]

[12] Sources: University of Guelph and The Impact Group (June 24, 2013)

[13] US News & World Report, "Best Global Universities for Agricultural Sciences," (http://www.usnews.com/education/best-global-universities/agricultural-sciences?int=994b08). Accessed on December 27, 2014.

[14] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.

[15] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.

[16] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.

[17] Catalyst Centre, University of Guelph, "Stellar Biotechnologies Acquires Exclusive, Worldwide License to University of Guelph Clostridium Difficile Immunotherapy Technology," July 30, 2013 (http://catalystcentre.uoguelph.ca/pages/catalyst-centre-news/stellar-biotechnologies-acquires-exclusive--worldwide-license-to-university-of-guelph-clostridium-difficile-immunotherapy-technology). Accessed on December 28, 2014.

[18] Catalyst Centre, University of Guelph, "Mirexus Biotechnologies Raises Seed Capital through GreenSky Capital," March 12, 2014 (http://catalystcentre.uoguelph.ca/pages/catalyst-centre-news/mirexus-biotechnologies-raises-seed-capital-through-greensky-capital). Accessed on December 28, 2014.

[19] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.

- Guelph Millenium Asparagus, immensely successful in cooler climate growing areas such as Ontario, Michigan and Washington State;[21]
- Living wall and green roof technologies, including smart wireless sensor-based data collection systems;[22]
- A lab on a chip that has been developed at the BioNano Laboratory and is now being tested to sample and analyze blood from livestock to test for sub-clinical Ketosis in dairy cattle;[23] and
- Patented technology that identifies dairy cattle with a high immune responses and allows selection of bulls for breeding in order to improve a herd's overall health and longevity.[24]

University of Guelph's Intellectual Property Policy: The University of Guelph policy on intellectual property adopted in June 2014 provides that IP is owned by those who create it, unless otherwise restricted by contractual or funding terms.[25]

2.5 University of Guelph: Global Excellence

The University of Guelph is a leader in a host of fields:

- **Plant, Crop, Horticulture and Turfgrass Sciences**: With a storied history of innovation extending back well over a century, the University of Guelph's Department of Plant Agriculture is one of the largest and most highly regarded agriculture departments in North America.

  Strongly rooted in crop and horticultural science, plant agriculture research encompasses applied bioinformatics; molecular genetics; genomics; field, horticultural and greenhouse crops; plant breeding; turf and grassland studies; environmental sustainability; and the use of plant materials for health, fibres and industrial products. Research stations include:

  - The Guelph Turfgrass Institute, a world-class centre for research, extension and professional development;
  - The Simcoe Research Station, focused on fruit and vegetable industries that can prosper in the highly productive sand plain along the north shore of Lake Erie; and

[20] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.
[21] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.
[22] Catalyst Centre, University of Guelph, "A Joint Venture with SAP: Green roofs just got smarter," Financial Post Republish Reprint, November 19, 2013 (http://catalystcentre.uoguelph.ca/pages/catalyst-centre-news/a-joint-venture-with-sap); Globe and Mail, "Canadian firm's green walls filter, freshen workplace air," November 6, 2012 (http://www.theglobeandmail.com/report-on-business/small-business/sb-digital/innovation/canadian-firms-green-walls-filter-freshen-workplace-air/article4919923/); and Catalyst Centre, University of Guelph, "Greening the roof over your head: A look inside a growing industry," Yonge Street Media article, November 19, 2014 (http://catalystcentre.uoguelph.ca/pages/catalyst-centre-news/greening-the-roof-over-your-head--a-look-inside-a-growing-industry). Accessed on December 28, 2014.
[23] University of Guelph Office of Reeseach, "Return on Research 2014"
[24] University of Guelph Office of Research website, "Identifying healthier herds," (http://www.uoguelph.ca/research/identifying-healthier-herds), and Semex, "Immunity+™ Disease Resistant Genetics," (http://www.semex.com/images/immunity/ImmunityPlusVetsAdvisorsJan2013.pdf). Accessed December 28, 2014.
[25] Catalyst Centre, University of Guelph, Website (http://catalystcentre.uoguelph.ca/pages/university-community/faqs/technology-transfer-faqs). Accessed on December 29, 2014.

- The Vineland Research and Innovation Centre in the Niagara Region, in which the University is a partner, focused on tender fruit, vineyards, rotation crops, ornamental plantings, greenhouses and mushroom production.

The largest portion of the University of Guelph's invention disclosures -- in the order of 80 per cent -- are related to plant breeding. Royalties are a sizable revenue stream. This research is driven in large part by partnerships between researchers and private companies and grower organizations, with matching funding coming dominantly from the University's partnership with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and other federal and provincial sources.

- **Precision Agri-Food Technology**: In the age of Big Data, the Internet of Things, predictive analytics, crowdsourcing, omnipresent sensing devices, accurate GPS and unmanned drones, the University of Guelph is taking the lead in partnership with business to create interoperable and scalable IT platforms that transform the multitude of data sources relevant to the agri-food sector into actionable knowledge and decision support systems for the host of input providers, producers, processors, distributors and retailers in the production and supply chains. In addition to applications for crops, the University of Guelph's expanded dairy research station will facilitate the advanced sensing and data collection systems that researchers have been developing, refining and linking.

- **Centre for Public Health and Zoonoses** (CPHAZ): The Centre for Public Health and Zoonoses focuses on emerging zoonotic diseases (diseases transmissible from animals to humans and those common to both) such as SARS, influenza, Lyme disease, West Nile Virus, E. coli and salmonella, accounting for 60 percent of known human pathogens and 75 percent of the emerging ones. Researchers develop complex pandemic and infectious disease simulations that synthesize the best available data on epidemiology, risk assessments, the effectiveness of vaccines, duration of immunity, seasonality, susceptibility, and transmission patterns to project plausible scenarios and provide decision-support tools for front-line public health and medical personnel. CPHAZ research labs include a cryostorage service for an extensive bank of zoonotic disease isolates and samples.

- **Human Nutrition and Health**: The College of Biological Science's Human Health and Nutritional Science group has active groups partnership with businesses, such Gatorade and Nestlé, on research in:

  - functional foods and nutraceuticals;
  - complexities of the cardiovascular system in health and disease;
  - fighting obesity and diabetes with a healthy lifestyle; and
  - dietary fatty acids -- including Omega 3 -- in health and disease.

- **Plant Manufactured Pharmaceutics**: Research at the University of Guelph has developed low cost tobacco-based manufacturing systems for biopharmaceutical production. PlantForm has commercialized the technology, which has been issued two US patents. The patented process lowers the cost of goods by as much as 90 percent compared to mammalian-cell production systems. PlantForm's pipeline includes biosimilar Herceptin®and other biosimilar drugs for the

treatment of cancer, and innovator antibodies for the treatment of HIV/AIDS. PlantForm also has a Canadian government contract for production of an anti-nerve agent enzyme.[26]

- **Controlled Environment System Research Facility** (CESRF): The Controlled Environment Systems Research Facility and its Space and Advanced Life Support Agriculture program have been prominent participants in research to develop plant biology-based environment control and life support systems that will be needed by humans residing on other planets. Multispectral LED arrays are a major game-changer, with plant research focusing on the ideal wavelengths and amounts of red or blue or amber or ultra violet light that optimize growing conditions and productivity of the plants, while pushing photosynthesis. Earth-bound applications for research range from growing food in the harsh climates of the Canadian North and Kuwait to the medical marijuana industry. Related innovations include remote non-destructive sensing of plant health and a unique method of instantaneous ion sensing in hydroponic solutions.

- **Canadian Research Institute for Food Safety** (CRIFS): The Canadian Research Institute for Food Safety brings together multidisciplinary teams, drawing on some 50 researchers, looking at all many interrelated aspects of microbial food safety from farm to fork. Among the disciplines, CRIFS brings together researchers in epidemiology, microbial ecology, pathogenesis, microbial physiology, food safety engineering, good diagnostics and food toxicology.[27]

  CRIFS projects partner with government, business, and consumer and producer groups, benefiting from the presence in Guelph of the Canadian Food Inspection Agency (CFIA), Canadian government's Guelph Food Research Centre, and the head office of the Ontario Ministry of Agriculture, Food and Rural Affairs. The researchers have access to Level III bio-containment lab space on the campus.

  Microbiome research at the University is benefiting from the development of a laboratory "Robogut" that mimics the human digestion system.[28] It is widely acknowledged that microbes play an important role in human health, not just as pathogens, or as benign communities that keep pathogens at bay, but also in association with a number of chronic health conditions including gastrointestinal diseases, obesity, autoimmune diseases, diabetes, cancer, arthritis, asthma and cardiovascular disease.[29] Among others, researchers have developed and licenced a technology derived from probiotic bacteria to prevent and treat pathogenic bacteria in livestock.[30] Research also points to probiotic bacteria that can protect against more than one pathogen at a time.

- **Biodiversity Institute of Ontario** (BIO): The Biodiversity Institute of Ontario (BIO), employing 100 researchers, is home to the Canadian Centre for DNA Barcoding and the Bar Code of Life Data System (BOLD) and hosts one of the largest biodiversity informatics platforms on the planet. DNA

[26] PlantForm, "PlantForm awarded federal government contract for production of anit-nerve-agent enzyme," Media Release, December 10, 2014 (http://www.plantformcorp.com/news-detail.aspx?id=3c9b3687-69dc-44d6-8cfc-b7e2b53e8e53#.VKF9ZoCcGA). Accessed on December 28, 2014.
[27] Griffiths, Mansel, "Where Academia Fits in the Food Safety Continuum," Presentation to Agricultural Institute of Canada Conference 2003 (www.aic.ca/conferences/pdf/Mansell_Griffiths.pdf)
[28] Guelph Mercury, "Trust your gut," January 4, 3013 (http://www.guelphmercury.com/news-story/2780545-trust-your-gut/). Accessed on December 30, 2014.
[29] See Canadian Institutes of Health Research website http://www.cihr-irsc.gc.ca/e/39951.html. Accessed on December 24, 2014.
[30] Catalyst Centre, University of Guelph, "Making Connections: Growing the value of ideas," September 2013 (http://catalystcentre.uoguelph.ca/app/webroot/assets/pdf/Making_connections_revised_Sept_2013.pdf). Accessed on December 28, 2014.

barcodes, which are short DNA sequences from a uniform location of the genome, were invented at BIO in 2003, as rapid, reliable and inexpensive signatures to be used in identifying species at all life stages and in all forms, including by non-experts. In addition, the International Barcode of Life (iBOL), the largest biodiversity genomics initiative, was launched in 2010 with the support of Genome Canada and the Ontario Genomics Institute, to build a reference library of five million standardized DNA sequences capable of identifying 500,000 species, more than one-quarter of all known species on earth.

DNA Barcoding facilitates:

- detection of mislabelling of fish products sold in restaurants and stores;
- discovery of adulterated meat products;
- identification of body parts from protected and threatened species;
- monitoring of the health of ecosystems;
- bioassessment and environmental monitoring;
- rapid identification of agricultural and forestry pests;
- spotting invasive species; and
- tracking the spread of disease vectors in the face of globalization.

- **Bioproducts and Biomaterials Discovery Centre**: Underpinned by many private-sector partnerships and significant government backing, the University's Bioproducts and Biomaterials Discovery Centre brings together and provides advanced facilities for over 30 researchers exploring ways to turn wood chips, wheat, corn and perennial grasses into resin, polymers and tough fibres to make bio-based plastics and bioproducts. The focus includes biofuels, new kinds of rubber, biomaterials for automotive parts, compostable single-serve coffee pods, furniture, and building materials. The Centre hosts a biennial international symposium on bioplastics, biocomposites and biorefining.

- **Robotic Greenhouse Harvesting Systems**: The University's Engineering School is leading the development of automated greenhouse systems that will reliably and efficiently identify and pick ripe tomatoes and perform de-leafing and pruning.

2.6 Conestoga College Institute of Technology and Advanced Learning

Conestoga College, Ontario's fastest growing college, has an enrollment of 11,000 full-time, 30,000 part-time, and 3,300 apprenticeship students.

Conestoga delivers more than 200 career-focused programs at campuses and training centres in Kitchener, Guelph, Waterloo, Cambridge, Stratford, Ingersoll and Brantford. Conestoga's four-year bachelor degree programs include Ontario's only college-based, accredited engineering degrees. The college is one of Ontario's top two providers of apprenticeship training and a leader in the provision of Second Career and academic upgrading programs.

Conestoga's applied research initiative helps area businesses grow, innovate and improve their productivity. In 2013-14, almost 1,000 students and more than 80 faculty and staff members were engaged in applied research projects.

Graduate employment and graduate satisfaction rates are among the highest of all Ontario's colleges. The employer satisfaction rating in the province's Key Performance Indicators survey has exceeded 90 percent every year.

Conestoga College's Institute of Food Processing Technology (IFPT): The Craig Richardson Institute of Food Processing Technology (IFPT) at Conestoga College, opened in 2011, was created in partnership with the industry group, Food and Beverage Ontario, as the first and only technology centre that focuses on developing a skilled workforce, tailored to the needs of the sector. Students receive theoretical and practical training focused on food safety, advanced sanitation practices, quality assurance, packaging, leadership and teamwork, and processing and operations techniques. IFPT also focuses the development of Hazard Analysis and Critical Control Points (HACCP) plans and training related to recall plans and traceability systems.

The Institute has mechanical shops, laboratory settings, and a $5 million 8,000 ft^2 pilot plant that replicates a real-life food manufacturing environment, develops practical knowledge of food processing methods such as pasteurization, filling and packaging, and exposes students to electronic instrumentation techniques, automation, robotics, sanitation, production line troubleshooting and plant supervision.

IFPT also provides specialized programs for university Food Science students to build their skills with hands-on experience through a six-week, full-time course that provides hands-on experience.

Conestoga College is the lead in a Food Innovation and Technology Collaborative for Southwestern Ontario addressing issues related to technology, health and nutrition and aging, and safety, authenticity and environmental impacts. The collaboration engages all three levels of government, industry and professional associations, southwestern Ontario post-secondary institutions, technology integrators and suppliers, and public health agencies, as well as business incubators and accelerators.

> ***"I think there is a real spirit here overall of getting things done, calculated risk taking, and working together synergistically."***
>
> **William Rowe, President & CEO, Nutrasource Diagnostics Inc.**

3. The Agri-Food and Agri-Tech Talent Pool in Guelph

The World's Most Educated Talent Pool: In Ontario, businesses have access to the world's most educated pool of prospective employees. Fifty-eight percent of the population of Ontario between the ages of 25 and 64 had a tertiary level education in 2011. This level is unequalled in the world. Comparable levels in the United States are 42 percent and in the United Kingdom 39 percent.[31] Guelph's level of attainment in turn is above the Ontario average.

Companies located in Guelph that interact with the University position themselves as preferred employers for the University of Guelph's sought after graduates.

3.1 Neighbouring Universities

Guelph is well under an hour from four neighbouring universities with often complementary strengths -- McMaster (in Hamilton), Waterloo (Waterloo), Wilfrid Laurier (Waterloo) and Brock (St. Catharines). These represent talent and researchers on which a Guelph-based company can readily call.

The University of Guelph and the four neighbouring universities awarded a total of over 21,000 degrees in 2012-2013, of them 17,436 were Bachelors and professional degrees, 3,675 Master's degrees and 620 Doctoral degrees.

As shown in Exhibit 3, out of the total, the numbers of degree recipients in fields of study potentially relevant to agri-food and agri-tech include:

- agricultural, food and biological sciences (1,970 in 2012-13),
- medicine and related programs (523),
- engineering (2,444),
- mathematics (920),
- computer science (503) and
- business and commerce (3,642).

There were over 4,200 full-time faculty at these five institutions.

[31] Statistics Canada, "Education Indicators in Canada: An International Perspective," 2013, page 27 (http://www.cmec.ca/Publications/Lists/Publications/Attachments/322/Education-Indicators-Canada-International-Perspective-2013.pdf)

Exhibit 3
Number of Graduates in Programs Relevant to Agri-Food and Agri-Tech from University of Guelph and Four Selected Universities That Neighbour Guelph (University of Waterloo, McMaster University, Wilfrid Laurier University and Brock University) 2012-2013

Program of Study	Five Universities[1]				University of Guelph	Top Sources (Ranked)
	Bachelor's Degrees	Master's Degrees	Doctoral Degrees	Total	Total	
Agriculture & Biological Science	1,642	231	97	**1,970**	**960**	Guelph, McMaster, Waterloo & Brock
Business & Commerce	2,746	890	6	**3,642**	**836**	Laurier, Guelph, McMaster & Brock
Computer Science	377	96	30	**503**	**48**	Waterloo, Guelph, Brock & Laurier
Engineering	1,730	536	178	**2,444**	**133**	Waterloo, McMaster & Guelph
Food Science & Nutrition	679	114	19	**812**	**812**	Guelph
Kinesiology, Recreation & Phys. Educ.	1,304	36	14	**1,354**	**294**	Brock, Guelph, Waterloo & McMaster
Mathematics	726	167	27	**920**	**52**	Waterloo, McMaster, Brock & Guelph
Medicine and Related Programs	386	103	34	**523**	**19**	McMaster & Guelph
Nursing	591	20	6	**617**	**--**	McMaster & Brock
Optometry	88	5	2	**95**	**--**	Waterloo
Other Health Professions	325	175	3	**503**	**21**	McMaster, Brock, Waterloo & Laurier
Pharmacy	110	1	0	**111**	**6**	Waterloo & Guelph
Physical Science	313	157	69	**539**	**106**	Waterloo, McMaster & Guelph
Therapy & Rehabilitation	0	138	2	**140**	**--**	McMaster
Veterinary Medicine	109	42	22	**173**	**173**	Guelph
Total	**11,126**	**2,711**	**509**	**14,346**	**3,460**	

[1] University of Guelph, University of Waterloo, McMaster University, Wilfrid Laurier University and Brock University
Source: Common University Data Ontario, Council of Ontario Universities

	Program Not Offered at Any Level
0	Program Offered at Some Level But No Degrees at This Level

In addition to the University of Guelph's programs, notable areas of focus at the nearby universities are:

- McMaster's medical school and related human life sciences programs, plus engineering and business;
- The University of Waterloo's Faculty of Mathematics, with the largest concentration of mathematical and computer science talent in the world (more than 7,000 graduate and undergraduate students, 200 full-time professors, and 500 courses in mathematics, statistics and computer science);[32]
- The University of Waterloo's pharmacy and optometry programs; and
- Wilfrid Laurier University's sizable and well regarded business school.

Beyond these immediately adjacent universities, there are another four major Canadian universities that can be reached with an hour-and-a-half drive or less -- the University of Toronto, York University (Toronto), Western University (London) and Ryerson University (Toronto).

[32] University of Waterloo, Faculty of Mathematics website (https://math.uwaterloo.ca/math/).

3.2 Ontario Colleges

Ontario's colleges are a key component of the province's post-secondary education system, founded on career-focused programs that effectively combine theoretical learning and state-of-the-art training. The colleges offer credentials from diplomas to degrees to post-graduate certificates, covering fields ranging from animation, film, game development, and biotechnology to business, IT, paramedicine, aviation, tourism and hospitality, advertising and the skilled trades.

In addition to Conestoga College mentioned earlier, three other colleges that are within an hour or less are Mohawk College in Hamilton, Sheridan College in Oakville and Niagara College in the Niagara Region.

These four colleges awarded qualifications to just under 10,000 students in 2012-13, including a growing number of four-year bachelor degrees, as shown in Exhibits 4 and 5.

Exhibit 4
Number of Graduates from
Conestoga College and Three Other Selected Colleges Neighbouring Guelph
(Mohawk College, Niagara College and Sheridan College)
2012-2013

Program of Study		Top Sources
APPLIED ARTS	1,714	Sheridan, Mohawk, Conestoga & Niagara
BUSINESS	3,117	Sheridan, Conestoga, Mohawk &Niagara
TECHNOLOGY	1,804	Mohawk, Conestoga, Sheridan & Niagara
HEALTH SCIENCES	1,684	Sheridan, Mohawk, Conestoga & Niagara
TOTAL	**8,319**	

Source: Ontario Student Assistance Program Performance Indicator Reports 2012-2013 Reporting Year

Exhibit 5
Number of Bachelor's Degree Graduates from
Conestoga College and Three Other Selected Colleges Neighbouring Guelph
(Mohawk College, Niagara College and Sheridan College)
2012-2013

Program of Study		Top Sources
APPLIED ARTS	271	Sheridan
BUSINESS	658	Sheridan & Niagara
TECHNOLOGY	50	Conestoga
HEALTH SCIENCES	40	Sheridan
TOTAL	**1,019**	

Source: Ontario Student Assistance Program Performance Indicator Reports 2012-2013 Reporting Year

Rigorous Certified Trades Programs: Ontario has a rigorous apprenticeship and trades program with high standards. Over 500,000 people in the Ontario labour force had apprenticeship or trades certificates and diplomas in 2011. Of those, some 200,000 were in the Greater Toronto and Hamilton Area, with nearly 100,000 in engineering, architectural and related technologies such as construction, and over 21,000 in business, management, and public administration.[33]

Ontario has over 150 apprenticeable trades in four broad areas: construction, industrial/manufacturing, motive power, and services.[34] Ontario's public colleges deliver about 90 percent of the in-school training for apprentices.[35]

3.3 Cooperative Education Programs

University and college co-op programs afford business the opportunity to access talent and "test drive" prospective hires before graduation. Additionally, hiring co-op students enables businesses to take advantage of Ontario tax credits. The Ontario Co-operative Education Tax Credit offers employers up to a $3,000 tax credit for each four month co-op term.

The University of Guelph has offered co-op education for over 30 years. Over 35 programs offer co-op including biochemistry, biological and pharmaceutical chemistry, biological and medical physics, biomedical toxicology, food science, microbiology, nanoscience, biomedical engineering, biological engineering, and food and agricultural business. The other universities and colleges in the broader region also offer co-op. The University of Waterloo nearby has the largest co-operative education program in the world.

3.4 Employment in the Agri-Innovation Sector in Guelph

A significant and growing proportion of the employment in Guelph is in areas related to the food and beverage sector and agri-food and agri-tech research and development, as seen in Exhibit 6.

Exhibit 6
Employment in the Agri-Innovation Sector in Guelph
2009 – 2014

Sub-sector	2009	2014	Change 2009-2014
Farming, Forestry, Fishing & Hunting	351	418	67
Food, Beverage & Related Equipment Manufacturing	2,270	3,283	1,013
Chemical-Pharmaceutical Manufacturing	590	465	(134)
Distribution & Warehousing	807	828	21
Agricultural Retail	1,926	2,035	109
Research & Commercialization	1,354	1,750	396
Total	**7,298**	**8,770**	**1,472**

Source: EMSI, 2014

[33] Statistics Canada, 2011 National Household Survey, Catalogue No. 99-012-X2011037
[34] Ontario Ministry of Training, Colleges and Universities (http://www.tcu.gov.on.ca/eng/apprentices/app_train.html)
[35] Colleges Ontario (http://www.collegesontario.org/news/fact-sheets/Apprenticeship_Fact_Sheet%201.pdf)

3.5 Immigration Policies Address Canada's Skills Needs

Canada's immigrant intake is substantial, running consistently at almost one percent of the population annually. Proportionally, the total annual Canadian inflow of immigrants is two to three times more than the US intake level. Canada welcomed 258,619 Permanent Residents in 2013,[36] the second largest annual number in 50 years. The government's target for 2015 is 260,000 to 285,000 new permanent residents.[37] By comparison, the total number of legal permanent residents arriving in the US during 2013 was 990,553.[38]

Of special note is that about 65 percent of Canada's permanent immigrants are selected to foster economic growth by addressing labour and skills shortages.[39]

> ***"The availability of talent is phenomenal. It is really nice to have this wonderful pool to draw from -- every year this great group of graduates."***
>
> **William Rowe, President & CEO, Nutrasource Diagnostics Inc.**

[36] Citizenship and Immigration Canada, "Preliminary tables - Permanent and temporary residents, 2013," (http://www.cic.gc.ca/english/resources/statistics/facts2013-preliminary/01.asp)
[37] Citizenship and Immigration Canada, Media Release, "Ensuring Long-Term Prosperity and Economic Growth - Government tables annual immigration plan," October 31, 2014
[38] Homeland Security, "Annual Flow Report - U.S, Lawful Permanent Residents: 2013," (http://www.dhs.gov/sites/default/files/publications/ois_lpr_fr_2013.pdf)
[39] Citizenship and Immigration Canada, Media Release, "Ensuring Long-Term Prosperity and Economic Growth - Government tables annual immigration plan," October 31, 2014

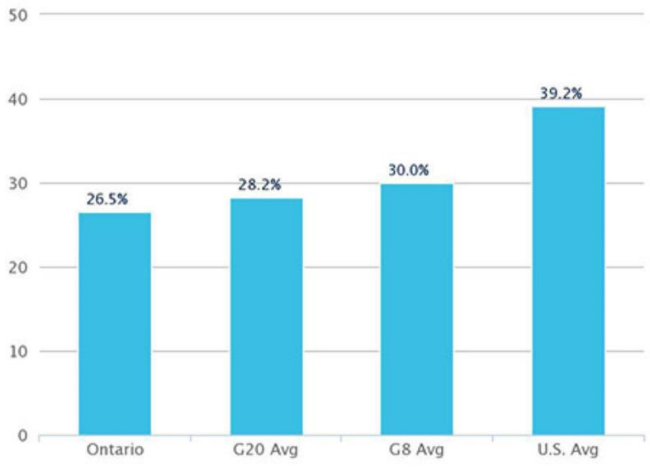
4.0 The Canadian and Ontario Business Climate

4.1 Ontario's Low Corporate Tax Rates

The Canadian and Ontario governments offer low corporate taxes as a principal inducement to business investment. The tax system also offers R&D tax incentives that are among the most attractive available.

Statutory Corporate Tax Rates: Ontario's statutory corporate tax rates are markedly lower than US states and compare very favourably with the principal overseas counterparts. The combined Federal-Ontario tax rate of 25.6 percent is more than 12 percentage points below the US average tax rate (Exhibit 7).

Exhibit 7
Combined Canadian-Ontario Statutory General Corporate Income Tax Rate 2014[40]



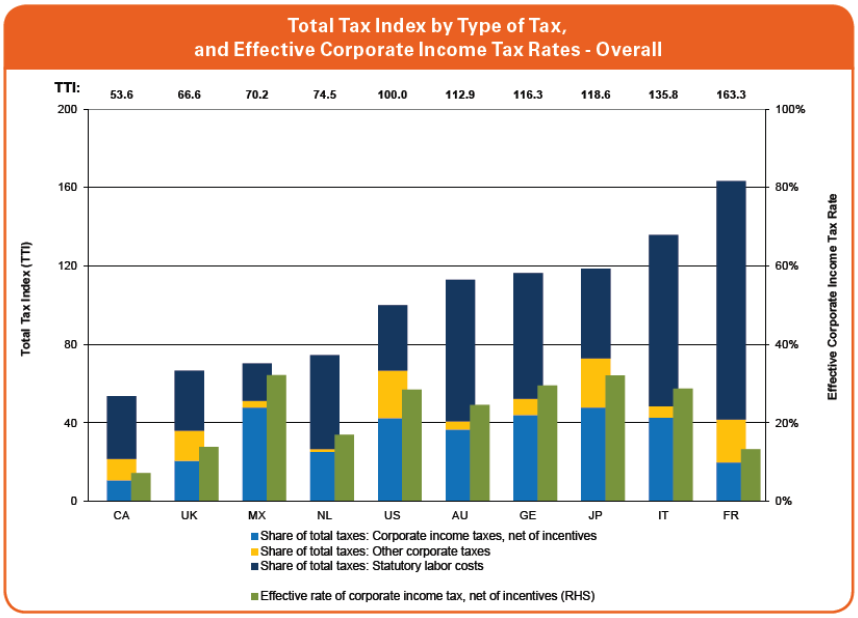
Source: Ontario Ministry of Finance, and KPMG International, 2014

Effective Corporate Tax Rates: When it comes to effective -- as opposed to statutory or legislated -- corporate tax rates, Canadian rates are the lowest among the G-7 countries, according to the 2014 KPMG Competitive Alternatives Special Report, Focus on Tax, employing rates as of January 1, 2014 (Exhibit 8).[41]

The calculation includes not only corporate income tax but property, capital, sales, statutory labour costs, and miscellaneous local taxes. By this measure, average effective Canadian corporate tax rates are 46.4 percent below the US average.

[40] (http://www.investinontario.com/en/Pages/WO_CBC_default.aspx)
[41] KPMG, "Competitive Alternatives Special Report: Focus on Tax," 2104 Edition (www.CompetitiveAlternatives.com/Tax). Accessed on July 11, 2014.

Exhibit 8



4.2 Favourable R&D Tax Incentives

Ontario's R&D tax incentives, combined with those offered by the federal government, can reduce the after-tax cost of every $100 spent on R&D to between $61 and $37.[42] Details are provided in Appendix V.

Compared to its North American neighbour, Canada's R&D tax incentives also offer advantages beyond the actual tax rates. These include:

- Greater predictability of the R&D tax credit, as Canada's legislation does not have sunset provisions whereas the US law typically requires renewal by Congress, something that can be delayed;
- All eligible annual R&D expenditures in Canada qualify, while in the US only incremental R&D spending can be claimed; and
- Larger and simpler allowances are provided for overhead expenditures and contracted research in Canada.

An Ontario corporation can claim R&D tax incentives even if its R&D costs are covered, in whole or in part, by payments from a foreign corporation, including its parent, or government.[43]

[42] (http://www.investinontario.com/en/Pages/WO_CBC_default.aspx)
[43] (http://www.investinontario.com/en/Pages/WO_EI_resourcelib.aspx#eiureports)

4.3 Profitable R&D Partnerships Between Businesses and Universities and Colleges

Canada leads all G-7 countries in the level of research and development funding in post-secondary education as a share of GDP. Both federal and Ontario programs come prominently into play in the case of the University of Guelph.

OMAFRA-University of Guelph Partnership: The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has a unique longstanding funding partnership with the University of Guelph -- the OMAFRA-University of Guelph Partnership -- that generates up to $100 million annually, including funding for major laboratories and animal and crop research stations and user fee revenues. Research partnerships with business and producer groups attract annual Partnership funding for research programs directed to specific outcomes that connect researchers and industry in competitively selected research projects led by University of Guelph researchers.

Government Granting Agencies: At the federal level, the three major Canadian government granting agencies -- including the Natural Sciences and Engineering Research Council (NSERC), the Canadian Institutes of Health Research (CIHR) and the Social Sciences and Humanities Research Council (SSHRC) -- favour projects where private sector or other non-governmental partners are involved and are making cash and in-kind contributions to the projects undertaken by university researchers. Contributions from business lever matching government funding. The participating companies also gain by developing relationships with the best and brightest researchers in universities and colleges. The mutually beneficial collaborations are expected to result in industrial and economic benefits to Canada by addressing challenges that are relevant to industry. In the case of NSERC, the number of industrial partners involved in collaborations in 2013-2014 was 3,102, a number that continues to grow.[44]

NSERC and other federal and Ontario government programs, such as Mitacs and Ontario Centres of Excellence (OCE), are also structured to support well-defined projects undertaken by university researchers for private sector partners. Such partnerships seek to expose students and researchers in academic settings to the business and technical skills required by industry.

The University of Guelph attracts about $160 million per year in sponsored research income and government granting council research awards. When the four additional neighbouring universities -- McMaster, Waterloo, Laurier and Brock -- are included, the total reaches $675 million.[45] Of note as well, 75 percent of University of Guelph invention disclosures were based on research funded through the OMAFRA-University of Guelph Partnership, underlining the important role that this funding plays.

Further background on R&D related programs involving Canadian governments is provided in Appendix V.

> ***"Of course, a big part of what we do here at Syngenta is research and development. We have a proliferation of research agreements with the university and our research scientists and staff liaise constantly with faculty and scientists at the University of Guelph."***
>
> **Jay Bradshaw, President, Syngenta Canada**

[44] NSERC Departmental Performance Report 2013-2014 (http://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/DPR-RMR/2013-2014/index_eng.asp)

[45] RE$EARCH Infosource inc., "Canada's Top 50 Research Universities 2014," (http://www.researchinfosource.com/top50_univ.php). Accessed on December 27, 2014.

4.4 Federal and Ontario Government Financial Incentives for Guelph-Based Companies

The Federal and provincial governments have both made major commitments to longer-term funding to programs to support new investment and innovation.

The Canadian Government announced the creation of the Canada First Research Excellence Fund in 2014 with funding of $1.5 billion over the following decade to help Canadian universities and colleges excel globally in research areas that create long-term economic advantages for Canada. As is already the case, partnerships with business will be an important dimension.

Ontario has committed $2.5 billion over 10 years to its Jobs and Prosperity Fund to improve Ontario's ability to attract significant business investments and support the province's future economic growth. Of particular interest to agri-food and agri-tech companies is the Food and Beverage Growth Fund stream, which provides a grant or loan reimbursing up to 20 percent of eligible project costs for food and beverage processing and bioproduct sectors. Each project must have at least $5 million in eligible project costs.

Growing Forward 2 (GF2) is a comprehensive federal-provincial-territorial initiative aimed at encouraging innovation, competitiveness and market development in Canada's agri-food and agri-products sector. In Ontario, the federal and provincial governments will invest up to $417 million over five years to help businesses and organizations grow their profits, expand markets and manage risks.

Both levels of government have an extensive range of other specific funding programs directed to stimulating:

- innovation, commercialization and productivity;
- collaboration on research and development between business and post-secondary institutions;
- hiring of graduates, co-op students and apprentices;
- export market development; and
- new investment.

Appendix VI lists some of the applicable programs.

4.5 Economic and Trade Agreements with the European Union, the US and Mexico

Canada is positioned to be the place for international companies to locate to optimize their European-North American business, with the conclusion of a new Canada-European Union Comprehensive Economic and Trade Agreement (CETA). With CETA, Canada becomes one of the few developed countries with privileged access concurrently to 500 million Europeans and to 430 million people the US and Mexico. Since 1994, Canada has benefited from integration into the $US20 trillion North American market as a consequence of the North American Free Trade Agreement (NAFTA). NAFTA and CETA uniquely situate Canada as a privileged pivot point for trans-Atlantic business.

NAFTA and CETA eliminate most tariffs for products produced in or sold to Canada. Therefore a plant located in Canada will be able to sell tariff free into both areas, while also accessing imported components and materials originating both regions. In addition, both agreements include labour mobility provisions for nationals, thereby facilitating the movement of both Europeans and North

Americans who are engaged in trade and investment involving businesses located in Canada. There are also provisions for mutual recognition of professional credentials.

The Canadian government has pursued an aggressive negotiating agenda for free trade and investment protection agreements. Canada also has a Free Trade Agreement with the European Free Trade Association (Switzerland, Norway, Iceland and Liechtenstein). Other free trade agreements that are in force include South Korea, Honduras, Panama, Jordan, Columbia, Peru, Costa Rica, Chile and Israeli.

4.6 Canadian Foreign Investment Policies

Canada recognizes the benefits that flow from foreign investment. The government has reflected this in its policy approaches. Canada's foreign investment policies, under the Investment Canada Act (ICA), are designed to welcome and encourage foreign investment.

Generally, while the Investment Canada Act (ICA) requires notification by foreign investors of all foreign investment projects (greenfield or acquisitions), only large-scale acquisitions are subject to review for "net benefit to Canada." The 2014 threshold defining large-scale acquisitions is generally a book value of $354 million or more.[46] The government plans to replace the "book value" threshold with "enterprise value," while concurrently adjusting the threshold upward.

Rejection of transactions on review has been infrequent since the Investment Canada Act (ICA) came into effect in 1985. Nonetheless, special considerations, either under the ICA or other legislation, can apply to transactions involving state-owned enterprises; to certain foreign investment in the financial services, telecommunications, transportation and cultural sectors; and to situations affecting national security.

[46] Industry Canada, Investment Canada Act (https://www.ic.gc.ca/eic/site/ica-lic.nsf/eng/h_lk00050.html)

5.0 About the City of Guelph

5.1 Guelph's Strategic Location

Guelph is strategically situated in southwestern Ontario on the western side of the Greater Toronto Area (GTA), just 100 kilometers (60 miles) from downtown Toronto and only 70 kilometers (45 miles) from Toronto Pearson International Airport. Its location also offers easy access to the United States via border crossings in Buffalo Niagara and between Michigan and Ontario. Guelph forms part of one of the fastest growing regions in Ontario, Canada and North America and offers linkages to major business and consumer markets in both Canada and US.

The City of Guelph has a population of more than 120,000 people and is targeted to grow to around 170,000 people by 2031. More generally, Guelph is a part of a broader, still rapidly expanding economic region, anchored by Toronto, known as the Greater Golden Horseshoe (GGH). This area which encompasses communities adjacent to the Greater Toronto Area (GTA) including Hamilton, Niagara, Brantford, Waterloo Region, Barrie and Peterborough as well as Guelph. The total population of this wider mega region is 8.8 million -- well over one quarter of Canada's total population.[47]

Compared to major US mega regions, the Greater Golden Horseshoe (GGH) would rank fifth behind (1) New York, (2) Los Angeles/Long Beach, (3) Chicago and (4) Washington/Baltimore. The GGH is larger than San Francisco/San Jose, Boston, and Dallas/Fort Worth mega regions. The Greater Golden Horseshoe is destined for still further strong growth, with population expected to reach 11.5 million by 2031.

Guelph is also part of a "supercluster" that is increasingly being referred to as the Toronto Waterloo Region Tech Corridor, an area including Hamilton, that accounts for 35.8 percent of all jobs in Canada, 29.6 percent of patents and a third of all venture capital deals.[48]

5.2 Transportation Links -- Centrally Positioned

Businesses located in Guelph are especially well served with an array of transportation options that provide ready access to global, North American and national destinations and make Guelph an attractive address for a headquarters operation or centre of excellence. Over 150 million North American consumers are within one day's drive of Guelph.

Toronto Pearson International Airport, an hour away, is Canada's principal airport and a top North American gateway, handling more international passengers than any airport in North America other than New York's JFK.[49] Toronto Pearson serves more than 100,000 passengers a day on 1,200 flights to over 30 Canadian cities, 87 US cities, and 30 international destinations in Europe, the Mid-East, Latin America and Asia.

In addition to Toronto Pearson, airport options for Guelph businesses and residents include two other Canadian international airports and one in Buffalo, New York:

[47] Calculation 8,759,312 divided by 33,476,688 = 26.1654%
[48] Wolfe, David, Co-Director of the Innovation Policy Lab, Munk School of Global Affairs, University of Toronto as reported on the Communitech website (http://news.communitech.ca/news/its-time-to-brand-the-whole-region-cityage-delegates-told/). Accessed on December 27, 2014.
[49] Airports Council International, International Passenger Travel, 2013 statistics (http://en.wikipedia.org/wiki/World%27s_busiest_airports_by_international_passenger_traffic)

- Waterloo Region International Airport, 20 minutes away, with scheduled daily services to Chicago and Calgary hubs and the ready connections they provide;
- Hamilton International Airport, 62 kilometers (39 miles), under one hour away, has scheduled non-stop service to 10 destinations, and significant cargo and courier traffic; and
- Buffalo International Airport is 170 kilometers (105 miles) via neighbouring Niagara.

Guelph is situated along Ontario's main east-west business thoroughfare, Highway 401, providing multi-lane access to Quebec in the east and to the US Mid-West via three principal Ontario-Michigan border crossings connecting to major US corridors such as I-75, I-96, I-69, I-65, I-80 and I-90. The Buffalo-Niagara region, also offering a choice of four crossings, is only 150 kilometers (100 miles) to the south with links to I-79, I-77 and I-90.

Guelph has bus and commuter rail connections with Toronto. The provincial government is committed to growing GO Train commuter rail service into all-day two-way service from Kitchener and Guelph to downtown Toronto.

The municipally-owned Guelph Junction Railway (GJR) provides strategically important short-line freight connections to both national railways, CN Rail and CP Rail. The facilities in Guelph on the GJR include Traxxside Transloading specializing in handling agricultural, food grade, organic and industrial products and fertilizer.

Guelph also enjoys proximity to Great Lakes shipping ports in Hamilton and Toronto and ready year-round access by rail to ports such as Halifax and Montreal.

5.3 Business Locations in Guelph

The City of Guelph has proactively developed employment lands to serve the needs of both existing and new users. Major business parks include the North West Industrial Park, Hanlon Business Park, Southgate Business Park and the new Hanlon Creek Business Park. Future development is planned for eastern Guelph with the Guelph Innovation District.

Serviced land is priced in the $Cdn 300,000 to $350,000 per acre range. Development charges and land costs are about 60 percent less in total costs than western Greater Toronto Area (GTA) communities.[50] Industrial building sale prices are very competitive, with square footage costs 23 percent less than the western GTA and an average of 24 percent less than Waterloo Region. Lease rates per square foot are in the middle range between the western GTA and Waterloo Region (Kitchener, Waterloo and Cambridge).

The City of Guelph has almost 2 million ft^2 of office space with approximately one-third in the city core and the rest located in the University of Guelph Research Park and suburban business parks. Gross rents are 20 percent plus less than western GTA communities and competitive with Waterloo Region.

University of Guelph Research Park: The Research Park South consists of 30 acres with 13 buildings and is now fully developed. Research Park North, consisting of 15 acres has recently opened with 4.5 acres

[50] Cooper Construction website (http://www.coopercon.com/wellington-crossroads-guelph.html). Accessed on January 15, 2015.

already leased for construction. Buildings are both privately-owned and University-owned including single tenant and multi-tenant spaces.

Adjacent to the university campus and the headquarters of the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), the Research Park houses many of the key players in the agri-food and agri-tech cluster including both Agriculture and Agri-Food Canada and the Canadian Food Inspection Agency, affording access to key public sector decision-makers. Close to 50 organizations, institutes and companies call the Research Park home including such notables as Monsanto, Elanco, Nutreco and Syngenta. The university ties offer ready access to the dynamic talent pool of highly-qualified faculty and world-class research facilities, and a collaborative research environment. The Research Park also includes a hotel and conference centre, athletic club, and ample parking.

Hanlon Creek Business Park: The Hanlon Creek Business Park offers 380 acres of zoned and serviced employment land, with phases 1 and 2 ready for immediate sale and development. The Park is located a five minute drive north of Highway 401, the main east-west highway in Ontario. In addition the Park features a 165 acre environmental reserve at its heart, including 12 kilometers of walking trails. A key feature of the Park is a centralized district energy facility that uses an underground network of insulated pipes to deliver thermal energy to support business needs. Benefits to business include decreased capital costs (individual businesses do not need to own and operate their own furnaces, boilers, air conditioning systems or cooling towers), lower energy costs and the conservation of energy and greenhouse gas reductions.

Guelph Innovation District: Looking to the future, the City of Guelph, working with the provincial government, is moving toward the establishment of a new mixed-use Guelph Innovation District consisting of 436 hectares (1,077 acres) that will centre on higher order green economy and innovation jobs, while capitalizing on integrated energy systems, as part of the Guelph's Community Energy Initiative. Ultimately, the Innovation District is expected to be home to close to 7,000 people and 9,000 jobs including a new urban village, a mixed-use main street, and research park, all respecting valuable natural heritage areas.[51]

5.4 Guelph: A Liveable "Royal City"

The City of Guelph is widely known as the "Royal City" which harks back to its naming in 1827 in honour of Britain's royal family. Guelph was established by John Galt as the headquarters of the Canada Company, and its character today reflects the imaginative town plan, developed by Galt, based on a series of streets radiating from a focal point at the Speed River, that resembles a European city centre.

Guelph offers its residents a high quality of life in an atmosphere where business prosperity and community development equal sound investments. With the amenities of a mid-sized urban centre and the atmosphere of a small community, Guelph has been recognized for being a safe place for families to call home and as an active place for people of all ages to come work and live.

Guelph offers a strong environment for learning from primary education in both elementary and secondary schools through to post-secondary education at the Guelph campus of Conestoga College and the University of Guelph.

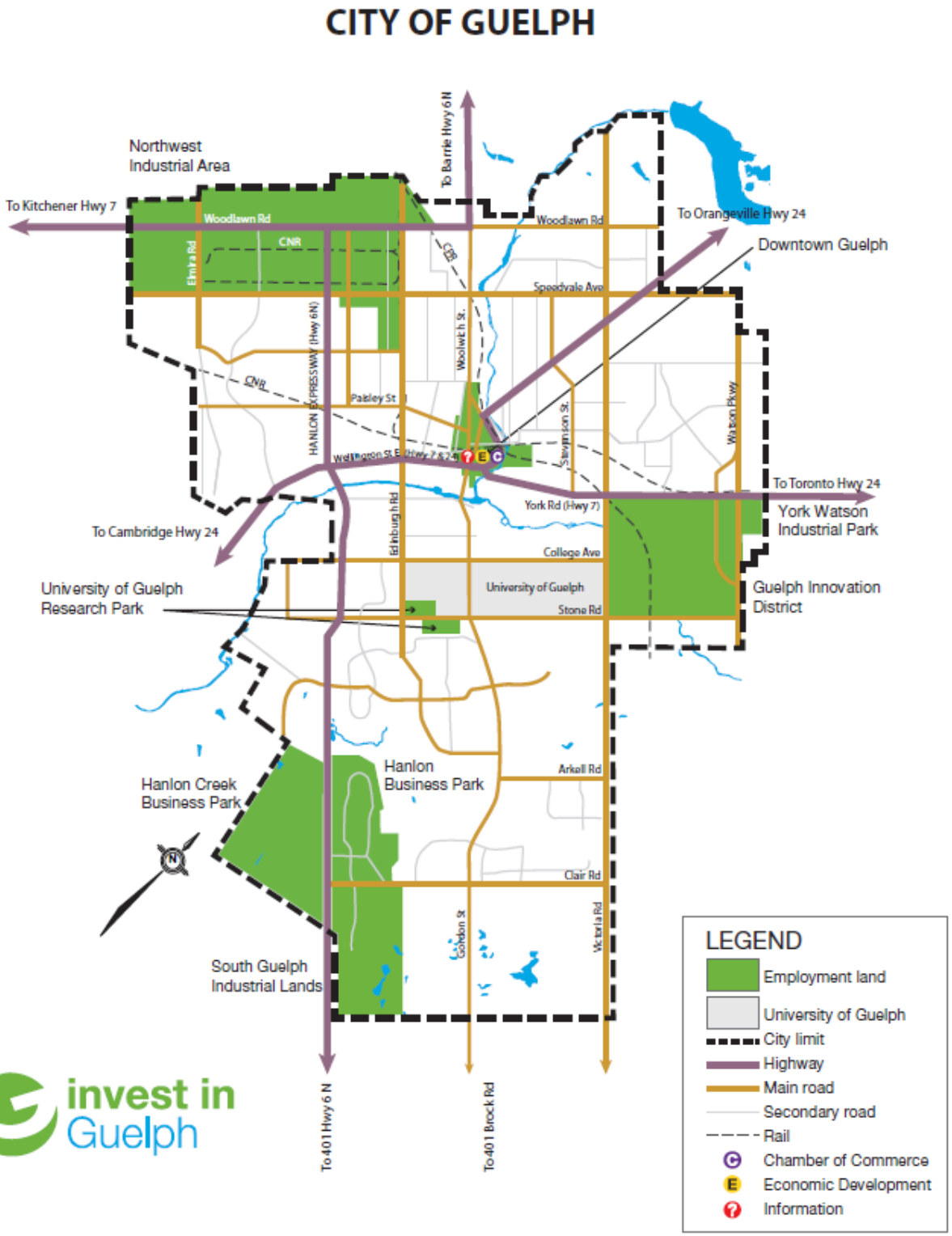
[51] City of Guelph, "Plan Promotes Progress in Harmony with History," Media Release, May 13, 2014 (http://guelph.ca/2014/05/council-approves-plan-innovation-district-guelphs-east-end/). Accessed on December 28, 2014.

Guelph is also home to award winning festivals, signature cultural events, art galleries, farmers' markets, craft breweries, community parks, recreational trails and a flourishing performing arts, heritage, sports and entertainment sectors.

And for those seeking still more, ready access to Toronto offers a broad spectrum of world-class venues for professional sport, art, theatre, opera, dance, and film.

> ***"Truly Guelph is one of those rare communities where you have both. You have all the benefits of the business, but concurrently, it's a benefit to raising a family and having a family."***
>
> **Jay Bradshaw, President, Syngenta Canada**

APPENDIX I: MAP OF GUELPH



APPENDIX II: GUELPH FACT SHEET

Exhibit 1: Population Growth in Guelph

Municipality	2006	2011	Change	% Change
Guelph	114,943	121,688	6,745	5.9%

Source: Statistics Canada, Census

Exhibit 2: Highest Educational Attainment of Guelph Population (25–64 Years)

Highest Educational Attainment	Number	Percent
No certificate; diploma or degree	6,975	10
High school diploma or equivalent	15,990	24
Postsecondary certificate; diploma or degree	43,745	66
Apprenticeship or trades certificate or diploma	4,835	7
College; CEGEP or other non-university certificate or diploma	14,940	22
University certificate or diploma below bachelor level	2,655	4
University certificate; diploma, degree at bachelor level or higher	21,315	32
Bachelor's degree	12,620	19
University certificate; diploma or degree above bachelor level	8,700	13
Total population aged 25 to 64 years	66,705	100.0%

Source: Statistics Canada; 2011 National Household Survey

Exhibit 3: Labour Force by Sector

Sector		Number	Percent
11	Agriculture; forestry; fishing and hunting	480	1
21	Mining; quarrying; and oil and gas extraction	185	<1
22	Utilities	320	<1
23	Construction	3,090	4
31-33	Manufacturing	13,760	20
41	Wholesale trade	3,160	5
44-45	Retail trade	6,635	10
48-49	Transportation and warehousing	2,455	4
51	Information and cultural industries	815	1
52	Finance and insurance	2,585	4
53	Real estate and rental and leasing	945	1
54	Professional; scientific and technical services	4,600	7
55	Management of companies and enterprises	70	0
56	Administrative and support; waste management and remediation services	2,495	4
61	Educational services	8,180	12
62	Health care and social assistance	6,300	9
71	Arts; entertainment and recreation	1,220	2
72	Accommodation and food services	4,305	6
81	Other services (except public administration)	2,700	4
91	Public administration	3,410	5
Industry - not applicable		1,380	2
Total labour force population aged 15 years and over			

Source: Statistics Canada; 2011 National Household Survey

Exhibit 4: Jobs by Sector

NAICS Code	Description	2014 Jobs	% Change from 2009
11	Agriculture, forestry, fishing and hunting	423	19%
21	Mining, quarrying, and oil and gas extraction	47	34%
22	Utilities	246	-1.0%
23	Construction	3,701	15%
31-33	Manufacturing	22,459	20%
41	Wholesale trade	3,613	8%
44-45	Retail trade	8,041	5%
48-49	Transportation and warehousing	2,484	8%
51	Information and cultural industries	634	14%
52	Finance and insurance	2,876	-4%
53	Real estate and rental and leasing	1,406	14%
54	Professional, scientific and technical services	4,998	15%
55	Management of companies and enterprises	640	-2%
56	Administrative and support, waste management and remediation services	4,385	33%
61	Educational services	9,370	-1%
62	Health care and social assistance	7,975	23%
71	Arts, entertainment and recreation	1,190	-8%
72	Accommodation and food services	5,438	14%
81	Other services (except public administration)	3,350	3%
91	Public administration	3,646	-3%
X0	Unclassified	1,224	21%
	Total	88,146	11%

Source: EMSI, 2014

Exhibit 5: Number of Businesses Locations by Sector and Employee Range

			# Employees				
NAICS Code	Description	Total	Less than 10*	10-49	50-99	100-199	200 +
11	Agriculture, forestry, fishing and hunting	107	94	12	0	1	0
21	Mining, quarrying	8	6	2	0	0	0
22	Utilities	34	27	5	2	0	0
23	Construction	773	702	61	5	4	1
31-33	Manufacturing	360	215	83	18	18	26
41	Wholesale trade	332	249	68	11	3	1
44-45	Retail trade	788	590	166	18	10	4
48-49	Transportation and warehousing	351	331	12	7	1	0
51	Information & cultural industries	115	96	18	1	0	0
52	Finance and insurance	495	446	47	1	1	0
53	Real estate, rental/ leasing	1,012	982	25	4	0	1
54	Professional, scientific & technical services	1,152	1073	70	7	2	0
55	Management of companies and enterprises	299	285	9	4	1	0
56	Administrative, support, waste management, remediation services	348	305	33	6	4	0
61	Educational services	115	89	21	0	2	3
62	Health care and social assistance	674	569	86	13	2	4
71	Arts, entertainment and recreation	137	124	9	1	2	1
72	Accommodation and food services	343	182	137	17	7	0
81	Other services	698	625	70	2	1	0
91	Public administration	8	4	2	0	0	2
Total		8,149	6,994	936	117	59	43

*Includes indeterminate
Source: EMSI, 2014

Exhibit 6: Largest Manufacturing Subsectors in Guelph

NAICS Code	Description	2014 Jobs
3363	Motor vehicle parts manufacturing	9,006
3116	Meat product manufacturing	1,607
3339	Other general-purpose machinery manufacturing	1,341
3261	Plastic product manufacturing	1,086
3327	Machine shops, turned product, and screw, nut and bolt manufacturing	892
3322	Cutlery and hand tool manufacturing	842
3353	Electrical equipment manufacturing	801
3331	Agricultural, construction and mining machinery manufacturing	527
3121	Beverage manufacturing	521
3254	Pharmaceutical and medicine manufacturing	456
3222	Converted paper product manufacturing	399
3371	Household and institutional furniture and kitchen cabinet manufacturing	371
3323	Architectural and structural metals manufacturing	316
3333	Commercial and service industry machinery manufacturing	301
3361	Motor vehicle manufacturing	275
3399	Other miscellaneous manufacturing	262
3118	Bakeries and tortilla manufacturing	236
3119	Other food manufacturing	232
3279	Other non-metallic mineral product manufacturing	222
3329	Other fabricated metal product manufacturing	221

Source: EMSI

APPENDIX III: GUELPH AGRI-FOOD AND AGRI-TECH CLUSTER

Guelph Food Research Centre

Canadian Food Inspection Agency

Canada

Canada Lab for Foodborne Zoonoses

Agriculture & Agri-Food Canada

Ontario Ministry of Agriculture, Food and Rural Affairs

Ontario Ministry of Agriculture, Food & Rural Affairs

University of Guelph — Changing Lives Improving Life

Ontario Agricultural College
Ontario Veterinary College
College of Biological Science
College of Business & Economics
College of Physical & Engineering Science
College of Arts
College of Social & Applied Human Sciences

COMPANIES

Monsanto Canada	Nutreco Canada	Canwest DHI
Elanco	SEMEX Alliance	ENGAGE Agro
Bayer CropScience	Fox Seeds	Savvy Farmer
Ceva Animal Care	Biorem Technology	Foxy Foods
Sleeman (Sapporo)	Fox Seeds	Genex Cooperative
Cargill Meat Solutions	PlantForm Corp	Organic Meadow
Alltech Canada		Rothsay
Syngenta Crop Protection		Novus Environmental
Parish & Heimbecker		Ag Energy Cooperative
Evergreen Bio-Ceuticals		Traxxside Transloading

INDUSTRY & PRODUCER GROUPS

Canadian Livestock Genetics Assn
Canadian Mushroom Growers
Canadian Animal Health Institute
Ontario Pork
Ontario Federation of Agriculture
Ontario Agri Business Assn
Grain Farmers of Ontario
Beef Farmers of Ontario
Ontario Independent Meat Processors
Flowers Canada (Ontario)
Ontario Fruit & Vegetable Growers Assn
Beef Improvement Opportunities
Ontario Sheep Marketing
Organic Council of Ontario
Ontario Institute of Agrologists
Ontario Institute of Veterinary Technicians

INTELLECTUAL PROPERTY

Norton Rose Fulbright
Miller Thomson

INNOVATION & COMMERCIALIZATION

Soy 20/20
Bioenterprise
Innovation Guelph
Agri-Technology Commercialization Centre
Catalyst Centre, University of Guelph
Ontario Agri-Food Technology
Livestock Research Innovation Corp
CBaSE (Centre for Business & Social Entrepreneurship)
Gryphons LAAIR (Leading to Accelerated Adoption of Innovative Research)

LABORATORIES + INDEPENDENT TESTING & R&D

Agriculture & Food Laboratory (UofG)
Animal Health Laboratory (UoG)
Guelph Food Research Centre (Canada)
Laboratory for Foodborne Zoonoses (Canada)

SGS Agri-Food Laboratories	NSF-GFTC
Nutrasource Diagnostics	Lipid Analytical Labs
Chemtura Technology Centre	MAXXAM Analytics
International Compliance Services	Vetech Laboratories

FINANCIAL SERVICES

Agriculture Credit Corp | Farm Credit Canada | TD Canada Trust Agricultural Services | Royal Bank of Canada

Appendix IV - University of Guelph Highlights

Description

- The University of Guelph (U of G) is one of Canada's most innovative and globally recognized universities. U of G's roots go back to the founding of the Ontario Agricultural College in 1874 and the Ontario Veterinary College which moved from Toronto to Guelph in 1922. These Colleges were brought together to provide a foundation for the creation of the University of Guelph in 1964.

- The U of G consists of seven colleges including colleges of: Arts, Biological Science, Business and Economics, Physical and Engineering Science, Social and Applied Human Sciences, Agriculture, and Veterinary Medicine.

- The main campus of the university spans 412 hectares (1,017 acres), and includes a 165 hectare (408 acre) arboretum and a 12 hectare (30 acre) research park.

- Key U of G research centres relevant to the agri-food /agri-tech sector include the Aquaculture Centre, Biodiversity Institute of Ontario (BIO), Campbell Centre for the Study of Animal Welfare, Canadian Research Institute in Food Safety (CRIFS), Centre for Agricultural Renewable Energy and Sustainability, Centre for Land and Water Stewardship, Centre for Nutrition Modelling, Centre for Public Health and Zoonoses, Centre for the Genetic Improvement of Livestock, Equine Guelph, Gosling Research Institute for Plant Preservation (GRIPP), Guelph Turfgrass Institute (GTI), Honey Bee Research Centre, and the Food Institute at the University of Guelph.

Faculty

- The Faculty in 2013 consisted of 750 full time positions, with the U of G ranking at the top of Ontario universities for Faculty qualifications.

Enrollments

- Guelph Campus full time Enrolments in 2013: 18,153 undergraduate, 2,120 graduate; part time enrollments: 1,928 undergraduate and 225 graduate.

Number of Degrees Conferred in 2012/2013 by Program

Program of Study	Bachelor	Masters	Doctoral	Total
Agriculture & Biological Science	768	141	51	960
Architecture	55	19	0	74
Business & Commerce	751	85	0	836
Computer Science	33	10	5	48
Engineering	87	42	4	133
Fine & Applied Arts	139	11	4	154
Food Science & Nutrition	679	114	19	812
Humanities	465	36	6	507
Kinesiology, Recreation & Phys. Ed.	294	0	0	294
Mathematics	28	17	7	52
Medicine and Related Programs	19	0	0	19
Other Arts & Science	287	0	0	287
Other Health Professions	0	21	0	21
Pharmacy	6	0	0	6
Physical Science	73	26	7	106
Social Science	1,080	122	27	1,229
Veterinary Medicine	109	42	22	173
Total	4,873	686	152	5,711

Source: Common University Data Ontario, Council of Ontario Universities

Research and Innovation

- Guelph ranks first in the nation in terms of number of invention disclosures per $M of research expenditures.
- A critical mass of research expertise to the University and Guelph is attracted through the Agreement between the University of Guelph and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA); Agreement revenue was $91.3 million in 2012/2013.

For additional information, please see: http://www.uoguelph.ca/info/factsfigures

Appendix V

Background on Research & Development Incentives in Ontario
Ontario's R&D Tax Program
(Incorporating Federal R&D Tax Deductions)

Large Manufacturers 2014

Public, Private or Foreign-Owned

	R&D Expenditures	R&D Expenditures at eligible institutitions[1]
Gross expenditure	$100.00	$100.00
Ontario – 20% OBRI[2] Tax Credit		-$20.00
Ontario – 4.5% ORDTC[3]	-$4.50	-$3.60
Federal investment tax credit – 20%	-$14.33	-$11.46
Tax deduction[4]: (Combined federal of 15% and provincial of 10% = 25%)	-$20.29	-$16.24
After-tax cost of $100 expenditure	**$60.88**	**$48.71**

NOTES:
1. Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
2. The 20% refundable Ontario Business-Research Institute Tax Credit.
3. The 4.5% Ontario Research and Development Tax Credit.
4. Tax rates for large manufacturers: Federal 15.0% plus Ontario 10.0% = 25.0%

Small and Medium-Sized Manufacturers[1] 2014

Public, Private or Foreign-Owned

	R&D Expenditures	R&D Expenditures at eligible institution[2]
Gross expenditure	$100.00	$100.00
Ontario – 20% OBRI[3] Tax Credit		-$20.00
Ontario – 10% OITC[4]	-$10.00	-$10.00
Ontario – 4.5% ORDTC[5]	-$4.05	-$3.15
Federal investment tax credit – 15%	-$12.89	-$10.03
Tax deduction[6]: (Combined federal of 15% and provincial of 10% = 25%)	-$18.26	-$14.21
After-tax cost of $100 expenditure	**$54.79**	**$42.62**

NOTES:
1. Medium-sized companies have taxable income of less than $500,000 and taxable capital of less than $50 million.
2. Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
3. The 20% refundable Ontario Business-Research Institute Tax Credit.
4. The 10% refundable Ontario Innovation Tax Credit.
5. The 4.5% Ontario Research and Development Tax Credit.

Tax rates for manufacturers: Federal 15.0% plus Ontario 10.0% = 25.0%

Large Non-Manufacturers 2014

Public, Private or Foreign-Owned

	R&D Expenditures	R&D Expenditures at eligible institution[1]
Gross expenditure	$100.00	$100.00
Ontario – 20% OBRI[2] Tax Credit		-$20.00
Ontario – 4.5% ORDTC[3]	-$4.50	-$3.60
Federal investment tax credit – 15%	-$14.33	-$11.46
Tax deduction:[4] (Combined federal of 15% and provincial of 11.5% = 26.5%)	-$21.51	-$17.21
After-tax cost of $100 expenditure	**$59.66**	**$47.73**

NOTES:
1. Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
2. The 20% refundable Ontario Business-Research Institute Tax Credit.
3. The 4.5% Ontario Research and Development Tax Credit
4. Tax rates for large manufacturers: Federal 15.0% plus Ontario 11.5% = Total 26.5%

Small and Medium-Sized Non-Manufacturers[1] 2014

Public, Private or Foreign-Owned

	R&D Expenditures	R&D Expenditures at eligible institution[2]
Gross expenditure	$100.00	$100.00
Ontario – 20% OBRI[3] Tax Credit		-$20.00
Ontario – 10% OITC[4]	-$10.00	-$10.00
Ontario – 4.5% ORDTC[5]	-$4.05	-$3.15
Federal investment tax credit – 15%	-$12.89	-$10.03
Tax deduction:[6] (Combined federal of 15% and provincial of 11.5% = 26.5%)	-$19.36	-$15.06
After-tax cost of $100 expenditure	**$53.70**	**$41.76**

NOTES:

1. Medium-sized companies have taxable income of less than $500,000 and taxable capital of less than $50 million.
2. Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
3. The 20% refundable Ontario Business-Research Institute Tax Credit.
4. The 10% refundable Ontario Innovation Tax Credit.
5. The 4.5% Ontario Research and Development Tax Credit.
6. Tax rates for manufacturers: Federal 15.0% plus Ontario 11.5% = Total 26.5%

Small Canadian-Controlled Private Corporations[1] (CCPCs) 2014

Public, Private Or Foreign-Owned

	R&D Expenditures	R&D Expenditures at eligible institution[2]
Gross expenditure	$100.00	$100.00
Ontario – 20% OBRI[3] Tax Credit		-$10.00
Ontario – 10% OITC[4]	-$10.00	-$10.00
Ontario – 4.5% ORDTC[5]	-$4.05	-$3.15
Federal investment tax credit – 35%	-$30.08	-$23.40
Tax deduction:[6] (Combined federal of 11% and provincial of 4.5% = 15.5%)	-$8.06	-$6.73
After-tax cost of $100 expenditure	**$47.21**	**$36.72**

NOTES:

1. Small CCPCs have taxable income of less than $500,000 and taxable capital of less than $15 million.
2. Eligible Ontario research institutes include universities, colleges of applied arts and technology, research hospitals and other entities in Ontario.
3. The 20% refundable Ontario Business-Research Institute Tax Credit.
4. The 10% refundable Ontario Innovation Tax Credit.
5. The 4.5% Ontario Research and Development Tax Credit.
6. Tax rates for small CCPCs on the first $500,000 of taxable income: Federal 11% plus Ontario 4.5% = 15.5%

Table Data Source: Ontario Ministry of Finance, January 2014

The information provided here presents a potential after-tax cost based on assumptions regarding R&D expenditures, tax incentives and tax rates that may not apply to your business. This information does not constitute tax advice. Please consult your tax advisor to determine the after-tax cost of R&D expenditures for your business.

R&D Related Post Secondary Partnerships Supported by Canadian Governments

Funding for Business-Academic Research Partnerships: Canada leads all G-7 countries in research and development funding as a share of GDP in post-secondary education.

The Canadian approach for government funding for research in higher education is unique and draws attention from many other countries, especially for the degree to which it encourages collaboration between academia and business and among post-secondary educational institutions.

$1.5 Billion Canada First Research Excellence Fund: In its February 2014 Budget, the Canadian Government made a significant long-term commitment to continue significant investments in research in higher education. The government announced creation of the Canada First Research Excellence Fund with $1.5 billion in funding over the following decade to help Canadian post-secondary institutions excel globally in research areas that create long-term economic advantages for Canada.

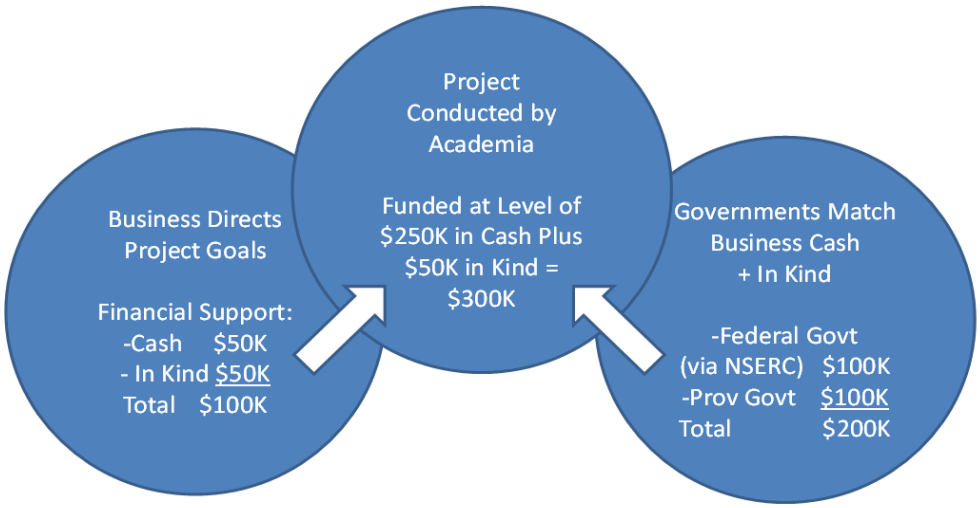
Major Federal Agencies Funding Post-Secondary Research: Canadian government granting agencies that are responsible for funding research projects at institutions of higher learning (universities and colleges) favour projects where private sector or other non-governmental partners are involved and are making cash and in-kind contributions. Important Federal programs of this type are:

- The Natural Sciences and Engineering Research Council (NSERC);
- The Canadian Institutes of Health Research (CIHR);
- The Social Sciences and Humanities Research Council (SSHRC);
- The Canadian Foundation for Innovation (CFI); and
- Networks of Centres of Excellence (NCEs).

Well-defined projects undertaken by university researchers and their private sector partners are intended to give companies that operate from a Canadian base, including foreign controlled companies, access to the unique knowledge, expertise, and educational resources available at Canadian postsecondary institutions, as well as to train students in essential technical skills required by industry. The mutually beneficial collaborations are expected to result in industrial and/or economic benefits to Canada by addressing challenges that are relevant to industry.

Models for Business Research Partnerships with Academic Institutions: A model for project funding from Federal granting agencies (such as NSERC, CFI, CIHR and SSHRC) is one-third Federal government, one-third provincial government and one-third non-governmental funding. In optimal circumstances, one dollar of cash from a company can lever six dollars of research activity. The financing structure is that one dollar in cash contributed by the company (or groups of companies) and a second "in kind" dollar can be matched by two dollars in cash from the Canadian government along with the possibility of another two dollars from the respective provincial government, generating at total of six dollars for the university or college for the research project, as shown in the figure.

Example of Optimized Funding Model
Support by Canadian Governments of Business-University Research



Additional Benefits to Business from Academic-Based Research Partnerships: The company's financial contributions to the research partnerships with universities and colleges are also eligible as deductions for Canada's very favourable R&D tax credit regime.

Quite apart from the advantageous financial leverage in business-academic research collaborations, the company gains by developing intimate and privileged relationships with the best and brightest researchers in universities and colleges. It also gives those companies that are involved a special opportunity to connect with Masters and PhD students and post-doctoral fellows -- highly qualified people who may be future candidates for employment and research partnerships.

The number of industrial partners involved in NSERC collaborations in 2013-2014 was 3,102, a number that continues to grow.

Foreign companies, often through their Canadian subsidiaries, participate in collaborative projects on equal footing with Canadian controlled companies, provided that "benefit to Canada" can be demonstrated.

Canada Research Chairs Program: The Canada government is committed to a Canada Research Chairs program, a national strategy to attract highly qualified researchers to Canada by providing them five and seven year funding. The program, launched in 2000 by the Government of Canada, supports 2000 research professorships -- Canada Research Chairs -- in eligible degree-granting institutions. An investment of $300 million per year continues to attract and retain some of the world's most accomplished and promising minds. The University of Guelph has over 30 Canada Research Chairs held by international scholars who are leaders in their fields.

Canada Excellence Research Chairs Program: In addition, the Canadian government has more recently added 19 prestigious Canada Excellence Research Chairs (CECRs) which provide an even higher level of support -- $10 million -- over seven years. A second round of CERCs is being recruited.

NSERC Industrial Research Chairs: The Natural Sciences and Engineering Research Council (NSERC) also has program of Industrial Research Chairs numbering 165. Industrial Research Chairs are held by high-calibre researchers across Canada who respond to industry needs over a long period, building capacity in key research areas and providing training and involvement in innovation.[52] Guelph has four NSERC Industrial Research Chairs. Typically, the contribution by a company to establish an NSERC Industrial Research Chair will be in the order of $1 to $2 million over five years, some of which can be in kind. NSERC requires that, any proposed partner must have a credible plan for exploiting research results for the social, environmental or economic benefit of Canada.

National Research Council of Canada (NRC): As well, Canada's internationally-regarded National Research Council (NRC) has a mandate to build an innovative, knowledge-based economy through research and development, technology commercialization and industry support. NRC has recently refocused on business and market-driven priorities and needs and on assistance to businesses in Canada to develop innovative and commercially successful products and services. NRC works proactively with business to offer access to world-class R&D infrastructure and an array of facilities, programs and technology platforms designed to allow them to perform leading edge research to deliver novel solutions to the marketplace.

Potential areas for partnership, including with foreign-affiliated operations in Canada, encompass NRC's participation in innovation networks or pre-competitive consortia; research contracted with NRC by private sector partners; collaborative research projects; and access to corporate research or testing facilities that foreign companies may have.

[52] Info on criteria for NSERC Industrial Chairs can be found at http://www.nserc-crsng.gc.ca/Professors-Professeurs/CFS-PCP/IRC-PCI_eng.asp. Accessed on December 27, 2013.

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Advanced Manufacturing Fund (AMF)	$10-$20M in Ontario business grants and loans aims to help organizations (For-profit & Not-for-profit) improve productivity while developing cutting-edge technology that encourages collaboration between research & post-secondary institutions with industry. Eligible expenses include: ● Labour ● Capital ● Non-Capital ● Expertise related costs specific to the project	☒	☒	☒	☒
Agri-Innovation Program (AIP): Industry-Led Research & Development or Agri-Innovation Program (AIP): Enabling Commercialization & Adoption Stream	Industry-led Research & Development Stream: Supports pre-commercialization R&D, leading to new agri-based products, processes, and practices. ● Combines industry, academia, & government expertise to promote innovation ● Scope may be national, regional, or local; Enabling Commercialization & Adoption Stream: Accelerates the rate of identification, assessment, development and adoption of innovation-based products ● Commercialization projects of a new product or innovation ● Technology adoption projects to improve internal operations or end products	☒	☒		☒
Agri-Marketing Program	Provides non-repayable funding support to Canadian agriculture, agri-food, fish, and seafood industries by allowing them to identify market priorities and carry out marketing activities to develop export opportunities: ● Development and production of advertising materials ● Trade shows, conferences, and trade missions ● Implementing marketing and branding plans	☒			

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Apprenticeship Job Creation Tax Credit	Supports the training and certification of new trades' apprentices through wage subsidies. Credit covers the training of new trades employees up to $2,000 / year			☒	
Apprenticeship Training Tax Credit (Ontario)	Incentive to allow SME's to hire new apprentices in trades up to $10,000 / year ● Register new trades apprentices in sectors where there is high demand for skilled workers			☒	
Canada-Ontario Job Grant (COJG)	Receive up to 66% or $10K in training grants per trainee to enhance your workforce. ● Most training that improves skillsets and career advancement is eligible. ● Training can be carried out throughout the calendar year. ● Program available from 2014-2020 with an annual funding pool of $192M in Ontario.			☒	
Canada Summer Jobs	Encourages the hiring of young workers (i.e. 15-30 years) to allow for career related experience. Financial hourly wage subsidy program. ● Deadline for submission: January 31, renewable each year ● Part of the Youth Employment Strategy programs			☒	
Canadian Agricultural Adaptation Program (CAAP)	Supports non-profits in developing new products, ideas, or technologies to advance the agricultural industry. ● Covers 50% of costs; $1M project max & $4M lifetime funding max ● Covers labour, equipment, travel, software, and other direct project costs	☒	☒		☒
Career Focus Programs	Receive $15K-20K in funding towards the hiring of new post-secondary graduates. ● Candidates must be 15-30 years of age ● Sector and position specific variants of funding are available ● Supports the hiring of permanent Canadian residents/citizens/refugees			☒	

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Career Focus Programs – Agriculture and AgriFood Canada	Provide $864,000 each year to projects that hire recent graduates in agriculture, agri-food science and veterinary medicine. Receive 50% of total eligible costs, up to a maximum of $20,000 in matching funds 80 agricultural internships for Canadian graduates			☒	
Community Futures Program – CFDC	Loans for existing SMEs and start-ups to help with growth. Loans can be used for purchasing fixed assets, leasehold improvements, capital equipment, and operating capital. ● Loans up to $150,000 for business development activities ● Interest rate for the loan averages between 2-3% above prime, subject to local CFDC ● Ontario businesses of all sizes can apply	☒	☒		
Connect Canada Internship	Allows companies to solve a R&D problem through the hiring of an intern over 4-6 months. Eligible projects include: ● Market Research ● Applied Scientific Research ● Technical Problem Solving ● Software Solutions			☒	☒
Co-op Education Tax Credit	A refundable tax credit available to employers who hire students enrolled in a co-operative education program at an Ontario university or college. The tax credit is based on salaries and wages paid to a student in a co-operative education work placement. Corporations can claim 25 per cent of eligible expenditures (30 per cent for small businesses). The maximum credit for each work placement is $3,000. Most work placements are for a minimum employment period of 10 weeks up to a maximum of four months.			☒	

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
CME SMART Advanced Technologies for Global Growth	Funding program focused on improving productivity through adapting or adopting advanced technologies. Eligible applicants must be exporters, planning to export, or selling into a value chain leading to exports.	☒	☒		
Assessment Component	Help companies assess the current state of operations and understand the barriers they face in the global competitive market by working with a qualified expert and tools available through the assessment program to develop a vision and strategy. The assessment component will cover 50% of the costs up to $15,000 per assessment.				
Funding Component	Companies will receive a contribution of 35% of eligible costs up to a maximum of $100,000, whichever is less. Must include a business plan outline to identify why this project is necessary and how it will impact the current business.				
ecoENERGY Efficiency for Industry Program: ISO 50001	Provides grant funding for companies registered under NRCan as a CIPEC Leader to obtain ISO 50001 certification. Eligible costs include: ● Accreditation ● Development of energy baseline ● Energy use assessment ● Energy performance monitoring and reporting ● Professional fees and training	☒			

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Export Market Access (EMA)	Funding available through FedDev Ontario and the Ontario Chamber of Commerce to assist SMEs in their international ventures. Grant covers 50% eligible expenses up to max of $30k such as: ● Marketing brochures, sell sheets, pre & post show mailers ● Trade shows and related exhibition costs, display panels, banners ● Translation and freight ● Flights and per diem allowance for meals/lodging ● Industry Market or competitive research ● Also includes foreign bidding projects	☒			
Growing Forward 2 Ontario	A comprehensive federal-provincial-territorial initiative aimed at encouraging innovation, competitiveness and market development in Canada's agri-food and agriproducts sector. GF2 builds on the successes of Growing Forward and the Agricultural Policy Framework. In Ontario, the federal and provincial governments will invest up to $417 million over five years to help businesses and organizations grow their profits, expand markets and manage risks. *See Table at end for more detailed information*	☒	☒	☒	☒
Investing in Business Innovation (IBI)	Additional government funding (i.e. up to $1M) to commercialize new products, practices or processes of start-up businesses after obtaining angel or venture capital investments. 3 streams of funding: Early-stage businesses, Angel Networks, and Not-for-profits. ● Education and Resource Development and Coordination & Convening ● Late stage product development geared towards market diversification and growth ● Customer and market development ● Developing & implementing marketing and distribution strategies	☒	☒		

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Investing in Business Growth and Productivity (IBGP)	Aims to help southern Ontario businesses scale-up to expand markets and facilities, increase adoption of new technologies & processes, and increase business capacity to participate in global markets. The program offers two streams, one for For-Profit organizations, and one for Not-for-Profit organizations. ● Increase adoption of new technologies and processes to improve productivity ● Increase business capacity to participate in global markets through market diversification or expanding markets and integration in global value chains ● Help scale-up by expanding markets and facilities ● Support activities to fund or collaborate with SMEs regarding the adoption or adaptation of technologies	☒	☒		
Investing in Commercialization Partnerships (ICP)	This funding program offers support for business-led partnerships that focus on helping to develop products and services that can compete globally. ● Post-secondary institutions and incorporated not-for-profits, including research institutions and industry associations ● Must be located in southern Ontario; Must have 50% support from industry/partners for cost	☒	☒		
Investing in Regional Diversification (IRD)	IRD was developed to help support the long-term development of strong and diverse economies. ● Diversification of regional economy ● Capacity building activities ● Business infrastructure initiatives	☒	☒		

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
IRAP Business Innovation Access Program (BIAP)	Research voucher up to $50K to support collaborations with Canadian research institutions. Projects supported include: ● Technical Services/Specialized Testing ● Planning & Marketing ● Product Prototyping ● Process Development	☒		☒	☒
Mitacs-Accelerate InDev	Expansion of SME's R&D environment for a $7500 investment. Four month internship is matched for $15000 research grant. Aimed at connecting SME's with University expertise for: ● Innovative research ● Methods and development of tools ● Prototype models ● Technology or solutions to support challenges ● Graduate spends 50% of time on-site with SME			☒	☒
Mitacs-Accelerate	$3,500 wage subsidy for recruiting Masters and Ph.D. students for a 4-month collaborative business development projects, including: ● Product Development ● Marketing/Competitive Research ● Prototyping & Design ● Strategic Planning ● Production Planning			☒	☒

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Mitacs-Accelerate PhD Fellowship	Gain access to a PhD for 3 years for a fellowship and receive $90,000 in grant funding: ● Any Canadian based for-profit can apply ● Full-time expertise of high-skilled PhD graduate student ● Access to university resources and academic supervisor			☒	☒
National Sciences and Engineering Research Council of Canada (NSERC)	Partnerships Programs Overview ● Strategic Partnerships Program – to accelerate research in areas of national importance to Canada and where the country can be a world leader. ● Industry-Driven Collaborative Research and Development Program – to address industry's research and training needs and priorities, facilitate the productive use of knowledge through partnership projects, and build a critical mass of expertise through Industrial Research Chairs (IRC). ● Commercialization Program – to increase market connection, knowledge translation and technology transfer by providing resources and expertise to fill the gap between the completion of the research and the uptake by end users. ● Training in Industry Program – to connect companies with skills and increase the experiential training of students in industry. ● College and Community Innovation Program – to increase innovation at the community and/or regional level by enabling Canadian colleges to increase their capacity to work with local companies, particularly small and medium-sized enterprises (SMEs).				☒

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
NextGen Biofuels Fund	Repayable loan for support of full scale-up and process integration projects for technical and financial performance of technologies at first-of-kind facility. Assists with: ● Project assessment, definition ● Building construction ● Environmental assessment ● Design/Engineering ● Production equipment, and ● All labour costs related to the above	☒	☒	☒	
NSERC Engage or **NSERC Collaborative Research and Development (CRD)**	Non-repayable grant designed to connect SME's with University researchers for research and development. ● Short-term (i.e. 6 months) research and development funding grants through NSERC Engage ● Long-term (i.e. 5 years) research and development funding grants through NSERC CRD ● Addresses a company specific problem			☒	☒
Ontario Centres of Excellence (OCE) – TalentEdge Program	Funding for hiring post-secondary graduates as interns or research fellows to work on collaborative industry-driven research projects. ● TalentEdge Internship Program: Grant for hiring recent post-secondary graduates or current students. ● TalentEdge Fellowship Program: Grant for supporting industry's contribution to PhD fellowships.			☒	☒

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Ontario Centres of Excellence (OCE) Voucher Programs	OCE provides funding for collaborative projects between businesses and universities and colleges to: ● Develop new products for export markets ● Solve industry concerns ● Commercialize innovations ● Develop online marketing tools	☒		☒	☒
Ontario Centres of Excellence **(OCE)** Explore	Explore is designed to fund early concept validation of cutting-edge technologies, computational tools, novel approaches, techniques and devices that address the most crucial needs in drug discovery and/or development.				☒
Ontario Centres of Excellence (OCE) Industry Academic R&D Collaboration	These programs bring industry and academic researchers together to address specific innovation challenges identified by industry. These collaborations between large companies, start-ups, SMEs and Ontario's publicly funded academic research institutions (universities, colleges and research hospitals) create significant economic impact for Ontario. - See more at: http://www.oce-ontario.org/programs#sthash.SY8jRIFO.dpuf				☒
Ontario Exporters Fund (OEF)	Grant towards the hiring of an Export Manager to help aid your international market development: ● Covers up to $50K of the Export Manager's salary ● Gain an employee dedicated to increasing international revenue, gathering market intelligence, and generating new streams of revenue	☒		☒	

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Rural Economic Development Fund (RED)	The Rural Economic Development Fund (RED) supports regional economic development activities in rural southern Ontario. ● Planning Stream: Research and investigation into potential economic development opportunities ● Implementation Stream: execution of projects related to regional economic development, regional marketing/branding, attracting & retaining skilled labour	☒	☒		☒
Ontario Power Authority (OPA) – Conservation Fund	The Ontario Power Authority (OPA) created the Conservation Fund to provide support for significant advances in new conservation and demand management programs, practices and technologies that impact Ontario's initiative to reduce electricity consumption by 2030. Eligible costs are those related to developing or piloting conservation programs , practices and technologies, including: ● Design and development, ● Installation and implementation, ● Testing and measurement	☒	☒		☒
Scientific Research & Experimental Tax Incentive Program	Program is a federal tax incentive program, administered by the Canada Revenue Agency (CRA) that encourages Canadian businesses of all sizes, and in all sectors to conduct research and development (R&D) in Canada. It is the largest single source of federal government support for industrial R&D. Refunds can be from 15 – 35%. Work that qualifies includes basic research, applied research and experimental development.				☒
Ontario Investment Tax Credit	Eligible corporations can claim a 10 per cent refundable tax credit for qualified expenditures on scientific research and experimental development performed in Ontario.				☒

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
Ontario Research and Development Tax Credit	A 4.5 % non-refundable tax credit on eligible scientific research and experimental development expenditures performed in Ontario to reduce their Ontario corporate income tax payable.				☒
Ontario Business Research Institute Tax Credit	Eligible corporations can claim a 20 per cent refundable tax credit for qualified expenditures on scientific research and experimental development work performed in Ontario under contract with eligible research institutes.				☒
Ontario Jobs and Prosperity Fund	A Program for businesses, business associations and entrepreneurs to obtain funding for projects to enhance productivity and help compete in the global marketplace.	☒	☒		☒
New Economy Stream	A grant or loan reimbursing up to 20% of eligible project costs. Project must have at least $10 million in eligible project costs • build innovation capacity • improve productivity, performance and competitiveness • expand export and trade opportunities • increase job creation capacity				
Food and Beverage Growth Fund Stream	A grant or loan reimbursing up to 20% of eligible project costs for food, beverage and bioproduct projects. Project must have at least $5 million in eligible project costs • help create and retain jobs • strengthen supply chains • enhance innovation and productivity • increase market access				

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
SD Tech Fund	Designed to assist with pre-commercialization strategies of clean technologies. Non-repayable grant supports productivity improvements and competitive advantage for activities such as: ● Capital items ● Goods and services ● Personnel labour costs ● Depreciation expenses	☒	☒		☒
Southern Ontario Fund for Investment in Innovation (SOFII)	Supports growth of knowledge-based industry SMEs through loans of $150,000 to $500,000 to meet these innovative business challenges. Loans help finance: ● Late stage commercialization ● New applications or markets ● New product or service development ● Development/Implementation of new processes or technologies	☒		☒	
Southwestern Ontario Development Fund (SWODF)	This program is designed to support business expansion projects that create jobs within *18 Southwestern Ontario Regions*, by providing up to $1.5M in grant funding or a $5M fully repayable loan depending on the project size. Eligible costs include: ● Capital Equipment ● Leasehold Improvements ● Direct Labour ● Skills Training	☒	☒	☒	

Appendix VI
Canadian and Ontario Government Funding Programs—Agri-Food & Agi-Tech (cont'd)

Government Funding Program	Description	Business Expansion	Capital Investment	HR & Training	R&D
TECTERRA Funding for Geomatics Companies	TECTERRA offers a full range of small business funding support programs for geomatics companies in Canada, including: ● Industry Investment Program ($150 – 500,000) ● Commercialization Support Services Program ($50,000) ● Trade Show Attendance Program ($20,000) ● GET Pro Training Program ● Geomatics Lab (free use to portfolio companies) ● Networking Programs	☒	☒	☒	☒
Youth Employment Fund	This program provides up to $6,800 to organizations that hire recent graduates that have overcome a barrier to employment. ● Train and employ youth for 4-6 month opportunity ● New hires must be Ontario residents between ages 15-29, unemployed & not in school ● Employers must be Ontario based; License to operate; safety insurance; Must be new position			☒	

Growing Forward 2 (GF2)

Growing Forward 2 (GF2) is a comprehensive federal-provincial-territorial initiative aimed at encouraging innovation, competitiveness and market development in Canada's agri-food and agriproducts sector. GF2 builds on the successes of Growing Forward and the Agricultural Policy Framework. In Ontario, the federal and provincial governments will invest up to $417 million over five years to help businesses and organizations grow their profits, expand markets and manage risks.

Growing Forward 2 programs are designed to help the industry work towards achieving the following nine outcomes:

- Use best business and leadership practices
- Use energy, water and other inputs efficiently
- Be better able to adapt to climate change
- Maximize labour productivity
- Access new and emerging markets
- Retain and expand existing markets
- Market products that meet buyer demand through adoption of assurance systems and/or adding value such as agri-products & food for health
- Respond quickly and effectively to risks
- Reduce key risks

Six Focus Areas Eligible for Funding

- Environment and Climate Change
- Assurance Systems (Food Safety, Traceability, Animal Welfare)
- Market Development
- Animal and Plant Health
- Labour Productivity and Enhancement
- Business and Leadership Development

Innovation Partners

Agri-Technology Commercialization Centre (ATCC) - http://agritechcentre.ca
Vineland Research and Innovation Centre (Vineland) - http://vinelandresearch.com
Livestock Research and Innovation Corporation (LRIC) - http://livestockresearch.ca
University of Guelph -Highly Qualified Personnel (HQP) program, Knowledge Translation and Transfer (KTT) and Early-Stage Commercialization
http://www.uoguelph.ca/omafra_partnership
Ontario Farm Innovation Program - http://www.adaptcouncil.org

The GF2 cost-share funding cap for a single business covering both Capacity Building and Project Implementation is $350,000 over the 5-year timeframe of the program (April 1, 2013 to March 31,2018).				
Applicant	**Funder**	**Capacity Building**	**Implementation**	**Innovation (OMAFRA)**
Producers	Ontario Soil & Crop Improvement Association	50% - increase the ability of producers to anticipate, understand and plan for the demands, opportunities and risks facing their businesses	35%; Project implementation that focuses on 6 eligible areas. $100K max for Capital Expenditures	50% - collaborative applied research, technology development, knowledge dissemination, pre-commercialization or commercialization assistance or business, product and market development.
Processors Ontario based, Current Processor Businesses & New Food and Bio-Products Processors	OMAFRA	50% - Education, skill development and training; Assessment and audit; Planning	35% - Project implementation that focuses on 6 eligible areas.	50% - collaborative applied research, technology development, knowledge dissemination, pre-commercialization or commercialization assistance or business, product and market development.
Organizations - Not-for-profit, Ontario-based, entity involved in agriculture, agri-food and agri-based products sector including, but not limited to: associations; marketing boards; and aboriginal groups with membership comprised primarily of Ontario residents.	Agriculture Adaptation Council	75% - no in kind. Capacity building through strategic planning, training, audits or assessments	50 up to 75% of total project costs. In kind cannot exceed 15% of the total project costs. Project implementation that focuses on 6 eligible areas.	50% - collaborative applied research, technology development, knowledge dissemination, pre-commercialization or commercialization assistance or business, product and market development.
Collaborations combinations of two or more for-profit businesses and/or non-profit associations/organizations, and/or academic/research institutions in agriculture, agri-food, agri-products sector, primarily located in Ontario.	Agriculture Adaptation Council	75% - no in kind. Capacity building through strategic planning, training, audits or assessments	50 up to 75% of total project costs. In kind cannot exceed 15% of the total project costs. Project implementation that focuses on 6 eligible areas.	50% - collaborative applied research, technology development, knowledge dissemination, pre-commercialization or commercialization assistance or business, product and market development.