



FUNCTIONAL FOODS AND NATURAL HEALTH PRODUCTS

Canada's competitive advantages



Innovation in Canada

Canada is a highly innovative country in the functional food and natural health products industry:

- Canadian R&D Centre for Probiotics (CRDC-Probiotics) specializes in probiotics and their application. The centre delivers an annual probiotic training program to Danone staff.
- Agriculture and Agri-Food Canada (AAFC) has nine research centres specializing in applications for new food products, nutraceuticals and innovative health-related products.
- Advanced Foods and Materials Canada is dedicated to research and innovation in biomaterials and food-for-health solutions. It has fostered 257 partnerships to date.
- Agriculture Innovation Program is a \$50 million initiative designed to accelerate innovation, and facilitate the commercialization and adoption of innovative products, technologies, processes and services.
- Between 2003 and 2011 Canada registered almost 2,500 food-related patents to the US Patent and Trademark Office¹.
- Preliminary gross domestic expenditure on R&D in Canada in 2011 is \$30 billion, one of the highest levels in the world².

INNOVATION CASE STUDIES

Danone

Danone Research, a unit of Danone, invested \$8 million in 2010 with Micropharma Ltd to develop new technologies in cholesterol reduction for dairy products. Micropharma is headquartered in Montreal and is focused on commercial probiotic and enzymatic solutions for metabolic diseases.

Nova Scotia Agricultural College

In 2011, Nova Scotia Agricultural College patented a new natural food product made with antioxidants extracted from apple skins. The product acts as a preservative for omega-3 polyunsaturated fats and as a nutritional supplement. Omega-3 fatty acids can help prevent major health issues such as obesity, cancer and cardiovascular disease. Polyunsaturated fats can help prevent cardiovascular disease and age-related brain diseases.

LEADING CANADIAN COMPANIES

- Atrium Innovations
- Biena (formerly known as Abiasa)
- Bio-K +
- BioNeutra
- Bioriginal Food & Science Corporation
- BurconNutraScience Corporation
- Canagra Technologies
- Chatham Biotec
- Dare Foods
- Emerald Seed Products
- EnWave Corporation
- Functional Technologies
- Harmonium International
- HonsonPharmatech Group
- KGK Synergize
- Lassonde Industries
- Micropharma
- Natural Factors Nutritional Products
- Neptune Technologies & Bioresources
- Northern Nutraceuticals
- Ocean Nutrition Canada
- Pharmed
- Sequel Naturals
- Swiss Natural
- Vita Health Products
- Yurtland Natural Health

¹ fDi Benchmark estimates based on US Patent and Trademark Office (2011)

² Statistics Canada, Research and Development Expenditure (2012)



Foreign direct investment in Canada

Canada is a major destination for FDI in the functional food and natural health products industry:

- Foreign direct investment (FDI) in Canada's food and beverage industry reached an accumulated \$22.7 billion in 2010³.
- Nearly 100 foreign companies established greenfield FDI projects in the food and beverage sector in Canada between 2003 and 2011⁴.
- 40% of FDI projects are related to the functional food and natural health product sector⁵.

RECENT INVESTORS IN CANADA

Kellogg's

Kellogg's, a US-based cereal manufacturer, invested \$43 million into its existing manufacturing plant in Belleville, Ontario. The plant manufactures the popular Mini-Wheat brand of breakfast cereals.

Danone

Danone, a major French food products company, invested \$50 million in its Boucherville, Quebec, operations. The plant produces the DanActive probiotic drink for the entire Canadian market.

MonaVie

US-based MonaVie, a manufacturer of health and wellness products, opened a new distribution centre in Burnaby, British Columbia. The centre will help serve expected growth of the Canadian market.

RFI Ingredients

RFI Ingredients, a US manufacturer of innovative natural ingredients for the food, functional food and dietary supplement industries, opened a new subsidiary in Toronto, Ontario.

Bunge

Bunge North America, a multinational grain and oilseed processor, announced plans to increase capacity at its canola processing plant in Fort Saskatchewan, Alberta; one of its four processing plants in western Canada. The project would more than double the current capacity of 850 metric tonnes a day.

FOREIGN INVESTORS IN CANADA

- Archer Daniels Midland Agri-Industries
- Alpha
- Banner Pharmacaps
- Bayer CropScience
- Bunge
- Cargill
- Coca-Cola
- Cognis
- CII Laboratory Services
- DuPont
- GroupeDanone
- General Mills
- Kellogg's
- Mastertaste
- Metagenics
- MonaVie
- Nestlé
- Nippi
- Ocean Spray Cranberries
- PepsiCo
- Polaris
- RFI Ingredients International
- Unilever Group
- Yoplait

³ Foreign Affairs and International Trade Canada, Trade and Economic Statistics (2010)

⁴ fDi Markets database, fDi Intelligence, Financial Times Ltd

⁵ fDi Markets database, fDi Intelligence, Financial Times Ltd

Functional foods and natural health products industry in Canada

HEALTH CANADA DEFINES FUNCTIONAL FOODS AND NATURAL HEALTH PRODUCTS AS THE FOLLOWING:

A functional food is similar in appearance to (or may be) a conventional food that is consumed as part of a usual diet, and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions, i.e. they contain bioactive compound.

A natural health product is a product isolated or purified from foods that is generally sold in medicinal forms not usually associated with foods. A natural health product is demonstrated to have a physiological benefit or provide protection against chronic disease.

According to Global Industry Analysts Inc., the global market for functional foods and drinks is forecast to exceed US\$130 billion by 2015.

Canada's functional food and natural health products industry is a leading contributor to global innovation and growth. Canada has more than 680 specialist functional food and natural health product companies with revenues of \$3.7 billion⁶.

According to the World Trade Organization, Canada is the world's sixth largest exporter of agricultural products producing almost 60 million tonnes of grains, oilseeds, and specialty crops annually. These commodities have huge potential for developing functional foods or natural health products for both the domestic and global markets.

Canadian companies have utilized domestic agricultural and marine resources in developing internationally recognized bioactive ingredients, including soluble fibre from oats, barley and pulses, omega-3 fatty acids from fish and flax oil, unsaturated fatty acids from canola oil, plant sterols and stanols from vegetable oils, and protein from soy.

The industry is governed by the Food and Drugs Act and Regulations of Canada. The major components of the regulations are food labelling, standards, advertising and health claims. This internationally respected regulatory system ensures world-class standards and products that are recognized as safe, effective and of the highest quality. At the end of 2010, 25,919 product licenses were issued, representing more than 43,000 products.

An aging and health-conscious Canadian population is driving sales of functional foods and natural health products in Canada. In 2010, 71% of Canadian adults reported that they have used a natural health product, while 38% reported that they use at least one product on a daily basis⁷.

CANADA'S KEY ADVANTAGES

Research and development (R&D)

Canada offers a generous R&D tax treatment for the industry. The Canadian government also has R&D-related assistance programs to encourage product development and the commercialization of new products in agri-foods.

Natural resources

Canada offers access to vast, high-quality natural resources, including fresh water and diverse plant, animal and marine life, which can be produced into new high-quality functional foods and natural health products.

World-class standards

Canada's internationally recognized regulatory and food inspection systems ensure world-class standards and products that are safe, nutritious and of the highest quality.

Clinical trials

According to KPMG, Canada offers a competitive advantage for clinical trials based on quality, turnaround time and cost when compared to Germany, Italy, Japan, the UK and the US⁸.

Access to the North American market

The North American Free Trade Agreement (NAFTA) provides Canada-based companies with duty-free access to a market of more than 435 million consumers who are becoming increasingly concerned with personal health and are seeking food-based alternatives to improve health and wellness. Canada has also completed the ninth round of negotiations for a free-trade agreement with the European Union.

SKILLS AND RESEARCH

Canada has a large workforce of 254,200 people employed in the food and beverages sector⁹. The country has a world-class higher education system with 22 Canadian universities appearing in the top 500 universities of the world¹⁰. In 2010, a total of 1.2 million students were enrolled in Canadian universities in degree-related programs. Research activities in Canadian universities amounted to \$10 billion¹¹.

Canadian universities offer programs in human nutrition and food science at undergraduate, graduate and PhD levels, including University of Alberta, University of British Columbia, University of Manitoba, University of Toronto, and McGill University. The University of Guelph offers a specialized program in 'Functional Food and Nutraceuticals'. A number of research centres and groups are based at universities including:

- Richardson Centre for Functional Foods and Nutraceuticals (University of Manitoba)
- Guelph Food Technology Centre (University of Guelph)
- Food Science Group and Human and Animal Nutrition Group (University of British Columbia)
- Department of Agricultural, Food and Nutritional Sciences (University of Alberta)
- Nutraceuticals and Functional Foods Institute (Université Laval)
- Centre for Aquatic Health Sciences (University of Prince Edward Island)

TESTIMONIALS

"[Canada] was the right choice for a number of reasons including convenient transportation routes, total cost to manufacture and the welcome we've received..."

Jeff Montie

President,
Kellogg's North America

"We decided to expand [in Canada] because we have a talented base of employees and strong relationships with local growers and the surrounding community."

Larry Clarke

General manager,
Bunge North America's oilseed processing operations

⁶ Statistics Canada, Results from the Functional Food and Natural Health Products Survey

⁷ Ipsos Reid, Baseline Natural Health Products Survey among Consumers

⁸ KPMG, Competitive Alternatives 2010

⁹ Statistics Canada, Employment, Earnings and Hours (2011)

¹⁰ Shanghai Jiao Tong University, Academic Ranking of World Universities 2011

¹¹ Association of Universities and Colleges of Canada (2010)

Clusters for functional foods and natural health products¹²

BRITISH COLUMBIA

Key strengths

British Columbia produces more than 3,000 functional foods and natural health products. The province is the largest producer of cranberries and blueberries in Canada and the fourth largest global producer of farmed salmon. In 2010, British Columbia had 187 functional food or natural health product companies, double the number of 2007.

Sector size

The food and beverage industry employs 27,330 people. In 2010, agriculture exports totalled \$1.5 billion and food and beverage exports \$1.5 billion.

Leading companies

There are 109 specialist and 614 related functional foods and natural health products companies in British Columbia. Leading companies include Agrisoma Biosciences, Cargill, Forbes Medi-Tech and Liannaues Plant Sciences.

ALBERTA

Key strengths

The province produces almost one-third of Canada's total agricultural production. Major crops include barley, canola and wheat. Research strengths include the University of Alberta, the Food Processing Development Centre and Alberta Innovates – Technology Futures.

Sector size

The food and beverage industry employs 22,115 people. In 2010, agriculture exports totalled \$3.3 billion and food and beverage exports \$3.4 billion.

Leading companies

There are 41 specialist and 251 related functional foods and natural health products companies in Alberta. Leading companies include Bunge, BioNeutra, Banner Pharmacaps, Ceapro, Sino Veda Canada and SemBioSys.

SASKATCHEWAN

Key strengths

Saskatchewan is Canada's largest producer of canola and flaxseed. It is home to the Saskatchewan Food Industry Development Centre, as well as the Crop Development Centre.

Sector size

The food and beverage industry employs 6,940. In 2010, agriculture exports totalled \$6.8 billion and food & beverage exports \$1.5 billion.

Leading companies

There are 31 specialist and 69 related functional foods and natural health products companies in Saskatchewan. Leading companies include Bioriginal Food and Science, Can Oat Milling, CII Laboratory Services and Saponin.



MANITOBA

Key strengths

The Canadian Centre for Agri-Food Research in Health and Medicine, the Food Development Centre, and the Richardson Centre for Functional Foods and Nutraceuticals are major research centres.

Sector size

The food and beverage industry employs 10,370 people. In 2010, agriculture exports totalled \$2.7 billion and food and beverage exports \$1.4 billion.

Leading companies

There are 28 specialist and 84 related functional foods and natural health products companies in Manitoba. Leading companies include Archer Daniels Midland, Bunge, Cargill, General Mills and Vita Health Products.

PRINCE EDWARD ISLAND

Key strengths

The province is a major exporter of lobsters, mussels, and oysters, and produces more than 30% of Canada's potato crop. Research centres include NRC Institute for Nutrisciences and Health, BIO|FOOD|TECH and the Atlantic Canada Network (Bioactive Compounds).

Sector size

The food and beverage industry employs 3,695. In 2010, exports of agriculture totalled \$113.4 million and food and beverages \$354.2 million.

Leading companies

There are seven specialist and 51 related functional foods and natural health products companies in PEI. Leading companies include Cavendish Farms, Maritime Pulse Drying, Duinkerken Foods, Island Abbey Foods, Halibut PEI, Aqua Bounty Canada and OmniActive Health Technologies.

QUEBEC

Key strengths

The AAFC Food Research & Development Centre, the Institute of Nutra-ceuticals and Functional Foods, and the Quebec Institute for Agri-food Technology are major research centres. The province is a major exporter of soybean.

Sector size

The food and beverage industry employs 74,470. In 2010, exports of agriculture totalled \$1.4 billion and food and beverages \$3.7 billion.

Leading companies

There are 98 specialist and 875 related functional foods and natural health products companies in Quebec. Leading companies include Danone, Micropharma and Soylutions.

NEW BRUNSWICK

Key strengths

The province is home to BioAtlantech and the Functional Foods Laboratory located at the University of Moncton.

Sector size

The food and beverage industry employs 13,110 people. In 2010, exports of agriculture totalled \$299.9 million and food and beverages \$879 million.

Leading companies

There are eight specialist and 145 related functional foods and natural health products companies in New Brunswick. Leading companies include Chatham Biotec, Natraeon, Ocean Spray Cranberries and Vaccinium Technologies.

NOVA SCOTIA

Key strengths

The province is home to the Atlantic Food and Horticulture Research Centre and is a major exporter of seafood and wild blueberries.

Sector size

The food and beverage industry employs 11,815. In 2010, exports of agriculture totalled \$451.3 million and food and beverages \$548 million.

Leading companies

There are 19 specialist and 229 related functional foods and natural health products companies in Nova Scotia. Leading companies include Ascenta Health and Ocean Nutrition.

NEWFOUNDLAND AND LABRADOR

Key strengths

The Fisheries and Marine Institute of Memorial University of Newfoundland and the Atlantic Cool Climate Crop Research Centre are major research centres.

Sector size

The food and beverage industry employs 13,370 people. In 2010, exports of agriculture totalled \$14 million and food and beverages \$780.2 million.

Leading companies

There are five specialist and 147 related functional foods and natural health products companies in the province. Leading companies include Newfoundland Aqua Products, Fishery Products International and Sedna Nutraceuticals.

ONTARIO

Key strengths

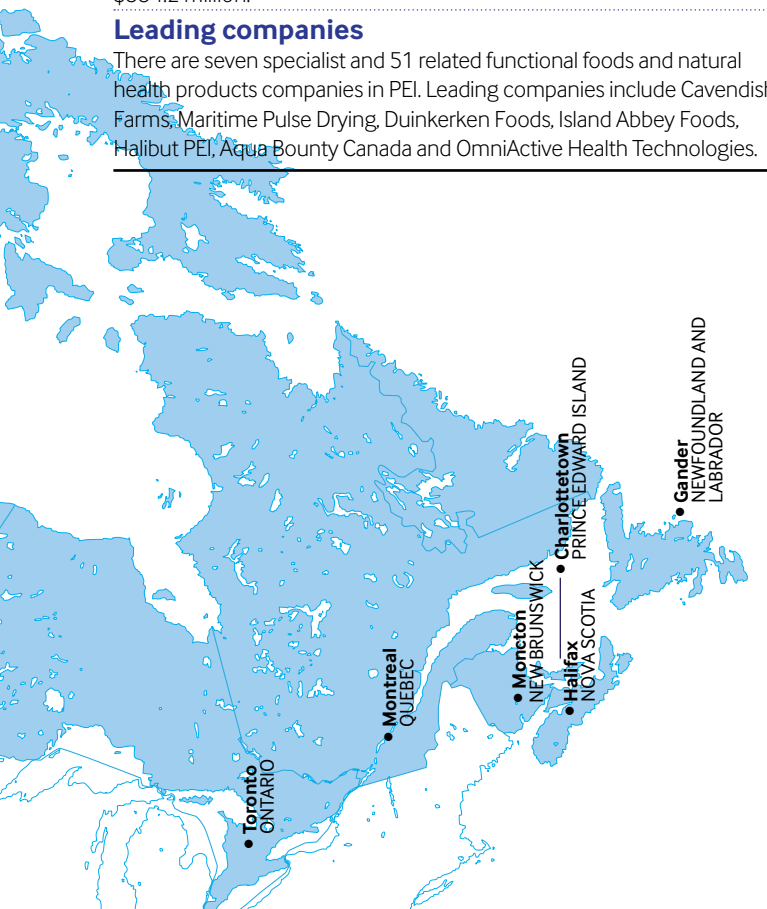
The province is a large producer of corn, soybean and wheat. Research centres include the Advanced Materials and Food Network, the Canadian Research Institute for Food Safety and Southern Crop Protection and Food Research Centre.

Sector size

The food and beverage industry employs 98,450. In 2010, exports of agriculture totalled \$2.9 billion and food and beverages \$6.8 billion.

Leading companies

There are 131 specialist and 1,464 related functional foods and natural health products companies in Ontario. Leading companies include General Mills, Kellogg's, Kraft, Pro Soya, Nestlé and Unilever.



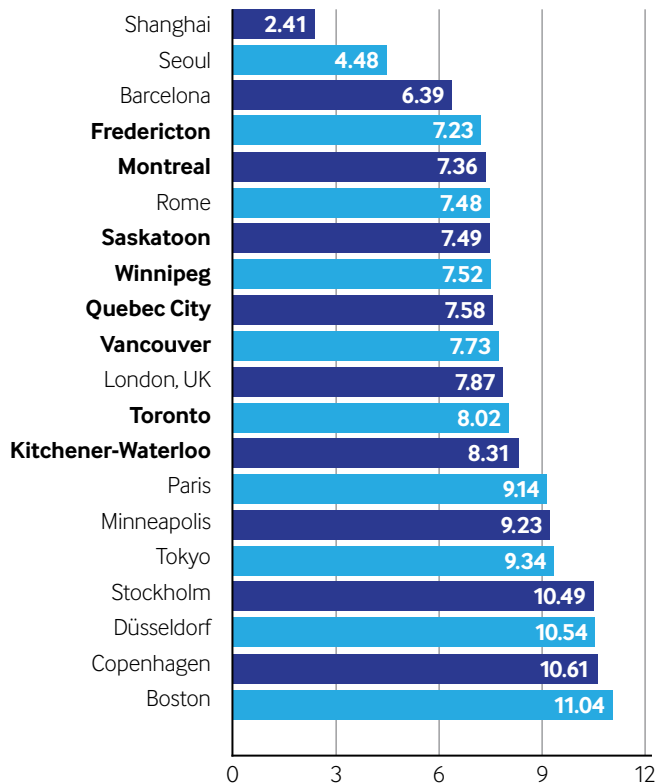
Canada's cost advantages

ADVANTAGE: LABOUR COST SAVINGS

For a typical food processing facility, companies can make labour cost savings of more than \$3 million per annum by investing in Canadian cities compared to the US, Europe, and Japan.

Total labour costs (\$ million)

This chart looks at the total labour costs for a typical food manufacturing plant with a total head count of 200 people. The labour costs include wages, statutory social security costs and private healthcare costs in the US and Canada.



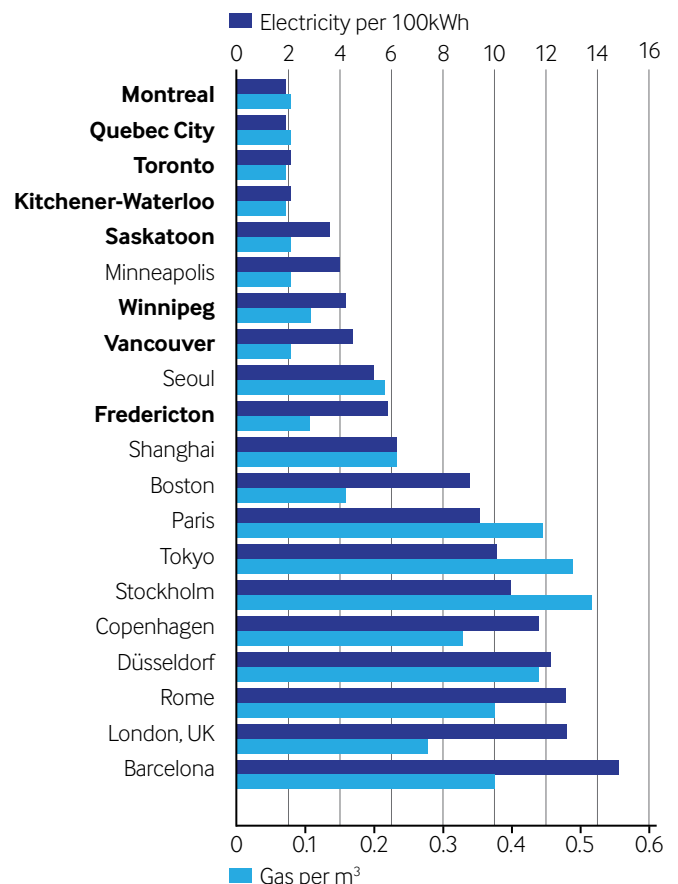
Source: fDi Benchmark Database, fDi Intelligence from the Financial Times (2012)

ADVANTAGE: MOST COMPETITIVE UTILITY COSTS

Electricity costs in cities in Canada can be up to one-fifth of the costs in the US and even cheaper compared to European cities. Natural gas costs are less than half of the US and up to seven times cheaper than in Europe. This creates substantial cost savings for companies.

Utility costs per unit (\$)

The graph shows the unit cost for industrial electricity and gas.



Source: Eurostat, US Energy Information Administration and major energy providers (2010/2011)

Canada's competitive advantages

ADVANTAGE: LEADING PRODUCER OF FOOD AND AGRICULTURAL COMMODITIES

Canada is one of the leading agricultural producers in the world. Canada has more than 15 commodities ranked in the top ten of the world by production value.

Rank in the world by commodity

This table shows Canada's world ranking by quantity of production (metric tonnes) for individual agricultural commodities.

World rank	Commodity	Production (mt)
1	Canary seed	159,300
1	Lentils	1,510,200
1	Peas, dry	3,379,400
1	Linseed	930,100
1	Mustard seed	208,300
2	Oats	2,798,200
2	Blueberries	102,750
2	Cranberries	86,776
2	Rapeseed	12,417,400

Source: Food and Agriculture Organization of the United Nations (2009)

ADVANTAGE: MAJOR EXPORTER OF FOOD AND AGRICULTURAL COMMODITIES

Canada is the world's fourth largest exporter of agricultural and agri-food products. Canada offers access to agricultural resources from which innovative ingredients and products can be developed, produced and exported to world markets.

Canada's largest food and agricultural commodity exports

The table below shows the top 10 food and agricultural export commodities from Canada by export value (US\$ billion).

Commodity	Value (US\$ billion)
Wheat	5.3
Rapeseed	3.1
Rapeseed oil	1.4
Soybeans	1.0
Lentils	0.9
Frozen potatoes	0.8
Peas, dry	0.7
Barley	0.4
Cake of rapeseed	0.3
Oats	0.3

Source: Food and Agriculture Organization of the United Nations (2009)

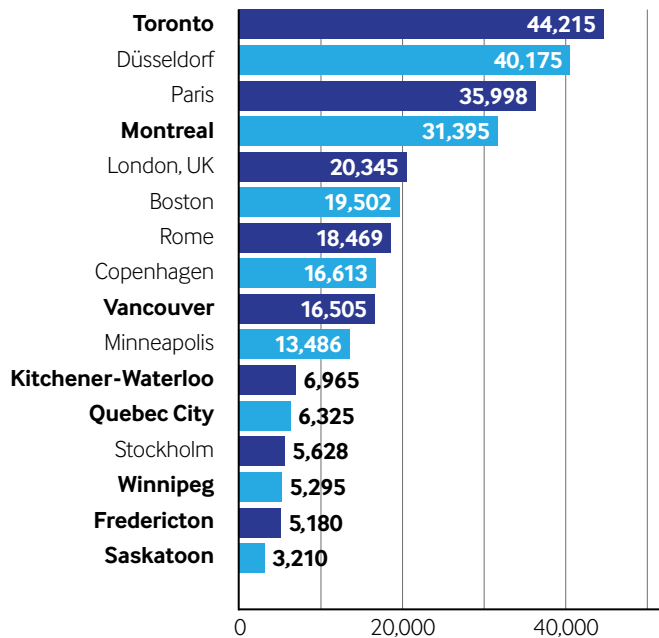
Canada's competitive advantages

ADVANTAGE: SIZE OF INDUSTRY-SPECIFIC LABOUR FORCE

Canadian cities offer a large skills base in the sector, comparable with major European and US cities.

Employment in the food and beverage industry

This chart looks at the total number of people employed in the food, beverage and tobacco manufacturing industry.



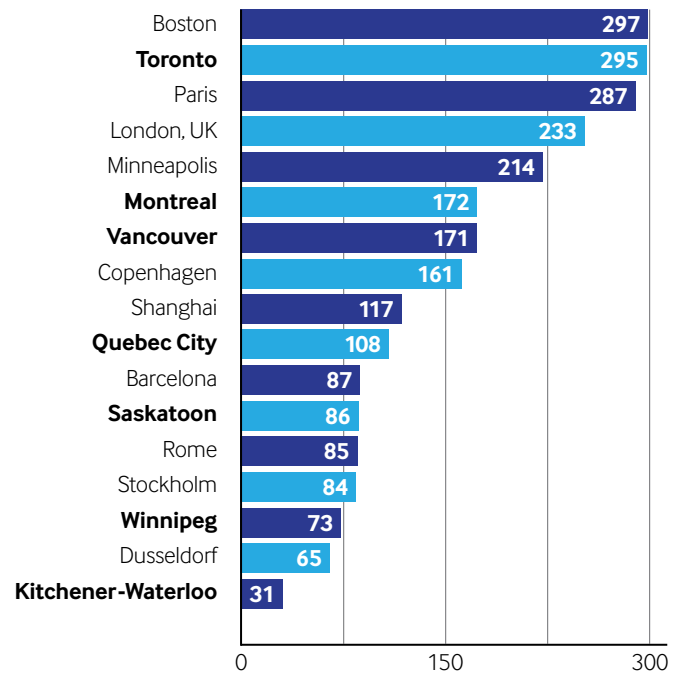
Source: Eurostat Nuts2 (2007/08); Statistics Canada Census Metro Area (2006) and US Bureau of Labour Statistics MSA (2009) NACE 15-16/NAICS 311-312

ADVANTAGE: INNOVATION IN FOOD

Canada is among the most successful countries for R&D and innovation in the food sector, as seen by the very high number of patents from Canadian cities in the sector.

Number of patents in food

This chart shows the estimated number of registered patents in food related products from 2003-2011.



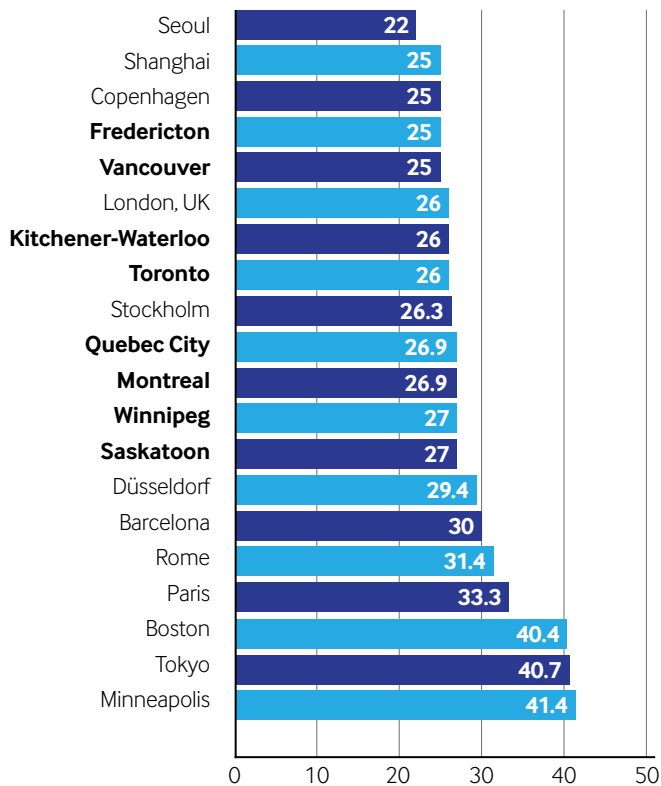
Source: fDi Intelligence estimates based on the US Patent and Trademark Office (2011)

ADVANTAGE: FAVOURABLE CORPORATE INCOME TAX

Canada offers among the most attractive corporate tax levels of any comparable country. Companies locating in Canadian cities can expect to pay substantially lower tax than the US, Italy, France or Japan.

Corporate tax rates (%)

This chart shows the corporate tax rates payable by corporations. Figures are expressed as tax payable as a percentage of companies' gross profit.



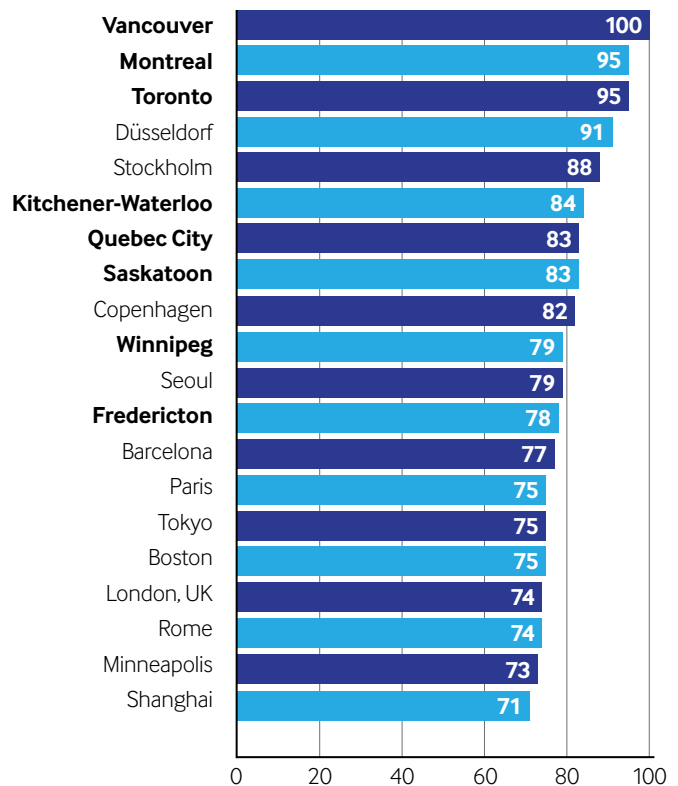
Source: KPMG (Country and Canadian Provinces; 2012) and Tax Foundation (US States; 2011)

ADVANTAGE: OUTSTANDING QUALITY OF LIFE AT AN AFFORDABLE COST

Canadian cities have the highest quality of living in the world. Vancouver was rated the most liveable city in the world by the Economist Intelligence Unit in 2011 and also tops the fDi Intelligence index. Canadian cities are highest ranking when considering both the quality and the cost of living.

Attractiveness of cities

This chart shows the overall attractiveness of cities based on combining their quality of living and cost of living, with a 50% weight attached to each.



Source: fDi Intelligence from the Financial Times (2011), Vancouver = 100

Why Canada?

Canada is a place where businesses can achieve excellence on a global scale.

A welcoming business environment

Canada is the best place to do business in the world. Source: *Forbes Magazine*, October 2011

A growing economy

Canada has been the top performer among the G-7 in GDP growth over the 2008-11 period.

Source: *Consensus Economics*, April 2012

A highly educated workforce

Canada has the highest proportion of post-secondary graduates among members of the the Organization of Economic Co-operation and Development (OECD). Source: *Education at a Glance 2011*, OECD

Financial stability

Over the past four years, Canada's banking system has repeatedly been declared the soundest in the world. Source: World Economic Forum (WEF)

Low tax rates

Canada's combined federal-provincial statutory corporate income tax rate of 26% is more than 13% below the U.S. and among the lowest when compared to G-7 countries.

Source: Department of Finance Canada and the OECD Tax Database 2012

Scientific research and experimental development

Canada offers some of the most generous R&D tax incentives in the industrialized world, with combined federal and provincial tax credits that can currently save foreign investors, on average, up to 30 cents on the dollar invested in R&D in Canada. Canada also has the G-7's lowest costs in R&D-intensive sectors (up to 10.7% lower than the US).

Source: Department of Finance Canada and KPMG Competitive Alternatives, 2012

NAFTA

The North American Free Trade Agreement (NAFTA) gives investors access to nearly 457 million consumers and a combined continental GDP of about US\$17.2 trillion.

Canada continues to seek more free trade agreements with economic and emerging powers to increase trade. Source: World Bank, World Development Indicators Database

A great place to invest, work and live

Canada is one of the most multicultural countries in the world and it provides world-class universities, a universal health care system, clean and friendly cities and spectacular scenery.

Source: United Nations Development Programme, Human Development Report 2010, Economic Intelligence Unit, Global Liveability Report 2011





Invest in Canada

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