

## **ONTARIO AGRICULTURE**

*Information provided by: Ontario Ministry of Agriculture, Food and Rural Affairs*

Ontario has over half of the "Class 1" (highest quality) agricultural land in Canada and even more Class 2 and Class 3 land, both of which are considered very suitable for agriculture. Over 57,000 farms in Ontario, with cash receipts of more than \$10.3 billion, account for almost one-quarter of all farm revenue in Canada.

Ontario has many commercial poultry, hog, dairy and beef cattle farms. Cash crops including soybeans, corn, mixed grains, forage crops, and wheat and barley are significant agricultural commodities. Vegetables also account for a considerable share of Ontario's agricultural production.

While the largest fruit crops are grapes and apples, the rich agricultural lands and mild climate of southern Ontario also allow for the cultivation of berries and tender fruits including peaches and plums, and specialty crops such as ginseng, dry beans, and mushrooms. Wineries thrive in the Niagara Peninsula, Pelee Island, and the Lake Erie north shore areas.

## **Land Information**

### **Soils**

The Research Branch of Canada along with the department of Agriculture and the Agricultural College have completed a study of Ontario Soils on a per-county basis. The study describes the geology, climate, vegetation, relief, drainage and the various types of soils found.

Over 90 percent of the total land area in South Western Ontario is occupied by farmland. Dairying and mixed farming and cash crops are the most prevalent.

In the southern portion of Ontario as a result of repeated glaciation, the bedrock is covered by a mantle of loose material called drift which varies from a few inches to several hundred feet. The underlying bedrock consists of various combinations of dolomite, shale, limestone, calcareous sandstone.

The surface deposits are of glacial origin and vary in texture depending on the parent material. They are classified as till, outwash, kame, esker. Tills are the most common and most fertile and are sometimes mixed with a thin layer of silt and have very few stones.

There are drumlinized plains with broad, low hills. Occasional hills are divided by glacial streams which have deposits of gravel which run up to eskers.

### **Climate**

Ontario's climate ranges from humid continental in the south, with chilly winters, warm summers and lots of humidity, to subarctic in the north. The large bodies of water in the north and south have a moderating effect on climate, making summer and winter temperatures less extreme, delaying autumn frosts, and reducing the differential between day and night temperatures. On average the coldest month of the year is January and the warmest is July.

January temperatures around the Ottawa River in eastern Ontario average  $-13^{\circ}\text{C}$  ( $9^{\circ}\text{F}$ ). From Niagara Falls to Windsor, the January average is about  $-4^{\circ}\text{C}$  ( $25^{\circ}\text{F}$ ). The average temperatures in July range from  $23^{\circ}\text{C}$  ( $74^{\circ}\text{F}$ ) in southwestern Ontario, to  $19^{\circ}\text{C}$  ( $64^{\circ}\text{F}$ ) in eastern Ontario. The seasonal temperature differential is much greater in Northern Ontario. For example, at Kapuskasing the record low is  $-47^{\circ}\text{C}$  ( $-53^{\circ}\text{F}$ ), while the record high is  $38^{\circ}\text{C}$  ( $101^{\circ}\text{F}$ ).

Ontario's weather is marked by considerable rain or snow throughout the year, caused by cold polar air from the north meeting warm moist air from the south. Annual precipitation in northern Ontario varies from 70 cm (28 in) in Moosonee, to 97 cm (38 in) in North Bay. In southwestern Ontario, precipitation averages about 95 cm (37 in) per year. The heaviest snowfalls occur in a belt lying inland to the east from Lake Huron and Georgian Bay, including Owen Sound where annual snowfall can exceed 339 cm (134 in).

### **Drainage**

There are many major rivers and strong flowing creeks which provide drainage as well as several man-made small lakes created by dams which provide flood control relief. These areas are used as recreation areas for the public. The many acres of level mineral soils require artificial tile drainage to produce to their maximum. The soils tend to be normal pH to slightly acidic. The soils have generally high organic matter.

Poorly drained soils are rarely productive. Inadequate drainage usually occurs in level or depressed topography. Approximately 50% of the soil is well drained naturally.

## **Soil Management**

Various practices are employed in the growing of crops. These vary with the different types of soils encountered on a farm and the farmer learns through experience which practices give the best results. The central objective of soil management is to develop and maintain a proper relationship between the plant and the soil. Most soils consist of a sequence of definite layers, one above the other. These are called the soil profile. Very young soils or these in poorly drained areas may not have developed layers yet.

When examining soils the main things to note are: depth, texture, structure, drainage and nutrients.

### **Depth**

In general the soils in this area provide sufficient space to allow for development of plant roots and storage of water. Most plants require about 3 feet for proper growing and water storage. Although there are some areas where the bedrock is so close to the surface that only a few inches of soil are available, these areas are not good for cropping. Fortunately only a very small amount of this type of land exists in Southwestern Ontario.

### **Texture**

Texture is the relative proportion of sand silt and clay that make up soils.

Sand has only a little silt or clay in it. Loam is the principal class which can be further distinguished as sandy loam, loam, silt loam, clay loam, and clay.

The sands are harsh textured and gritty and the particles scarcely hold together. At the other extreme clay can be rolled into a smooth sticky ball. With proper management these intermediate soils are the most productive in Canada.

### **Structure**

The ideal structure is small silt granules. This is maintained by proper crop rotation, plowing down green manure, or adding barnyard manure. The principles that organic matter added to sandy soils tends to bind it together to aid in water retention while the organic matter in clay soils helps prevent it from becoming too sticky.

## Nutrients

Most importantly is balance of plant nutrients in soil. All plants take at least 12 essential nutrients from soil. Some of these elements are supplied by organic matter, the rest are supplied by inorganic fraction. The elements are held in soil by fine particles thus clay textured soils are considered to have higher nutrient supply than the coarse-textured sandy soils.

## Summary

Generally the soils in South Western Ontario are excellent for growing crops. The combination of soil make-up, climate and nutrient capabilities provide high yields and good harvesting conditions. Farms in this area are considered among the most productive in Canada.

## QUICK FACTS

- Since 2003, Ontario has invested in 418 projects through the Rural Economic Development Program, and generated more than \$1.2 billion in new economic activity.
- The agri-food industry contributes more than \$33 billion to the Ontario economy and employs about 700,000 people.
- Since October 2003, Ontario employment has increased by 502,000 net jobs, more than 68 per cent of which were full-time.
- In 2010, Ontario was named a top destination for foreign direct investment in North America, second only to California. The province attracted a total of 127 Foreign Direct Investment projects, which created more than 11,200 jobs.
- Taxes on business investment were cut in half, making Ontario more competitive and encouraging new business growth.

## GEOGRAPHY OF ONTARIO - IT'S A BIG PLACE

Even people who live in Ontario can have trouble appreciating the sheer size of this province. Ontario is Canada's second largest province, covering more than one million square kilometres (415,000 square miles) - an area larger than France and Spain combined.

Ontario's most northerly communities are close to the same latitude as London, England and Warsaw, Poland. Ontario's southernmost point of land is Middle Island, in Lake Erie south of Point Pelee, roughly parallel to Barcelona, Spain or Rome, Italy.

More than 13 million people live in Ontario.

## LAND OF WATER

Ontario's landforms are the products of continental uplift and erosion, the movement of glaciers, and the continuing actions of wind, waves, water and gravity. In the north are the Hudson Bay Lowlands, consisting of swamp, meadow and forest. The Canadian Shield covers the rest of northern Ontario, and extends into the southeast. The Shield is marked by impressive granite formations, pine forests, lakes and rivers.

Ontario's quarter million lakes and countless rivers and streams hold about one-third of the world's fresh water. Most northern Ontario rivers flow into James Bay and Hudson Bay. The rivers of southern Ontario flow into the Atlantic Ocean by way of the Great Lakes and the St. Lawrence River system. The Great Lakes-St. Lawrence River Lowlands provide fertile soils and ideal farmland.

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## DID YOU KNOW?

- The Ontario-U.S. border is almost entirely defined by water. To the east of Thunder Bay, the border runs along the Great Lakes St. Lawrence Seaway, and to the west it follows a series of lakes and rivers.
- Lake Superior is the world's largest freshwater lake by surface area.
- Lake Michigan, the third largest of the Great Lakes, is entirely within the United States.
- Lake Huron is the world's fifth largest lake.
- Lake Erie is the shallowest of the Great Lakes.
- Lake Ontario is the smallest of the Great Lakes.

## THE GREAT LAKES

The Great Lakes are Lake Superior, Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario. Combined, these lakes hold one-fifth of the world's fresh surface water. The combined shoreline of the Great Lakes is equal to about 45 per cent of the earth's circumference.

The five Great Lakes, four of which straddle the border between Canada and the United States (U.S.), are the world's biggest continuous body of fresh water. A Canada/U.S. commission jointly manages the Great Lakes. The Great Lakes Basin covers an area of 750,000 square kilometres; this basin includes eight U.S. states, most of southern Ontario and extends into northern Ontario.

More than 98 per cent of Ontario residents — 13 million people — live within the Great Lakes Basin. Most live near the shores, in eight of Canada's 20 largest cities, which include Toronto, Hamilton, Windsor and Sarnia. The people of Ontario depend on the Great Lakes for their drinking water. Over 70 per cent, or three out of four residents, get their drinking water from the lakes.

The Great Lakes support more than half of Canada's manufacturing output, a quarter of the country's agriculture and \$300 billion annually in trade between Ontario and the U.S. The lakes sustain a \$100 million commercial fishing industry and a \$350 million recreational fishing industry and every year 1.5 million recreational boaters enjoy the Great Lakes.

## FORESTS

Ontario contains about two per cent of the world's forests. They characterize our landscape. Sixty-six per cent of Ontario is classified as forested land, totalling 70 million hectares. Our forests range in type from the deciduous forest of the Niagara Peninsula area, through the mixed forest of the Great Lakes-St. Lawrence region in central and northwestern Ontario, to the conifer-dominated boreal forest of the north.

The province owns more than 90 per cent of Ontario's forests, with management overseen by the Ministry of Natural Resources. Of that area, about one-third (26 million hectares) is classified as production forest – forest managed for a full range of benefits including timber production – generating one-quarter of Canada's forest-based shipments. More than 20 million cubic metres of wood are harvested annually on Crown land, and used to make building materials, pulp and paper, and a wide range of other value-added products such as furniture and flooring. In 2006, the value of forest products exports, primarily to the United States, was \$6.9 billion and its contribution to Ontario's balance of traded was \$1.4 billion. The main products being exported are softwood lumber, wood pulp and newsprint.

**Deciduous Forest:** Ontario's deciduous forest lies along the northern shores of lakes Erie and Ontario, and extends across to the southeastern shore of Lake Huron. Only about 450,000 hectares of mainly private forests remain in this three-million-hectare area. Tree species found here include oak, maple, basswood, walnut and butternut. Within this region is the Carolinian forest, found in a small area in the extreme southwest of the province. The Carolinian forest is noted for trees such as kentucky coffee, sassafras and tulip, and animals such as the southern flying squirrel, all of which are found nowhere else in Canada.

**Great Lakes - St. Lawrence Forest:** This mixed-forest region extends along the St. Lawrence River across central Ontario to Lake Huron, and west of Lake Superior along the border with Minnesota. The 20-million-hectare region includes both deciduous species (such as yellow birch, sugar and red maples, basswood, red oak) and coniferous trees (such as eastern white pine, red pine, eastern hemlock and white cedar). Ontario's official tree is the Eastern white pine (*Pinus strobus* Linnaeus).

**Boreal Forest:** Ontario's 50 million hectares of boreal forest is the largest forest region in the province, covering the area north of the French River to the Quebec border in the east, and most of northwestern Ontario. Black spruce and jack pine dominate the boreal forest. Other species, including tamarack, balsam fir, white birch and poplar, are also found, but to a lesser extent across the region.

**The Hudson Bay Lowlands:** The most northerly part of the province, the Hudson Bay Lowlands, is an area of subarctic barrens with black and white spruce and willow trees. This forest has a large lowrelief expanse of wetland, one of the largest in the world. With an area of 26 million hectares, (one quarter of the province), is dominated by both treed and open muskeg (over two-thirds of its area) and is dotted with thousands of small lakes and ponds. Productive forest cover is less than 25 per cent, and is generally made up of stunted tamarack and black spruce growing along river banks and other well-drained areas. The Hudson Bay Lowlands are greatly affected by the cold northern climate, and contain all of Ontario's tundra (284,000 ha).

## ENERGY

### Fuel

Ontario is Canada's leading petroleum-refining region. Five refineries produce 27 million cubic metres (170 million barrels) of oil a year, enough to meet local needs with some left over for export.

With the exception of transportation, natural gas is the major fuel used by all sectors of the economy, including residential, commercial and industrial heating. In 2007, it provided more than 35 per cent of Ontario's energy. Petroleum accounted for almost 40 per cent, and electricity for almost 20 per cent.

### Electricity

In recent years, Ontario's electricity sector has undergone a significant evolution. After a century as a public monopoly, it was restructured into a "hybrid" market of regulated entities and private companies. There are five key agencies in the sector, which all report back to the Ontario government:

- **Hydro One** owns and operates 97 per cent of Ontario's electrical transmission system.
- The **Independent Electricity System Operator** operates the wholesale electricity market, and manages the transmission grid.
- The **Ontario Energy Board** regulates the province's electricity and natural gas sectors.
- The **Ontario Power Authority** is the province's long-term energy planner.
- **Ontario Power Generation** generates and sells the bulk of Ontario's electricity – in 2008, almost 70 per cent of the total power generated.

There are about 120 generating stations connected to the grid – nuclear, hydroelectric, gas, wind and waste-fuelled. Together, these stations are capable of generating approximately 35,000 megawatts of electricity.

Ontario's five nuclear plants have a capacity of about 11,000 megawatts. Ontario's 70 hydroelectric generating stations have a capacity of over 7,800 megawatts.

### **Green Energy Act**

Today, the Green Energy Act, 2009, is helping Ontario build a greener economy and create a culture of conservation. It establishes Ontario as the North American leader in renewable energy, supporting wind, solar, small-scale hydro, biomass and biogas projects.

Ontario now has more than 670 wind turbines capable of generating more than 1,000 megawatts of electricity, making Ontario the Canadian leader in wind power.

Coal-fired generation used to account for more than 25 per cent of all power generated in Ontario. The province will be coal-free by 2014. Eliminating coal-fired generation from Ontario's supply mix will account for the majority of the government's greenhouse gas reduction target by 2014. Two units at the Thunder Bay coal plant will be converted to gas and Atikokan will be converted to biomass. Two additional units at Nanticoke will be shut down in 2011.

<b>Farm Statistics, 2006 Census (number)</b>	
<b>Item</b>	<b>Ontario</b>
Number of farm operators	82,410
Total number of farms	57,211
Number of farms with sales over \$25,000	31,883
Number of farms with sales over \$100,000	17,965
Number of farms with sales over \$250,000	10,000
Farms reporting under 53 hectares	29,710
Farms reporting 53 to 161 hectares	18,648
Farms reporting 162 hectares and over	8,853
<b>Farm Statistics, 2006 Census (hectares)</b>	
<b>Item</b>	<b>Ontario</b>
Total area of Farms	5,386,453
Total cropland	3,660,941
Summer fallow	11,895
Pasture	753,681
Christmas tree area, woodland and wetland	750,355
All other land	209,581
Total area owned (historical basis)	3,597,531
Total area rented or crop shared (historical basis)	1,788,922
<b>Hired Farm Labour, 2006 Census (number)</b>	
<b>Item</b>	<b>Ontario</b>
Farms reporting any hired labour	20,837
<b>Hired Farm Labour, 2006 Census (weeks)</b>	
<b>Item</b>	<b>Ontario</b>
Year-round labour	1,392,257
Seasonal labour	878,920
Total labour	2,271,177
<b>Area Grown to Major Field Crops, 2006 Census (hectares)</b>	
<b>Item</b>	<b>Ontario</b>
Hay	1,037,062
Soybeans	872,455
Grain corn	638,538
Winter wheat	416,209
Silage corn	129,807

<b>Barley</b>	89,447
<b>Spring wheat</b>	82,112
<b>Mixed grain</b>	70,194
<b>Dry field beans</b>	61,775
<b>Oats</b>	53,399
<b>Fall rye</b>	25,565
<b>Tobacco</b>	12,816
<b>Canola</b>	7,517

**Number of Livestock and Poultry on Farms, 2006 Census ( '000 head or '000 birds)**

<b>Item</b>	<b>Ontario</b>
<b>Dairy cows</b>	330
<b>Beef cows</b>	377
<b>Steers</b>	312
<b>All heifers</b>	414
<b>Calves</b>	527
<b>Total cattle and calves</b>	1,983
<b>Sows and gilts</b>	418
<b>Total pigs</b>	3,951
<b>Total sheep and lambs</b>	311
<b>Broilers and roasters</b>	29,151
<b>Laying hens and pullets</b>	14,950
<b>Turkeys</b>	3,556

**Area of Major Fruit Crops, 2006 Census (hectares)**

<b>Item</b>	<b>Ontario</b>
<b>Grapes</b>	8,335
<b>Apples</b>	8,162
<b>Peaches</b>	3,195
<b>Strawberries</b>	1,717
<b>Sour cherries</b>	1,030
<b>Pears</b>	1,030
<b>Plums and prunes</b>	498
<b>Raspberries</b>	467
<b>Sweet cherries</b>	384

**Area of Major Vegetable Crops, 2006 Census (hectares)**

<b>Item</b>	<b>Ontario</b>
<b>Sweet corn</b>	15,628
<b>Potatoes</b>	15,441

Green peas	8,693
Tomatoes (excluding greenhouse)	8,173
Green and wax beans	4,807
Carrots	4,044
Pumpkin and squash	3,762
Dry onions	2,805
Cucumbers (excluding greenhouse)	1,678
Peppers	1,625
Broccoli	1,502
Cabbage	1,500
Asparagus	1,313
<b>Area of Greenhouse Crops, 2006 Census ('000 sq m)</b>	
<b>Item</b>	<b>Ontario</b>
Vegetables	6,485
Flowers	4,591
<b>Machinery on Farms, 2006 Census (number)</b>	
<b>Item</b>	<b>Ontario</b>
Tractors	185,576
Combines	15,982
Balers	33,052
Farms reporting computers for farm management	26,260
<b>Farm Capital Value, 2006 Census ( \$ million )</b>	
<b>Item</b>	<b>Ontario</b>
Market value of land and buildings	55,912
Machinery and equipment	7,076
Livestock and poultry	2,349
<b>Farm Income Statistics, 2010 (\$ million )</b>	
<b>Item</b>	<b>Ontario</b>
Market receipts from crops	5,323
Market receipts from livestock and livestock products	4,707
Total farm cash receipts	10,316
Total operating expenses after rebates	8,326
Net cash income (= receipts less expenses)	1,990
Depreciation	1,233
Income-in-kind	9
Realized net farm income	765

<b>Top Commodities in terms of Market Receipts, 2010 ( \$ million )</b>	
<b>Item</b>	<b>Ontario</b>
<b>Dairy products</b>	1,780
<b>Vegetables (including greenhouse)</b>	1,168
<b>Soybeans</b>	1,151
<b>Corn</b>	1,013
<b>Cattle and calves</b>	914
<b>Floriculture and nursery</b>	867
<b>Poultry</b>	791
<b>Hogs</b>	763
<b>Eggs</b>	275
<b>Wheat</b>	275
<b>Fruit</b>	226
<b>Potatoes</b>	114
<b>Dry beans</b>	84

**Reference:** Statistics Section, OMAFRA

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