

Study: Agriculture in Canada

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Canada has more than 50.5 million hectares of agricultural land classified as dependable agricultural land—areas deemed suitable for long-term cultivation. From 2001 to 2011, farm area located on dependable agricultural land declined by 969 802 hectares (-2.6%), according to "Agriculture in Canada," a new study in *Human Activity and the Environment*.

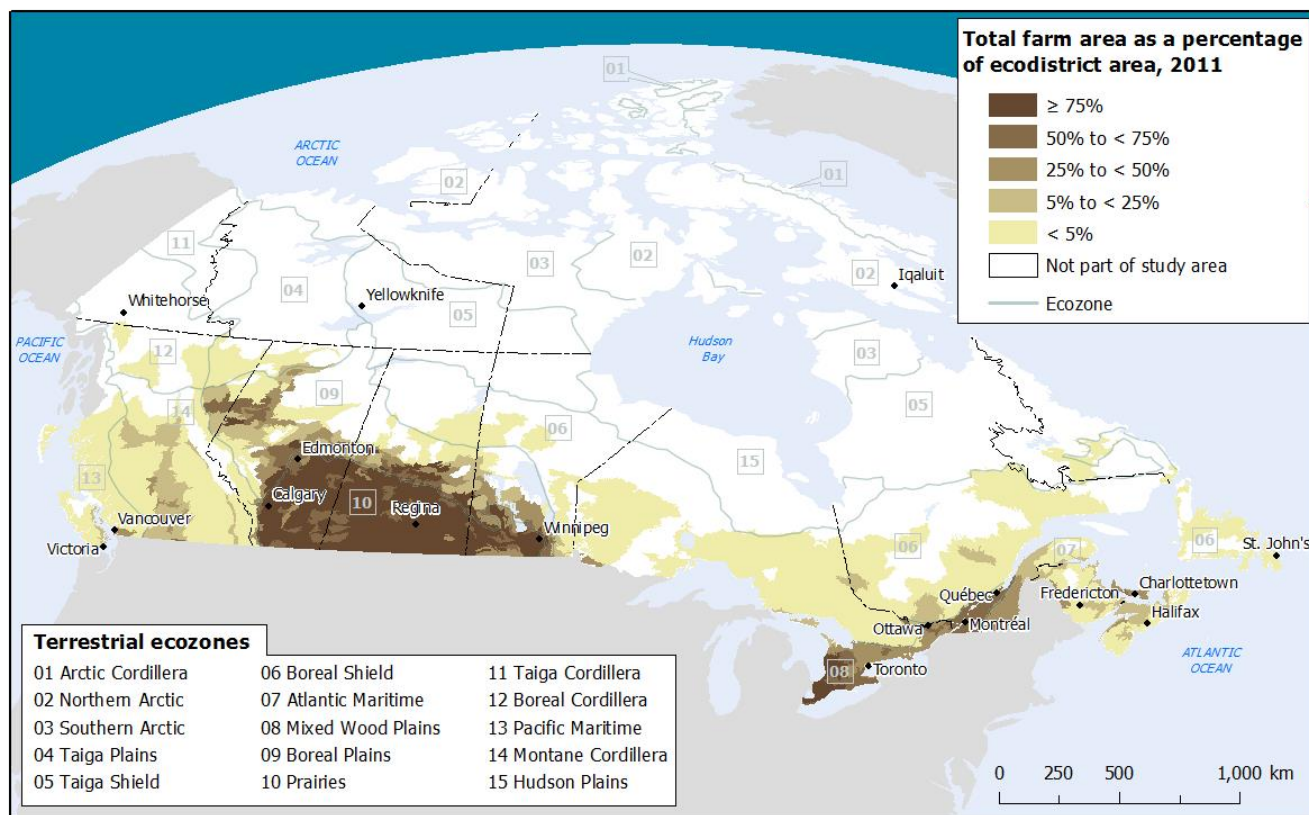
Ecological infrastructure for agriculture

Not all land is suitable for agriculture. Crop production depends on the proper ecological infrastructure, such as the right combination of soil, climate, water and other environmental factors.

From 2000 to 2011, settled area on dependable agricultural land increased by 219 511 hectares (+19%). The largest increase occurred in the Mixed Wood Plains ecozone, a region bounded by Lakes Huron, Erie and Ontario in the south and that extends along the St. Lawrence River to Québec City. Here, settled area on dependable agricultural land grew by 128 030 hectares (+27%). Over half of this growth came from the Greater Golden Horseshoe, an area including the Greater Toronto Area (see [Map 3.2](#) in the article "Measuring ecosystem goods and services in Canada," published in *Human Activity and the Environment* in 2013).

In 2011, agricultural activity was most heavily concentrated in the Prairies ecozone. Farms occupied more than 75% of the total land area for many ecodistricts in the Prairies ecozone, as well as some in the Mixed Wood Plains and Boreal Plains ecozones.

Map 1 – Total farm area as a percentage of ecodistrict area, 2011



Goods and services from agricultural ecosystems

In 2012, agricultural ecosystems supported the production of more than 134 million tonnes of farm output, with farm cash receipts of \$54.2 billion. By weight, food and fodder crops, including wheat, canola, potatoes, fruit, vegetables and hay, accounted for 90% of the output of agriculture in 2012.

Agricultural landscapes are also valued for their potential to provide other ecosystem services, such as the provision of wildlife habitat, pollination, water purification and regulation and cultural services. In 2011, woodlands and wetlands accounted for 8% of farm area, while natural pasture made up a further 23%.

Environmental management

Pesticides are applied to agricultural crops to prevent losses from weeds, insects, fungi and parasites. While pesticides can help maintain crop yields and quality, they also have the potential to have negative environmental effects, such as contaminating surface water and groundwater.

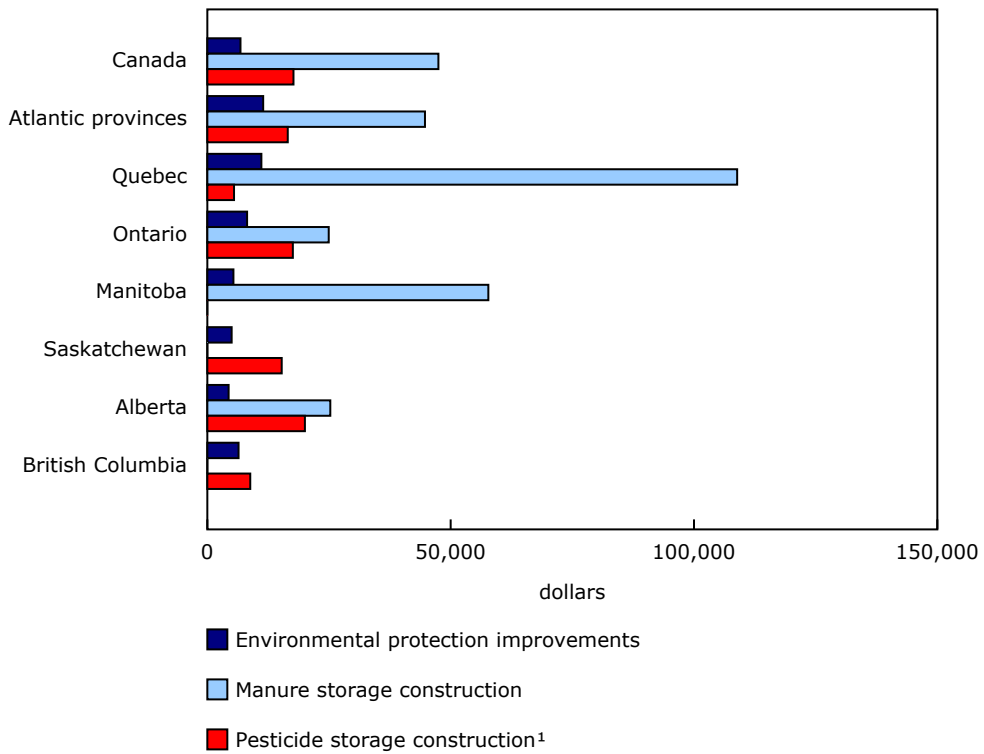
In 2011, 69% of Canadian crop farms reported applying herbicides, 15% employed insecticides and 23% used fungicides. Saskatchewan and Manitoba crop farms had the highest share of herbicide application in 2011, while insecticide application was more common in the Atlantic provinces and British Columbia. Fungicide application was most frequent in Manitoba and least common in Quebec.

To reduce the use of pesticides, farmers are also using a number of alternative methods of pest control.

In 2011, 55% of crop farms used crop rotation to disrupt pest cycles. Ontario, Saskatchewan, Manitoba and Alberta crop farms led the way in this method of pest control, according to data from the Farm Environmental Management Survey.

A number of farmers made capital investments in 2011 connected to the environment. Among this group, producers invested an average of \$6,810 per farm on environmental protection improvements, \$47,480 on manure storage construction and \$17,701 on pesticide, chemical and fuel storage construction. In Quebec and Manitoba, farmers reported the highest average spending on manure storage construction in 2011. Alberta farmers, on average, outspent their counterparts in other parts of the country on pesticide, chemical and fuel storage construction.

Chart 1
Selected capital investments, average per farm reporting, by province or region, 2011



1. Also includes chemical and fuel storage construction.

Note(s): Environmental protection improvements include shelterbelts, windbreaks, buffer strips or fences for waterways protection. Manure storage construction data for Saskatchewan and British Columbia and pesticide, chemical and fuel storage construction data for Manitoba are too unreliable to be published (F).

Table 1
Proportion of crop farms using commercial fertilizers and pesticides, by province or region, 2011

	Application of commercial fertilizers or micronutrients	Application of herbicides	Application of insecticides	Application of fungicides
	% of crop farms			
Canada	69	69	15	23
Atlantic provinces	65	57	34	34
Quebec	66	62	11	10
Ontario	75	70	16	25
Manitoba	75	77	15	42
Saskatchewan	69	79	14	24
Alberta	65	65	11	15
British Columbia	63	40	28	29

Table 2
Alternative methods of pest control on crop farms, by province or region, 2011

	Canada	Atlantic provinces	Quebec	Ontario	Manitoba	Saskatche- wan	Alberta	British Columbia
	% of crop farms							
Plant crop varieties that are resistant to specific pesticides	31	17	29	42	36	31	23	12
Rotate crops to disrupt pest cycles	55	38	48	63	58	62	52	19
Eliminate, remove or incorporate diseased plants, pruning residues or cull piles	15	28	14	20	16	10	12	24
Use fall planted species (for example, winter wheat, fall rye)	12	8	5	26	14	6	4	8
Use tillage implements	36	31	29	43	54	33	31	23
Mowing	26	51	34	32	22	13	22	38
Use hand weeding/hoeing	15	26	20	21	8	6	13	31
Use covers/mulches	6	15	6	10	5	3	3	17
Introduce natural enemies / biological control agents	2	4	2 ^E	2	2	2	1 ^E	8
Use lure or trap crops	30	18	28	40	33	28	23	16
Other	3	7	3	3	2 ^E	3	3	5
None	17	14	22	12	14	16	19	26

^E use with caution

Note to readers

Many of the statistics in this report are presented using geographical classifications that focus on ecological and hydrographical characteristics of the earth's surface, rather than administrative boundaries such as provinces and municipalities.

The Ecological Framework of Canada divides the country into 15 terrestrial ecozones that share common ecological characteristics, such as climate, physiography, vegetation, soil, water, fauna and land use (see Map 1 in the article "Measuring ecosystem goods and services in Canada," published in *Human Activity and the Environment* in 2013).

Ecozones can be further broken down into 53 ecoprovinces, 194 ecoregions and 1,021 ecodistricts, each characterized by greater levels of detail on regional ecological characteristics.

The study "Agriculture in Canada" is now available in the publication *Human Activity and the Environment*, 2014 (16-201-X). From the *Browse by key resource* module of our website under *Publications*, choose *All subjects*, then *Environment*.

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