Environment, Energy and Transportation Statistics Division

# Agricultural Water Survey, 2018

#### Confidential when completed

Si vous préférez recevoir ce questionnaire en français, veuillez composer le 1-800-461-1662.

and address for this questionnaire and correct where needed.
Legal name
Operating name
First name
Last name
Title
Address (number and street)
City
Province, territory or state Postal code or ZIP code
Country

## Information for the respondent

### **Authority**

This is a voluntary survey conducted under the authority of the Statistics Act, Revised Statutes of Canada, 1985, Chapter S-19. Your cooperation is important to ensure that the information collected in this survey is as accurate as possible.

#### Survey purpose

The Agricultural Water Survey is conducted to gather information on water use, irrigation methods and practices, and sources and quality of water used for agricultural purposes.

This survey is part of the Canadian Environmental Sustainability Indicators (CESI) program. The data collected will be used in CESI's reporting activities and to inform water use policy and development of programs for Canadian irrigators. Statistics Canada will also use the survey results to report on total water use by sector in Canada. Your information may also be used by Statistics Canada for other statistical and research purposes.

#### Confidentiality

Statistics Canada is prohibited by law from releasing any information it collects which could identify any person, business, or organization, unless consent has been given by the respondent or as permitted by the Statistics Act. Statistics Canada will use the information from this survey for statistical purposes.

#### Record linkage

To enhance the data from this survey and to minimize the reporting burden, Statistics Canada may combine it with information from other surveys or from administrative sources.

### Data-sharing agreements

To reduce respondent burden, Statistics Canada has entered into data-sharing agreements with federal, provincial and territorial government organizations, which have agreed to keep the data confidential and use them only for statistical purposes. Statistics Canada will only share data from this survey with those organizations that have demonstrated a requirement to use the data.

Section 12 of the Statistics Act provides for the sharing of information with federal, provincial or territorial government organizations. Under Section 12, you may refuse to share your information with any of these organizations by writing a letter of objection to the Chief Statistician and returning it with the completed questionnaire. Please specify the organizations with which you do not want to share your data.

For this survey, there are Section 12 agreements with Agriculture and Agri-Food Canada, Environment Canada, the Institut de la statistique du Québec, Manitoba Agriculture, Food and Rural Development, and Alberta Agriculture and Rural Development.

For agreements with provincial government organizations, the shared data will be limited to information pertaining to business establishments located within the jurisdiction of the respective province.

YOUR PARTICIPATION IN THIS SURVEY IS IMPORTANT REGARDLESS OF HOW MUCH IRRIGATION WAS DONE DURING THE GROWING SEASON.

4-2300-110.1: 2018-05-09

## Instructions for completing this questionnaire

Who should complete this survey?

This survey is addressed to the farm operation and is to be completed by a person that has good knowledge of the irrigation activities practiced on this farm.

- If exact values are not available, please provide estimates.
- Comments on any part of the survey should be provided in the space on the second-last page of the questionnaire.
- Please return the completed questionnaire within 30 days of receipt by mail, using the enclosed, postage paid envelope.

## Cropland and Irrigation in 2018

Please refer to the **2018 growing season** when answering the following questions.

Irrigation is defined as applying water to the soil to assist the growing of crops in dry areas during periods of inadequate rainfall; to prevent soil compaction or erosion; or to protect plants against frost.

#### Include:

 all irrigated land, producing or non-producing, used for forage crops, fruits, vegetables, field crops, hay and improved pasture, on owned land or land rented or leased from others

### **Exclude:**

- land rented or leased to others
- summerfallow
- Christmas trees
- greenhouses, nurseries and sod operations
- land drained by a drainage system that is never irrigated

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# **Irrigating operations**

**Irrigating** is defined as applying water to the soil to assist the growing of crops in dry areas during periods of inadequate rainfall; to prevent soil compaction or erosion; or to protect plants against frost.

1.	Have you ever irrigated you	ır crops?				
	CO201 1 Yes					
	No → Thank yo days of	ou for your cooperation. Pleas receipt by mail, using the end	se return the questionnaire <b>within 30</b> closed postage paid envelope.			
2.	Did you irrigate your crops	in 2018?				
	C0101 1 Yes 3	No				
3.	In 2018, were you unable to i	rrigate for any length of time	because of any of the following issues?			
	Shortage of surface	ce water	$O_{x} O_{x}$			
	Shortage of under	rground water (include shallov	w wells and deep wells)			
	Poor water quality	4				
	High cost of obtain	ining water	<b>A</b>			
	lrrigation ban		Ì			
	Other issue(s), sp	pecify: C0307				
	No issues prevent	ted irrigation for any length of	time			
	you did not irrigate at all in 20 ing the enclosed, postage paid		nnaire within 30 days of receipt question 4.			
4.	Will you be using acres, hectares, or arpents to report land areas?  This same unit should be used throughout the questionnaire.					
	CO401 1 Acres	<sup>2</sup> Hectares	<sup>3</sup> Arpents			
5.	What was the total land area or non-producing, that irriga		pasture on this operation, producing a 2018?			
6.	What unit of measure will y This same unit should be Unit of measure used for quan	used throughout the surv	ty of water used for irrigation?			
C0604	01 Inches	<sup>05</sup> Total gallons (US)	<sup>09</sup> Imperial gallons per acre			
	02 Millimetres	<sup>06</sup> Total litres	<sup>10</sup> US gallons per acre			
	03 Total acre-feet	<sup>07</sup> Total cubic metres	Other; please specify:			
	<sup>04</sup> Total gallons (imperial)	OB Acre-feet per acre	C0604_1			

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		Irrigation volumes – Forage cro	ops			
7a.	a. Did you produce or grow <b>forage crops</b> on this operation during the 2018 growing season? Include hay, improved pasture and silage.					
	C0601 1 Yes 3	No → Go to question 8a				
7b.	Did you apply irrigation	to <b>forage crops</b> on this operation d	uring the 2018 growing season?			
	C0602 1 Yes 3	No → Go to question 8a				
7c.	Specify the total land area to question 4. A land area that counted once. For example,	rigation applied to for <b>forage crops</b> hat received irrigation in 2018 using the uniform received irrigation multiple times during the if you irrigated 100 acres in July and the st, the size of the irrigated crop area is 15	nit of measure specified in the season should only be same 100 acres plus an			
7d.	d. How much water was applied to the <b>forage crops</b> in each of the following months?  Please provide the quantity of water, as well as the irrigated land area using the unit of measure specified in question 4. Enter a "0" if there was no irrigation for a particular month.					
	2018	Quantity of water	Irrigated land area			
	April C0605		C0613			
	May C0606		C0614			
	June		C0615			
	July		C0616			
	August		C0617			
	September C0610		C0618			
	October C0611		C0619			
	TOTAL C0612					

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		Irrig	ation volu	ımes - Field	crops	
8a.	a. Did you produce or grow <b>field crops</b> , <b>including potatoes</b> , on this operation during the 2018 growing season? Exclude hay, improved pasture and silage.  If needed, see the crop guide at the end of the questionnaire.					
	<sup>CO701</sup> 1 Yes	3 1	No → Go to	question 9a		
8b.	Did you apply irrigati growing season?	on to <b>field</b>	crops, inc	luding potato	oes, on this opera	tion during the 2018
	<sup>C0702</sup> <sup>1</sup> Yes	3 1	No → Go to	question 9a		
8c.	What area of land v	vas irrigati	on applied	to for <b>field</b>	crops, including	potatoes?
	Specify the total land a question 4. A land area counted once. For exar additional 50 acres in A	that receive mple, if you i lugust, the s	ed irrigation r irrigated 100 ize of the irri	nultiple times of acres in July a gated crop area	uring the season should the same 100 ac a is 150 acres.	ould only be res plus an
80.	d. How much water was applied to the <b>field crops</b> , <b>including potatoes</b> , in each of the following months?  Please provide the quantity of water, as well as the irrigated land area using the unit of measure specified in question 4. Enter a "0" if there was no irrigation for a particular month.					
	2018 Quantity of water Irrigated land area					
	April	C0705			C0713	
	May	C0706			C0714	
	June	C0707			C0715	
	July	C0708			C0716	
	August	C0709			C0717	
	September	C0710			C0718	
	October	C0711			C0719	
	TOTAL CO71	2				

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		Irrigation volum	es – Fruit crops			
9a.	a. Did you produce or grow <b>fruit crops</b> on this operation during the 2018 growing season? If needed, see the crop guide at the end of the questionnaire.					
	C0801 1 Yes 3	No → Go to qu	estion 10a			
9b.	Did you apply irrigation t	o <b>fruit crops</b> on this	operation during th	e 2018 growing season?		
	C0802 1 Yes 3	No → Go to qu	estion 10a			
9c.	What area of land was in	rigation applied to fo	or fruit crops?			
	Specify the total land area that question 4. A land area that counted once. For example, additional 50 acres in Augus	received irrigation mult if you irrigated 100 acr	iple times during the se res in July and the same	ason should only be a 100 acres plus an		
	C0803		4			
9d.	How much water was ap Please provide the quantity specified in question 4. Ente	of water, as well as the	irrigated land area usin	g the unit of measure		
		ONK				
	2018	Quantity of	water	Irrigated land area		
	April C0805			C0813		
	May	<del>2</del> 9		C0814		
	June C0807			C0815		
	July C0808			C0816		
	August			C0817		
	September C0810			C0818		
	October C0811			C0819		
	TOTAL C0812					

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		Irrigat	tion volum	es - Vegeta	able crops	
10a.	Da. Did you produce or grow <b>vegetable crops</b> , <b>excluding potatoes</b> , on this operation during the 2018 growing season? <i>If needed, see the crop guide at the end of the questionnaire.</i>					
	<sup>C0901</sup> 1 Yes	3	No → Go to	question 11		
10b.	b. Did you apply irrigation to <b>vegetable crops</b> , <b>excluding potatoes</b> , on this operation during the 2018 growing season?					this operation
	<sup>C0902</sup> <sup>1</sup> Yes	3	No → Go to	question 11		
10c.	c. What area of land was irrigation applied to for <b>vegetable crops</b> , <b>excluding potatoes</b> ?  Specify the total land area that received irrigation in 2018 using the unit of measure specified in question 4. An area that received irrigation multiple times during the season should only be counted once. For example, if you irrigated 100 acres in July and the same 100 acres plus an additional 50 acres in August, the size of the irrigated crop area is 150 acres.					
TOG.	following months?	antity of wate	er, as well as the	ne irrigated land	area using the unit	atoes, in each of the  of measure specified in  Irrigated land area
	April	00905			C0913	
	May	C0906			C0914	
	June	C0907			C0915	
	July	C0908			C0916	
	August	C0909			C0917	
	September	C0910			C0918	
	October	C0911			C0919	
	TOTAL	0912				

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# **Irrigation systems**

11. What **irrigation method** was used to irrigate your crops in 2018? **Mark all that apply**. *If needed, see the crop guide at the end of the questionnaire.* 

	Forage crops, including hay, improved pasture and silage	Field crops, including potatoes	Fruits	Vegetables, excluding potatoes
Sprinkler irrigation Systems distribute water above the crop canopy using a spray. Sprinkler irrigation systems include hand move; solid or permanent set; side roll, wheel line, wheel move or wheel roll; traveller, volume gun, travelling gun, walker, overhead or circular; linear move; and centre pivot.	C1001_1	C1002_1	C1003_1	C1004_1
Micro-irrigation  Delivers water onto the soil surface very close to the crop or below the soil. It includes surface drip, sub-surface drip, micro-sprinklers, bubblers, micro jets and hand watering.	C1001_2	0(002_2	C1003_2	C1004_2
Surface irrigation  The water flows over the soil surface by gravity, either by flooding or in furrows. It includes down rows, furrows, corrugations, border dyke, level basins, uncontrolled flooding and back flooding. It excludes surface drip irrigation.	01001_3	C1002_3	C1003_3	C1004_3

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	Irrigation practices and water sources						
Th	The following questions deal with possible sources of water used for irrigation.						
12.	Of all the water used for irrigation in 2018, what percentage came from each of	the fo	llowing?				
			%				
	On-farm underground water or well water, including shallow wells and deep wells	C1101					
	On-farm lakes, rivers, creeks or streams, ponds or dugouts i.e. direct access (surface water)	C1102					
	Off-farm water transported to the farm e.g., via pipeline, canal system or vehicle, including municipal water and any surface water located off-farm	C1103					
	Other source(s), c1105 specify:	C1104					
	4		100%				
	If only <b>on-farm</b> water is reported in question 12 Go to question 15  If <b>off-farm</b> water is reported in question 12, continue to question 13						
13.	Of all the <b>off-farm</b> water used for irrigation in 2018, what percentage						
	came from each of the following?	C1201	%				
	Tap water						
	Treated wastewater	C1202					
	Provincial water sources (irrigation district, irrigation project)	C1203					
	Private sources	C1204					
	Other source(s), specify:	C1205					
			100%				
14.	Why did this operation need to obtain water from an <b>off-farm</b> source in 2018 <b>Mark all that apply:</b>	?					
	No water or not enough water available <b>on the farm</b> for irrigation						
	Poor quality of <b>on-farm</b> water for irrigation						
	C1304						

C1303

Other reason(s) specify:

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on	this operation during the 2018 growing season.
15.	Which of the following practices were used in 2018 to conserve water or energy?  Mark all that apply:
	C1401 Wind breaks
	Leaving stubble on fields (e.g., minimum tillage, direct seeding)
	Watering at night or in the morning
	C1404 Pressure reduction
	Water or energy saving nozzles
	Incorporating compost or other organic material into soil to increase soil water retention
	Other water or energy saving methods or devices
	C1408 No practices used
	Comments
16.	Approximately how long did it take to collect the data and complete the survey?
17.	We invite your comments on any section of the survey.  Please be assured that we review all comments with the intent of improving the survey.
C1501	
C1502	
C1503	
C1504	
C1505	
C1506	
01300	
	Thank you for your cooperation. Please return the completed questionnaire within 30 days of receipt by mail, using the enclosed, postage paid envelope.

The following question asks about water and energy practices used for irrigation

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## Crop guide

## Field crops

Barley Dry field peas Safflower
Borage seed Flaxseed Soybeans
Buckwheat Ginseng Sugar beets
Canary seed Lentils Sunflower seeds

CanolaLinolaTobaccoCaraway seedMixed grainsTriticaleChick peasMustard seedWheat

Coriander seed Oats Other field crops

Corn for grain Potatoes
Dry beans Rye

#### **Fruits**

Apples Kiwis Raspberries
Apricots Nectarines Saskatoon berries
Blueberries Peaches Strawberries
Cherries Pears Other truit

Cranberries Plums
Grapes Prunes

## **Vegetables**

Garlic **Pumpkins** Asparagus **Gherkins** Beans (green or wax) Radishes Leeks Beets Rhubarb Broccoli Lettuce Rutabagas Brussels sprouts Melons (watermelon) Spinach Melons, other Cabbage (Chinese) Squash Onions (dry) Cabbage (regular) **Tomatoes** Carrots (including baby) Onions, green **Turnips** Cauliflower Parsley Zucchini Other herbs Celery **Parsnips** 

Peas (green)

Cucumbers Peppers

## **Forage Crops**

Corn (sweet)

Alfalfa Timothy Fescue

Clover Orchardgrass Sorghum-sudan Trefoil Canarygrass Wheatgrass

Bromegrass Ryegrass

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Other vegetables