

# Agricultural Water Survey, 2012

Confidential when completed

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

**Correct pre-printed information, if necessary, using the corresponding boxes below.**

Farm name (if applicable)

C0002

Telephone number

C0017

Surname or family name

C0028

First name

C0008

Address (R.R., Box no., number and street name)

C0004

City

C0005

Province

Postal code

C0001

C0007

## Information for the respondent

### 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 on Canadian farms. The results will help farm operators, governments and the Canadian public gain a better understanding of the demand for water and how it is used on Canadian farms. Your information may also be used by Statistics Canada for other statistical and research purposes.

### Confidentiality

Statistics Canada is prohibited by law from publishing any statistics which would divulge information obtained from this survey that relates to any identifiable business, institution or individual, unless written consent has been given by the respondent, or as permitted by the *Statistics Act*. The data reported on this questionnaire will be treated in confidence, used for statistical purposes and published in aggregate form only.

### Authority

This is a voluntary survey conducted under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S19. Your cooperation is important to ensure that the information collected in this survey is as accurate as possible.

### Data linkage

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

### Data-sharing agreements

In an effort to reduce respondent burden, Statistics Canada has entered into agreements, under Section 12 of the *Statistics Act*, for sharing information from this survey with: Agriculture and Agri-food Canada; Environment Canada; Prince Edward Island Department of Agriculture; New Brunswick Department of Agriculture and Aquaculture; the Institut de la statistique du Québec; Manitoba Agriculture, Food and Rural Initiatives; Saskatchewan Ministry of Agriculture; and Alberta Agriculture and Food. These organizations must keep the information confidential and use it for statistical or research purposes only, not for regulatory activities.

Under Section 12 of the *Statistics Act*, 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 organization with which you do not want to share your data. For agreements with provincial government organizations, the shared data will be limited to information pertaining to farm operations 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.

## 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 2012

Please refer to the **2012 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

## 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. Did you irrigate your crops in 2012?

- C0101 1  Yes → Go to question 3  
 3  No

2. Have you ever irrigated your crops?

- C0201 1  Yes → Go to question 3  
 3  No →

Thank you for your cooperation.  
 Please return the questionnaire **within 30 days of receipt** by mail, using the enclosed postage paid envelope.

3. In 2012, were you unable to irrigate for any length of time because of any of the following issues?  
**Mark all that apply:**

- C0301  Shortage of surface water  
 C0302  Shortage of underground water (include shallow wells and deep wells)  
 C0303  Poor water quality  
 C0304  High cost of obtaining water  
 C0305  Irrigation ban  
 C0306  Other issue(s), specify: C0307 \_\_\_\_\_  
 C0308  No issues prevented irrigation for any length of time

If you did not irrigate at all in 2012, please return the questionnaire **within 30 days of receipt** using the enclosed, postage paid envelope. **Otherwise, go to question 4.**

4. Will you be using **acres, hectares, or arpents** to report land areas?  
**This same unit should be used throughout the questionnaire.**

- C0401 1  Acres  
 2  Hectares  
 3  Arpents

5. What was the total land area of cropland and improved pasture on this operation, producing or non-producing, **that actually received irrigation** during the 2012 growing season?

C0501           .

## Irrigation volumes – Forage crops

6a. Did you produce or grow **forage crops** on this operation during the 2012 growing season? Include hay, improved pasture and silage.

C0601   1    Yes   3    No → Go to question 7a

6b. Did you irrigate **forage crops** on this operation during the 2012 growing season?

C0602   1    Yes   3    No → Go to question 7a

6c. What area of land was irrigated for **forage crops**?

*Specify the total land area that received irrigation in 2012 using the unit of measure specified in question 4. A land 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:*

C0603  

6d. How much water was applied to the **forage crops** in each of the following months?

*Please provide the quantity of water and mark one of the units of measure listed below, 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.*

**Unit of measure used for quantity of water – check one only:**

C0604

01    Inches

05    Total gallons (US)

09    Imperial gallons per acre

02    Millimetres

06    Total litres

10    US gallons per acre

03    Total acre-feet

07    Total cubic metres

11    Other unit of measure, specify:

04    Total gallons (imperial)

08    Acre-feet per acre

C0604\_1

**2012**

**Quantity of water**

**Irrigated land area**

**April**

C0605  

C0613  

**May**

C0606  

C0614  

**June**

C0607  

C0615  

**July**

C0608  

C0616  

**August**

C0609  

C0617  

**September**

C0610  

C0618  

**October**

*(estimate, if necessary)*

C0611  

C0619  

**TOTAL**

C0612

## Irrigation volumes – Field crops

7a. Did you produce or grow **field crops, including potatoes**, on this operation during the 2012 growing season? Exclude hay, improved pasture and silage. *If needed, see the crop guide at the end of the questionnaire.*

C0701   1    Yes   3    No → Go to question 8a

7b. Did you irrigate **field crops, including potatoes**, on this operation during the 2012 growing season?

C0702   1    Yes   3    No → Go to question 8a

7c. What area of land was irrigated for **field crops, including potatoes**?

*Specify the total land area that received irrigation in 2012 using the unit of measure specified in question 4. A land 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:*

C0703         .

7d. How much water was applied to the **field crops, including potatoes**, in each of the following months?

*Please provide the quantity of water and mark one of the units of measure listed below, 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.*

**Unit of measure used for quantity of water – check one only:**

C0704

- |   |   |  |
|---|---|--|
| 01 <input type="radio"/> Inches                   | 05 <input type="radio"/> Total gallons (US) | 09 <input type="radio"/> Imperial gallons per acre       |
| 02 <input type="radio"/> Millimetres              | 06 <input type="radio"/> Total litres       | 10 <input type="radio"/> US gallons per acre             |
| 03 <input type="radio"/> Total acre-feet          | 07 <input type="radio"/> Total cubic metres | 11 <input type="radio"/> Other unit of measure, specify: |
| 04 <input type="radio"/> Total gallons (imperial) | 08 <input type="radio"/> Acre-feet per acre |  |

C0704\_1

		Quantity of water		Irrigated land area
<b>2012</b>				
<b>April</b>	C0705	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0713	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>May</b>	C0706	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0714	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>June</b>	C0707	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0715	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>July</b>	C0708	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0716	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>August</b>	C0709	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0717	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>September</b>	C0710	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0718	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>October</b> ( <i>estimate, if necessary</i> )	C0711	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	C0719	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
<b>TOTAL</b>	C0712	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>		

## Irrigation volumes – Fruit crops

8a. Did you produce or grow **fruit crops** on this operation during the 2012 growing season?  
*If needed, see the crop guide at the end of the questionnaire.*

C0801    1     Yes                    3     No → Go to question 9a

8b. Did you irrigate **fruit crops** on this operation during the 2012 growing season?

C0802    1     Yes                    3     No → Go to question 9a

8c. What area of land was irrigated for **fruit crops**?

*Specify the total land area that received irrigation in 2012 using the unit of measure specified in question 4. A land 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:*

C0803   

8d. How much water was applied to the **fruit crops** in each of the following months?

*Please provide the quantity of water and mark one of the units of measure listed below, 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.*

**Unit of measure used for quantity of water – check one only:**

C0804

01     Inches

05     Total gallons (US)

09     Imperial gallons per acre

02     Millimetres

06     Total litres

10     US gallons per acre

03     Total acre-feet

07     Total cubic metres

11     Other unit of measure, specify:

04     Total gallons (imperial)

08     Acre-feet per acre

C0804\_1

**2012**

**Quantity of water**

**Irrigated land area**

**April**

C0805   

C0813   

**May**

C0806   

C0814   

**June**

C0807   

C0815   

**July**

C0808   

C0816   

**August**

C0809   

C0817   

**September**

C0810   

C0818   

**October**

*(estimate, if necessary)*

C0811   

C0819   

**TOTAL**

C0812

## Irrigation volumes – Vegetable crops

9a. Did you produce or grow **vegetable crops, excluding potatoes**, on this operation during the 2012 growing season? *If needed, see the crop guide at the end of the questionnaire.*

C0901    1    Yes            3    No → Go to question 10

9b. Did you irrigate **vegetable crops, excluding potatoes**, on this operation during the 2012 growing season?

C0902    1    Yes            3    No → Go to question 10

9c. What area of land was irrigated for **vegetable crops, excluding potatoes**?

*Specify the total land area that received irrigation in 2012 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:*

C0903   

9d. How much water was applied to the **vegetable crops, excluding potatoes**, in each of the following months?

*Please provide the quantity of water and mark one of the units of measure listed below, 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.*

**Unit of measure used for quantity of water – check one only:**

C0904

- |   |   |   |
|---|---|---|
| <p>01   <input type="radio"/> Inches</p> <p>02   <input type="radio"/> Millimetres</p> <p>03   <input type="radio"/> Total acre-feet</p> <p>04   <input type="radio"/> Total gallons (imperial)</p> | <p>05   <input type="radio"/> Total gallons (US)</p> <p>06   <input type="radio"/> Total litres</p> <p>07   <input type="radio"/> Total cubic metres</p> <p>08   <input type="radio"/> Acre-feet per acre</p> | <p>09   <input type="radio"/> Imperial gallons per acre</p> <p>10   <input type="radio"/> US gallons per acre</p> <p>11   <input type="radio"/> Other unit of measure, specify:</p> |
|---|---|---|

C0904\_1

		Quantity of water		Irrigated land area
<b>2012</b>				
<b>April</b>	C0905	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0913	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>May</b>	C0906	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0914	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>June</b>	C0907	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0915	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>July</b>	C0908	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0916	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>August</b>	C0909	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0917	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>September</b>	C0910	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0918	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>October</b> <i>(estimate, if necessary)</i>	C0911	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	C0919	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>TOTAL</b>	C0912	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		

## Irrigation systems

10. What **irrigation method** was used to irrigate your crops in 2012? **Mark all that apply.**  
*If needed, see the crop guide at the end of the questionnaire.*

	<b>Forage crops,</b> including hay, improved pasture and silage	<b>Field crops,</b> including potatoes	<b>Fruits</b>	<b>Vegetables,</b> excluding potatoes
<p><b>Sprinkler irrigation</b>  <i>Systems distribute water onto crops in a high-velocity, high-volume spray. Sprinkler 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.</i></p>	C1001_1 <input type="checkbox"/>	C1002_1 <input type="checkbox"/>	C1003_1 <input type="checkbox"/>	C1004_1 <input type="checkbox"/>
<p><b>Micro-irrigation</b>  <i>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.</i></p>	C1001_2 <input type="checkbox"/>	C1002_2 <input type="checkbox"/>	C1003_2 <input type="checkbox"/>	C1004_2 <input type="checkbox"/>
<p><b>Surface irrigation</b>  <i>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.</i></p>	C1001_3 <input type="checkbox"/>	C1002_3 <input type="checkbox"/>	C1003_3 <input type="checkbox"/>	C1004_3 <input type="checkbox"/>
<p><b>Not applicable, not irrigated in 2012</b></p>	C1001_4 <input type="checkbox"/>	C1002_4 <input type="checkbox"/>	C1003_4 <input type="checkbox"/>	C1004_4 <input type="checkbox"/>
<p><b>Not applicable, not grown in 2012</b></p>	C1001_5 <input type="checkbox"/>	C1002_5 <input type="checkbox"/>	C1003_5 <input type="checkbox"/>	C1004_5 <input type="checkbox"/>



## Irrigation practices and water sources

The following questions deal with possible sources of water used for irrigation.

11. Of all the water used for irrigation in 2012, what percentage came from each of the following?

%

**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), specify:

C1105

--

C1104

--	--	--	--

100%

If only **on-farm** water is reported in question 11 → Go to question 14

If **off-farm** water is reported in question 11, continue to question 12

12. Of all the **off-farm** water used for irrigation in 2012, what percentage came from each of the following?

%

Tap water

C1201

--	--	--	--

Treated wastewater

C1202

--	--	--	--

Provincial water sources (irrigation district, irrigation project)

C1203

--	--	--	--

Private sources

C1204

--	--	--	--

Other source(s), specify:

C1206

--

C1205

--	--	--	--

100%

13. Why did this operation need to obtain water from an **off-farm** source in 2012?

**Mark all that apply:**

C1301  No water or not enough water available **on the farm** for irrigation

C1302  Poor quality of **on-farm** water for irrigation

C1303  Other reason(s) specify:

C1304

--

The following question asks about water and energy practices used for irrigation on this operation during the 2012 growing season.

14. Which of the following practices were used in 2012 to conserve water or energy?

**Mark all that apply:**

- C1401  Wind breaks
- C1402  Leaving stubble on fields (e.g., minimum tillage, direct seeding)
- C1403  Watering at night or in the morning
- C1404  Pressure reduction
- C1405  Water or energy saving nozzles
- C1406  Incorporating compost or other organic material into soil to increase soil water retention
- C1407  Other water or energy saving methods or devices
- C1408  No practices used

### Comments

15. Approximately how long did it take to collect the data and complete the survey?

	hour(s)	minutes
C9910	<input type="text"/>	C9909 <input type="text"/>

16. 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	<input type="text"/>
C1502	<input type="text"/>
C1503	<input type="text"/>
C1504	<input type="text"/>
C1505	<input type="text"/>
C1506	<input type="text"/>

Thank you for your cooperation.  
Please return the completed questionnaire within 30 days of receipt by mail, using the enclosed, postage paid envelope.

## Crop guide

### Field crops

Barley	Dry field peas	Safflower
Borage seed	Flaxseed	Soybeans
Buckwheat	Ginseng	Sugar beets
Canary seed	Lentils	Sunflower seeds
Canola	Linola	Tobacco
Caraway seed	Mixed grains	Triticale
Chick peas	Mustard seed	Wheat
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 fruit
Cranberries	Plums	
Grapes	Prunes	

### Vegetables

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