



Census of Agriculture

Detailed information for 2021

Status:

Active

Frequency:

Every 5 years

Record number:

3438

The Census of Agriculture provides a comprehensive and integrated profile of the physical, economic, social and environmental aspects of Canada's agriculture industry. It provides a snapshot in time and when compared against previous censuses, provides a powerful tool to highlight changes in the industry. It serves as a basis for public and private decision making, as well as research and analysis in areas of concern to the people of Canada.

Every five years, the Census of Agriculture collects a wide range of data at the national, provincial and sub-provincial levels, such as number of farms and farm operators, farm area, business operating arrangements, land management practices, livestock inventories and crop area, total operating expenses and receipts, farm capital and farm machinery and equipment.

Data release - April 14, 2022 (first in a series of releases)

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Description

The data collected by the Census of Agriculture are used to produce statistics on the full spectrum of the agriculture industry. The information is also used by Agriculture and Agri-Food Canada and provincial governments to develop, administer and evaluate agricultural policies, and by universities and agribusinesses for research and planning.

The census takes place every five years as decreed by the Statistics Act. It provides a historical perspective on Canadian agriculture and on trends in the industry over the years.

Clients: Federal government, provincial and territorial governments, municipal governments; libraries; educational institutions; researchers and academics; private industry; business associations and labour organizations; private citizens; public interest groups.

Subjects

- Agriculture and food (formerly Agriculture)

Data sources and methodology

Target population

The target population for the Census of Agriculture is all "census farms" in Canada. In 2021, a "census farm" is defined as an operation that produces at least one agricultural product and will report revenue and/or expenses for that agricultural production to the Canada Revenue Agency. The agricultural product(s) being produced can include any of the following: crops (hay, field crops, tree fruits or nuts, berries or grapes, vegetables, seed); livestock (cattle, pigs, sheep, horses, game animals, other livestock); poultry (hens, chickens, turkeys, chicks, game birds, other poultry); animal products (milk or cream, eggs, wool, furs, meat); or other agricultural products (Christmas trees, greenhouse or nursery products, mushrooms, sod, honey, maple syrup products).

The observed population is selected from Statistics Canada's Business Register in conjunction with information from the latest set of tax remittances. The selection process uses the detailed tax information of the establishments on the Business Register to select those which have reported agricultural commodity revenues and/or expenses, signaling that they are involved in agriculture. To ensure complete coverage, additional data and methods are used to include establishments which report their fiscal data differently.

Instrument design

User consultations

A series of workshops were held across Canada in 2017 with users such as federal departments and provincial ministries, agricultural associations, academics and agriculture service providers. Users submitted recommendations for the types of questions they would like to see on the 2021 Census questionnaire which were used to develop the content and design of the census questionnaire.

Evaluating the suggestions

Before going any further, submissions from consultations were evaluated on these key elements:

- Relevance to the agricultural sector;
- Comparability over time;
- Are of national interest;
- Level of geography required;
- Question comprehension and availability of information by farmers;
- Farmer willingness to respond;
- Demand for data;
- Type of questions (e.g., Yes/no versus value);
- Availability of other data sources; and
- Collection frequency.

Questionnaire content and development

Although the questionnaire is updated every census to reflect users' changing requirements as identified through the submission process, certain questions appear on every census. These questions — such as those on farm operators, land area, livestock numbers and crop areas — are considered essential by Statistics Canada and other major users of Census of Agriculture data. Repeating basic questions allows the census to measure change over time, while adding new questions and dropping others allows data to be collected that reflect new technologies and structural changes in the agriculture industry.

The majority of the 2021 questions are identical to questions in the 2016 Census of Agriculture. Changes to the 2021 questionnaire have nonetheless been made to better identify emerging agricultural products and trends. These emerging categories include, for example, hemp, haskaps, kale and ducks. The greenhouse and mushroom questions were also expanded to request areas for additional categories, such as greenhouse tomatoes and specialty mushrooms. Further adjustments were additionally made to content related to renewable energy, technology, direct sales, succession planning, and machinery.

New or changed questions were developed in Head Office in consultation with industry experts and tested a number of times with farm operators across Canada through one-on-one interviews on their farms and in focus groups. Farm operators selected for testing reflected regional diversity in terms of types of agriculture, production techniques, farm size, language and age. This testing proved that some questions would not perform well on the census, and that the wording of other questions would require fine-tuning. Respondent burden, content-testing results, user priorities and budgets were all taken into consideration in determining the final content of the 2021 Census of Agriculture questionnaire. The questions were approved by Cabinet in the spring of 2020.

For more information about the 2021 Census of Agriculture consultation process and its results, and the changes to the 2021 questionnaire, view the Documentation section at the bottom of this page.

Sampling

This survey is a census with a cross-sectional design.

The Census of Agriculture is designed to obtain complete and accurate data from all farms in Canada. Data are collected for all units of the target population, therefore no sampling is done.

Data sources

Data collection for this reference period: 2021-05 to 2021-09 (Census day: May 11, 2021)

Responding to this survey is mandatory.

Data are collected directly from survey respondents.

Collection

In 2021, the Census of Agriculture focuses on electronic questionnaire collection. Invitation letters are delivered to farm operations by Canada Post. Farm operators are asked to complete the 2021 Census of Agriculture online by using the secure access code provided in the invitation letter. If it is determined that a questionnaire has not been received, or if responses are missing, follow-up is conducted by telephone. For a more detailed description of the collection process, please refer to Data collection.

The age and sex of the farm operators come from what is reported in the Census of Population for each farm operator. The farm operators from the Census of Agriculture are linked to the Census of Population database using a probabilistic linkage method which matches personal and household information provided on both questionnaires (such as name, birthdate, telephone number, etc.). Operators on the Census of Agriculture for which no link is found will have their information imputed with that of another Census of Population person having similar characteristics.

The Census of Agriculture reduces response burden by replacing

questionnaire data with administrative data where possible. The utilization of high quality data sources — such as the Canada Revenue Agency — eliminates the need to ask respondents questions about the operating arrangement, and revenues and expenses because this information can be obtained from their tax forms. Survey data and other alternative data can also be used to populate questionnaire data in some cases.

View the [Questionnaire\(s\) and reporting guide\(s\)](#) .

Error detection

Error detection is an integral part of both collection and data processing activities. Edits are applied to microdata records during collection to identify reporting and capture errors, as well as data inconsistencies. Totals in key variables that do not equal the sum of their parts and ratios that exceed tolerance thresholds are flagged for respondents to review.

Data from paper questionnaires will be captured through the electronic questionnaire application and will be subjected to the same rigorous quality control and processing edits as the electronic responses, to identify and resolve problems related to inaccurate, missing or inconsistent data.

During data processing, additional edits are used to automatically detect errors or inconsistencies that remain in the microdata following collection. These edits include value edits (e.g. values which fall outside of expected ranges), linear equality edits (e.g. the sum of parts is equal to the total), linear inequality edits (e.g. a value for one question is always expected to be larger than the value of another), and consistency edits (e.g. an amount is reported for the value of trucks, but no trucks are reported, or the vegetables screening question is flagged as 'yes' but no area is reported for any vegetables). When errors are found, they can be corrected using the data editing and imputation processes post collection, or during the data validation process.

Extreme values are also identified, using automated methods based on the distribution of the collected information. Following their detection, these

values are reviewed by subject-matter analysts in order to assess their validity. Macro-level totals are also reviewed to make sure they line up with expectations and economic market trends. During this process, provincial or agricultural experts are consulted. In general, every effort is made to minimize the non-sampling errors of omission, duplication, misclassification, reporting and processing.

Imputation

Non-response occurs when respondents do not answer a portion of the questionnaire or the questionnaire as a whole, or when reported data are considered erroneous during the error detection steps. In those situations, imputation is used to fill in the missing information and modify the erroneous information. Many methods of imputation may be used to complete a questionnaire, including manual changes made by an analyst. The automated, statistical techniques used to impute the missing data mainly include: deterministic imputation and replacement using data from a similar unit in the sample (known as donor imputation). Usually, important variables are imputed first and are used as anchors in subsequent steps to impute other related variables. In some cases, ratio imputation and historical imputation are also used to complete the data for some specific types of units.

Manual imputation of missing data is done only for some cases when the collected data does not align with historical data or with a known data relationship. On rare occasions, these are generally done during the data validation process after thorough investigation.

Estimation

The metadata will be provided upon release.

Quality evaluation

The metadata will be provided upon release.

Disclosure control

The metadata will be provided upon release.

Revisions and seasonal adjustment

This methodology type does not apply to this statistical program.

Data accuracy

The metadata will be provided upon release.

Documentation

2021 Census of Agriculture Content Consultations

Format: [[HTML](#)]

The 2021 Census of Agriculture in detail: Changes, additions or deletions from the 2016 questionnaire by topic in the order they appear on the 2021 questionnaire

Format: [[HTML](#)]

Frequently Asked Questions

Format: [[HTML](#)]

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