Data Certification in the Canadian Census of Agriculture

At Statistics Canada, the data certification process for Census of Agriculture data has two objectives: first, to ensure that all of the data points being published are of high quality; second, to ensure that the reasons for shifts in the data are well understood and can be effectively documented and communicated to data users.

The certification committee consists of:

- a chair from outside the regular census staff who coordinates and runs the certification process
- senior managers from the Agriculture Statistics Program, including at least one director or assistant director
- senior managers from the Census of Agriculture, including the chief of the census and managers for collection, data processing, data validation and client services
- the senior methodologist of the Census of Agriculture
- two experts in the Canadian agricultural sector, external to Statistics Canada, to provide objective confrontation.

Along with this core group, all chiefs, unit heads and analysts from the regular agriculture survey programs of Statistics Canada that align with the content being presented are required to attend the relevant sessions.

Certification reports are prepared by census analysts for the assigned census variables and provided to committee members a week before the certification committee review meeting. These reports are organized by sector for each variable on the census.

The basis of the certification reports is the research that was done to produce the validation plans undertaken for each variable. Validation plans establish general anticipated results based on historical trends, survey data, administrative and related data, program and policy shifts, socioeconomic factors, literature reviews, and subject-matter expert insights.

The analytical segment of the certification reports should cover:

- the composition and concentration of the sector for that variable
- explanations for shifts in the data between the current census and the previous one (in many cases, these explanations include longer timeframes)
- an explanation of how the variable relates to other fields on the questionnaire
- an analysis of how the census data relate to confrontational datasets, including agricultural survey data, consumption data, price data, import and export data, administrative data, and remote sensing information, and an explanation of misalignment (if present)
- key points gleaned from external sources, including media reviews and discussions with producers and industry experts
- an analysis of policies and practice changes, technological and market shifts or beliefs that may contribute to or be refuted by the data
- an overview of actions taken throughout the validation process
- a suggested outcome for the certification committee’s decision.
In addition to the written reports, certification committee members are provided with detailed tabulations for all of the geographic levels at which the data are published. These include a comparison table of the number of units reporting, the value reported, and the change that occurred between the current and preceding censuses. This package also includes a tabulation of the shifts in the number of units reporting and the value reported for the variable from collection to certification, including the changes from processing, imputation and validation.

The senior methodologist for the Census of Agriculture produces an additional report that includes details on the collection and imputation rates for the variables collected on the Census of Agriculture. Under-coverage rates for the number of farms, for the total of farm area and for the total of value of sales are also included in this methodological report.

Certification committee review meetings for each province begin with the presentation by the senior methodologist of a brief summary of the methodological report. Then, following the logical order through the questionnaire segments, census analysts provide a brief recap of their key findings in formal presentations. At the end, the floor is open to committee members to discuss and determine outcomes.

Certification committee outcomes can be:

- to defer a variable to a later certification occasion to
  - wait until additional data for confrontation are available,
  - provide time for the analyst to carry out further investigation, or
  - have the analyst carry out other actions as directed by the committee
- to accept the data for publication as is
- to suppress the data because of unacceptable quality
- to direct that notes be added to the data tabulations to
  - address issues of data quality,
  - highlight shifts in concepts or methods, or
  - inform users as to the reasons for shifts in the data or clarify concepts.

At the end of the certification process, all deferrals must be resolved.

The certification committee does not apply confidentiality measures while carrying out its mandate. Confidentiality measures are applied after certification.

Certification committee reports are archived to support future data reviews.