



INSTITUTO NACIONAL DE ESTATÍSTICA  
STATISTICS PORTUGAL



# **FIFTH INTERNATIONAL WORKSHOP ON BUSINESS DATA COLLECTION METHODOLOGY**

**19-21 SEPTEMBER 2018 – STATISTICS PORTUGAL, LISBON**





# The Migration of the Canadian Census of Agriculture to an Integrated Business Program without Contact with Respondents

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# Agenda

- Evolution of the Canadian Agriculture Industry and the Data Collection Method
- Vision of the Census of Agriculture (CEAG)
- Changes to the 2021 CEAG (progressive transition to a model eliminating contact with respondents)
- 2026 and beyond: CEAG-Zero
- Future Work
- Discussion Questions



# Evolution of the Canadian Agriculture Industry





## Data Collection has Evolved



55

Familles des habitans de la paroisse de St. Jean de la Rivière

2 <sup>e</sup> Louis Felt	30	Fabrice
Margaret Longue	20	St. Jean
Martin Felt	3	fil
Louis Felt	18	fil
Nicolas Dery	20	Jeune de Jeanne Felt
Marie grand	20	St. Jean
Galvany Dery	23	Margot
Martin Dery	26	Jeune
Martin Dery	3	fil
Marie Dery	18	fil
Jeanne Claret	48	Jeune de Jeanne
Margaret Claret	38	Jeune
Marie Claret	16	fil
Marie Claret	15	fil
Marie Claret	13	fil
Marie Claret	11	fil
Marie Claret	9	fil
Marie Claret	7	fil
Marie Claret	5	fil
Marie Claret	3	fil
Margaret Claret	20	Fabrice
Martin Claret	20	St. Jean
Marie Claret	2	fil
Marie Claret	1	fil



### 2016 CENSUS OF AGRICULTURE

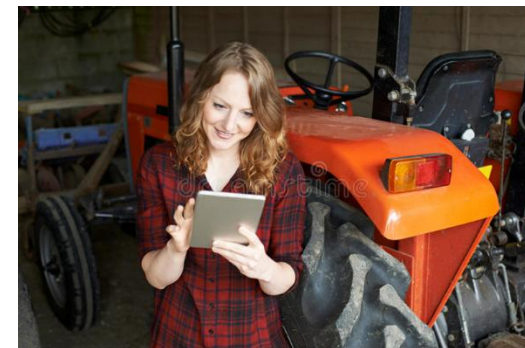
6

COMPLETE ONLINE AT:  
[www.census.gc.ca](http://www.census.gc.ca)

SECURE ACCESS CODE

Ce questionnaire est disponible en français 1-855-859-6273







## Agriculture Data at StatCan

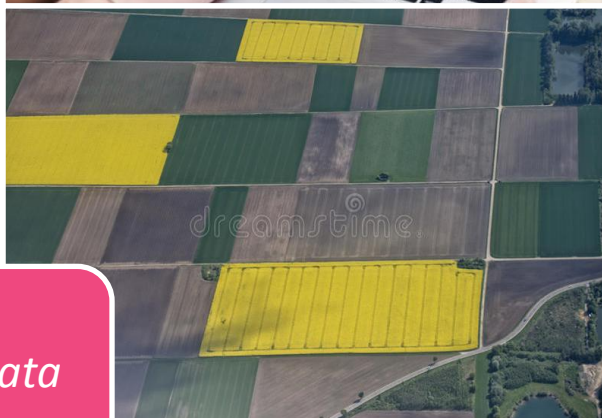
*Agriculture  
surveys*



*Census of  
Agriculture*



*Satellite data*

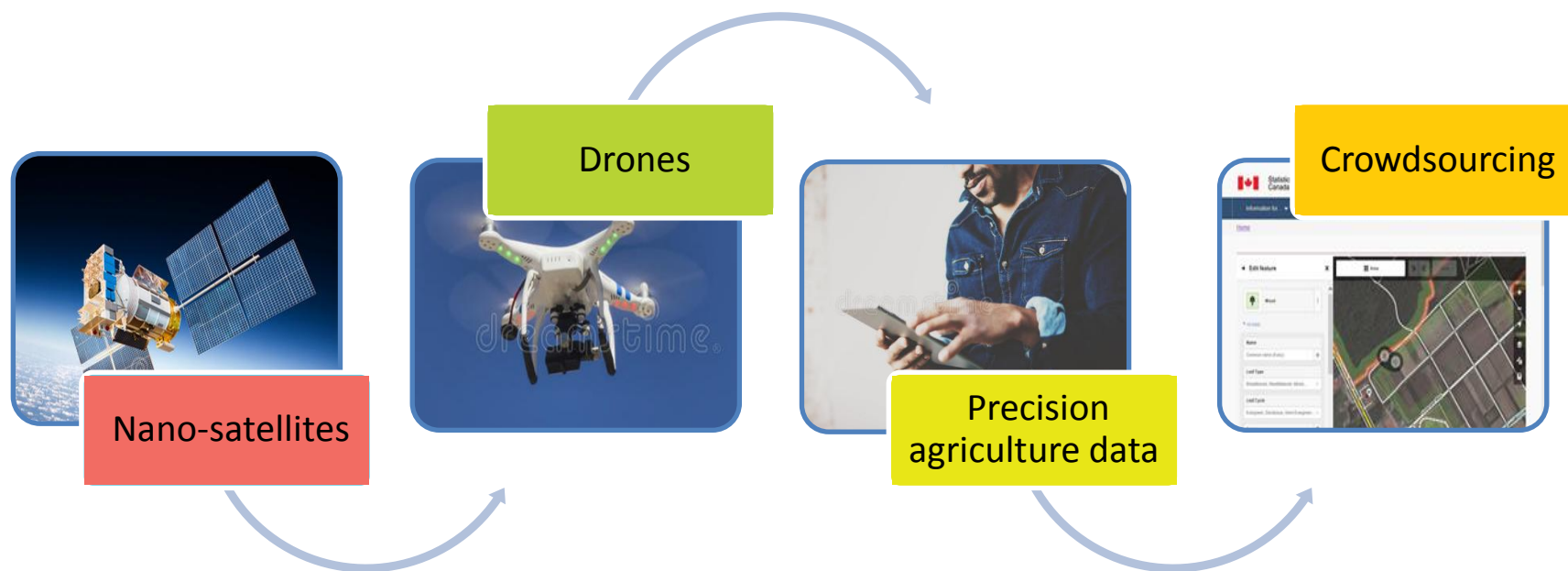


*Administrative  
data*





# Future Opportunities for Innovation at STC





# Vision for the CEAG

## Adapting the program to a rapidly changing context

*Through **partnerships** with Canadians, businesses, associations, institutions and government entities and other information centers...*

*...comprehensive, relevant and **integrated** farm data (with trade, food processing, transportation, health, environment, etc.) is produced:*

- Without contacting farmers (CEAG-Zero project);
- In a very timely fashion;
- At macro and micro level;
- At a very fine level of geographic granularity;
- Through **modern user-centric** dissemination channels.





# Vision for the CEAG

## Adapting the program to a rapidly changing context

The foundations remain unchanged

**Content** is modified based on consultations with stakeholders:

- Consultations completed for the 2021 cycle.

**Collection:** Electronic questionnaire (EQ); paper, on demand only:

- Planning assumption: 70% EQ take-up rate.
- Maximize the use of EQ functionalities to reduce the time required to complete the questionnaire.
- Use interactive web mapping application for geo-coding.

**Census day:** May 11, 2021 – same as Census of Population:

- Cost efficiencies for sharing CPOP infrastructure.



# Vision for the CEAG

## Adapting the program to a rapidly changing context

- Increased availability of administrative and alternative sources of data;
- Increased access to quality satellite imagery;
- Refinement of large dataset processing techniques;
- Information needs go beyond the primary sector;
- Farms are increasingly integrated and complex businesses;
- Statistics Canada's modernization agenda;
- It is imperative to modernize the Census of Agriculture to adapt to this new context. The Census of Agriculture 2021 is seen as one that will transition towards a new business model.



# Changes to the 2021 CEAG

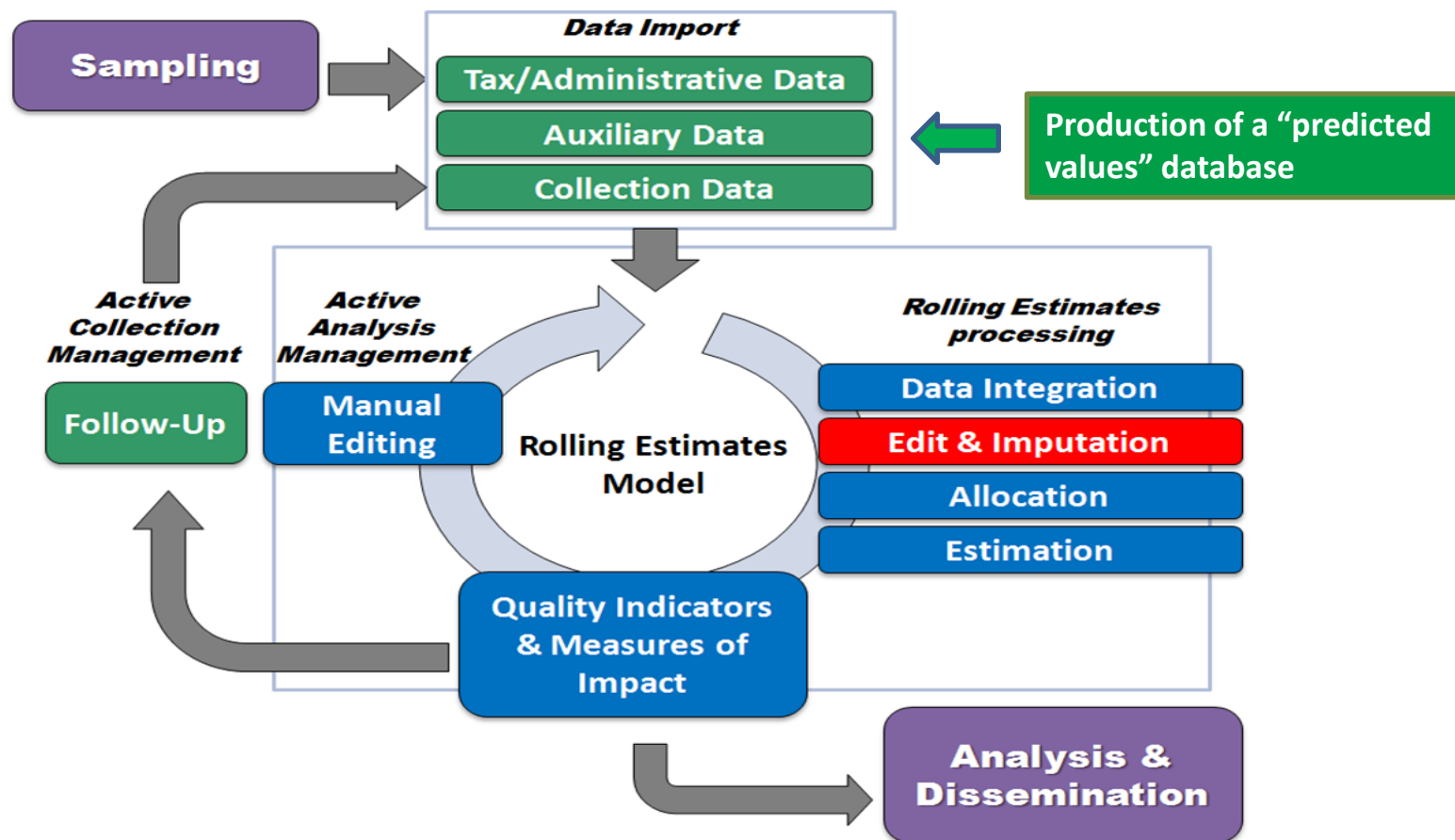
## Progressive transition to a model eliminating contact with respondents

- CEAG will maximize its integration with existing platforms and tools used in the Economic Statistics Field (Governance, BR, Collection, IBSP, Disclosure Avoidance, IT support).
  - Use of corporate services / generalized systems;
  - Better integration with other business statistics programs (e.g. Environment, Manufacturing, Trade);
  - Harmonized content between CEAG and other surveys / programs;
  - Modular approach for the questionnaire;
  - Common data repository and analytical tools;
  - Rolling Estimates ➡ An opportunity to improve the timeliness of the releases



# Changes to the 2021 CEAG

## Rolling Estimates





# Changes to the 2021 CEAG

## *Feasibility / Proof of Concept*

Production of a test environment: Predicted Values Database.

- Feasibility study - produce the results from the 2021 Census of Agriculture in parallel using administrative files, survey and satellite data and models;
- Proof of concepts / parallel run;
  - ✓ Used for both Census and survey programs .
  - ✓ Assessment of the real cost and effort to move to an administrative data driven Census of Agriculture.
- Use for validation and imputation.





# Changes to the 2021 CEAG

*Progressive transition to a model with no contact with respondents - CEAG-Zero.*

- Modular approach;
- Use of auxiliary sources of information to replace selected data;
- Increased uses of satellite imagery and other administrative files for validation and frame management;
- Develop new partnerships with data providers;
- Assessment of the transferability to survey programs.



# Changes to the 2021 CEAG

## Full Replacement versus Smart Replacement

Variables	Full Replacement	Smart Replacement	Data source
Gender	✓		Census of Population
Greenhouse & Mushroom		✓	Survey
Maple	✓		Administrative
Dairy cattle		✓	Model
Cannabis	✓		Administrative
Operating Arrangement	✓		Administrative
Detailed Operating Revenues & Expenses	✓		Administrative (same as in 2016)

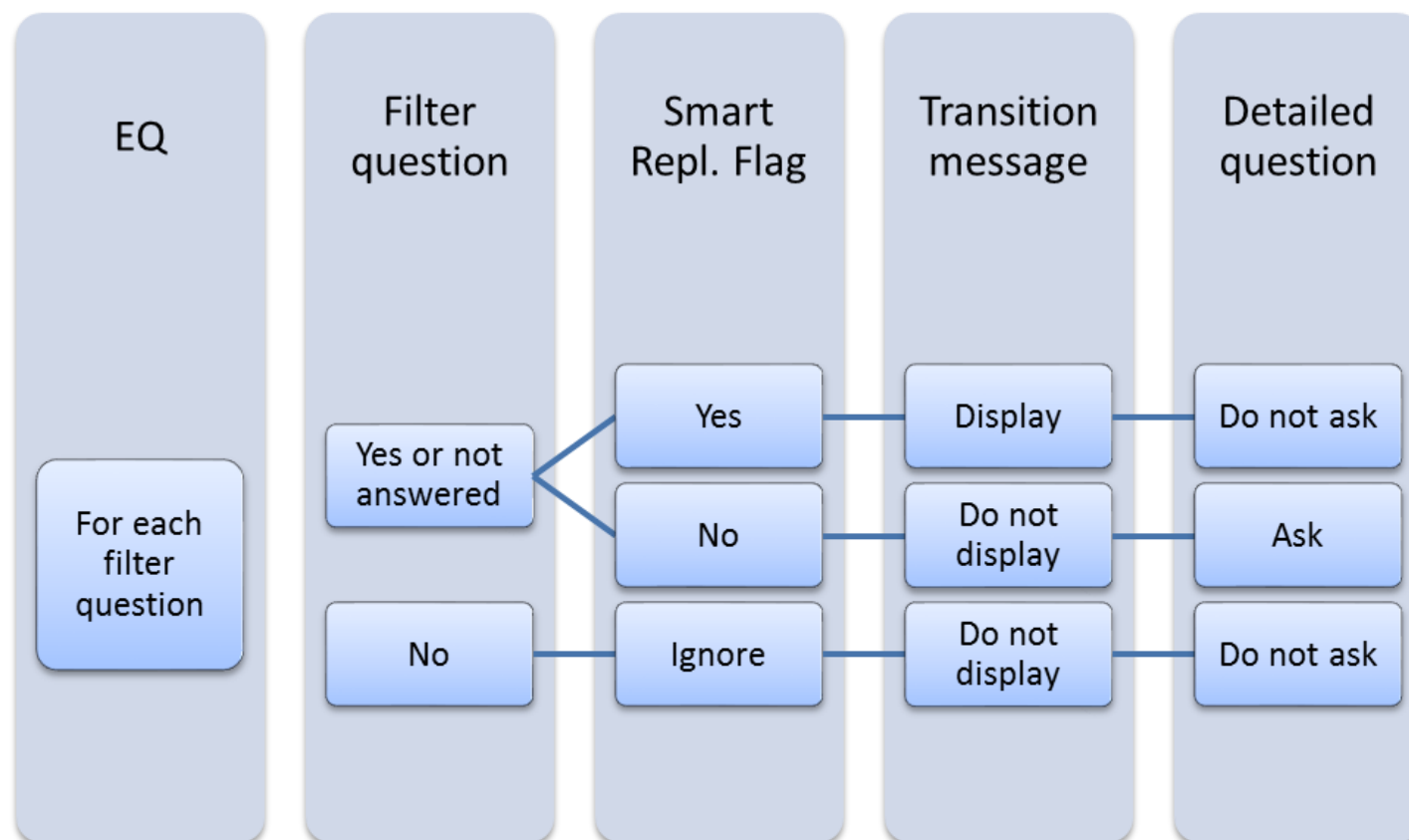
**Full replacement:** variables are excluded from respondent collection.

**Smart replacement:** Collection is customized for each respondent based on the availability of a reliable auxiliary source of information.



## 2021 CEAG

### EQ flow for Smart Replacement





## Changes to the 2026 CEAG

- CEAG 2026: From the classical approach to “CEAG-Zero” (0 or minimal contact with respondents)
  - The Census team is aiming at producing an annual census where most of the info will be derived from administrative, alternative and modelled data.
  - Data gaps will be addressed via the survey programs.



# CEAG-Zero

## Challenges

- New and varied data sources and methods:
  - ✓ Misalignment of reference periods / Breaks in the series.
- Quality: administrative or modelled data versus respondent data.
- Privacy.
- Effort and Infrastructure required for record linkages:
  - ✓ Multiple sources / limited number of records.
  - ✓ Large volume of transactions (e.g., precision agriculture data).
- HR: availability of the right skillsets.
- Resistance to change (internal and external).





## Future Work

### Efforts continue to be deployed to:

- seek ways to maximize the use of alternate data sources
- identify and evaluate the use of other potential administrative/alternate data sources from the public and private sectors
- develop partnerships with potential data providers
- enhance the processing and analysis of these various data sources to transform them into data that are fit for survey/census use or more appropriate for statistical use
- improve the statistical methods that can be used for combining data from different sources (record linkage)
- harmonize the concepts and definition from different data sources (i.e., improve data coherence)



## Discussion Questions

1. What are your experiences in the use of multi-source data? What are the main challenges that your organization have faced?
2. What are your experiences and lessons learned in working with the data providers/owners (e.g., building partnerships with them, collaborating in a mutually beneficial way, etc.)? Have you made any attempts to standardize and harmonize some concepts and definitions?
3. What are your experiences in measuring the quality of the estimates coming from a hybrid of survey and administrative data sources?



# THANK YOU!

**For more information regarding the CEAG-Zero project, please contact Mathieu Thomassin or Étienne Saint-Pierre:**

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**For more information related to the Census of Agriculture and other data products please visit: [www.statcan.gc.ca](http://www.statcan.gc.ca)**



**#StatCan100**



# Appendix a – Modernization at Statistics Canada

## Pushing the limits

Pillar	Vision
User-centric Service Delivery	Users have the information and data they need, when they need it, in the ways they want to access it, with the tools and knowledge to make full use of it.
Leading-edge Methods & Data Integration	Access to new or untapped data; modify the role of surveys; greater reliance on modelling and integration; capacity through R&D environment.
Statistical Capacity Building & Leadership	Integrated approach to collection, sharing, analysis and use of data. To be leaders in identifying, building and fostering savvy information and critical analysis skills beyond our own perimeters.
Sharing & Collaboration	Statistics Canada has developed and nurtured strategic, innovative partnerships that allow for the open sharing of data, expertise and best practices. We are proactive, flexible and responsive to partner needs.
Modern Workforce and Flexible Workplace	Have the talent and environment required to fulfill our business needs at the time and be open and nimble to continue to position ourselves for the future.