
IRELAND - Census of Agriculture 2010 – Explanatory notes

1. Historical outline

The Farm Structure Survey (FSS) collects data on the structure of agricultural holdings and is carried out by the Agriculture Division of the Central Statistics Office (CSO) of Ireland. The FSS held in 2010 was a full Census of Agriculture and took place in June 2010. In Ireland, the first Census of Agriculture was conducted in 1847 and annually thereafter until 1953. Censuses of Agriculture were then conducted every five years between 1960 and 1980, and every ten years or so after that. A Farm Structure Survey is carried out on a smaller sample approximately every three years to measure changes in farm structure between Censuses.

2. Legal Basis and Organization

The Census of Agriculture was carried out on a statutory basis under Statistics (Census of Agriculture) Order, 2010, Statutory Instrument No. 1815 of 2010, made under the Statistics Act, 1993.

The Statistics Act, 1993, which governs all the statistical activities of the CSO, makes provision for prescribing by order a requirement on persons and undertakings of particular classes to provide requested information. In advance of the Census, the Statistics (Census of Agriculture) Order, 2010, Statutory Instrument No. 181 of 2010, was enacted. This order came into effect on 1 June, the reference date of the census. It itemised, in general terms, the type of data that had to be provided, and the specific reference dates for that data. Under the Statistics Act, 1993, it was an offence for any farmer issued with a census questionnaire to refuse to supply the requested information. The Act also guarantees the confidentiality of all data provided, expressly prohibiting the disclosure of information, which can be related to any identifiable person, or holding.

The Statistics Act, 1993 also grants the CSO right of access to records of public authorities for statistical purposes (with a number of exceptions). Specifically under the Act the CSO may request any public authority to consult and co-operate with the CSO for the purpose of assessing the potential of the records of the authority as a source of statistical information and, where appropriate and practicable, developing its recording methods and systems for statistical purposes. This underpinned co-operation with the Department on the subject of its farm registers.

3. Reference Period or Date

The reference date for the livestock and crop characteristics was June 1st 2010. The reference period for all labour force characteristics was the twelve-month period prior to June 1st 2010. The reference period for the rural development measures was the three-year period between January 1st 2008 and December 31st 2010.

4. Enumeration period

The data collection for the Farm Structure Survey component took place between June 2010 and September 2010 and the Survey of Agricultural Production Methods September and October 2010.

5. Definition of the Statistical Unit

EC Regulation 1166/2008 defines the statistical unit as an agricultural holding. "Agricultural holding" or "holding" means a single unit, both technically and economically, which has a single management and which undertakes agricultural activities listed in Annex I to the European Parliament and Council Regulation (EC) No 1166/2008 within the economic territory of the European Union, either as its primary or secondary activity. In addition, the EU regulation determines thresholds of size.

No threshold was used in Ireland for 2010 Agricultural census. Excluding small units could significantly reduce state-level statistics for some characteristics that are frequently found on smaller holdings (e.g. goats, pigs, or poultry). In addition, there is a sizeable amount of common land in the state, which allows very small landholders to keep significant numbers of livestock (sheep in particular).

6. Geographic Coverage

Covered the entire country.

7. Exclusions and Cut-Off Thresholds

None, not even the minimum thresholds of agricultural activity in the national definition of an agricultural holding.

8. Methodology

Use of the FAO Modular Approach

No

Frame

The Farm register was compiled using a combination of the Central Statistics Office's (CSO) pre-existing Farm Register and two administrative databases held by the Department of Food Agriculture and the Marine (DAFM), namely the Corporate Client System (CCS) and the Animal Identification and Movement (AIM) system. The resulting Register, which was used as the frame for the 2010 Census of Agriculture contained 153,906 records.

Complete or Sample Enumeration Methods

The Census of agriculture (Farm Structure Survey) was a complete enumeration. Every identifiable agricultural holding was included. A supplementary pig questionnaire was sent to a sample of 329 pig farmers. These were farmers who reported 100 or more pigs in one or more of the preceding four pig surveys (June 2008, December 2008, June 2009 and December 2009).

The Survey of Agriculture Production Methods (SAPM) component was a sample survey.

Sample Design

Sample units for the Survey of Agriculture Production Methods (SAPM) were selected using stratified random sampling of the Central Statistics Office's updated Farm Register. As many of the questions requested information on characteristics, which are relatively rare in Ireland, a large sample of 40,000 farms was needed to address the EU precision requirements.

SAS Enterprise Guide was used to perform the sample selection, which was stratified random sampling using the Neymann allocation. Sixteen strata were used. These comprised two NUTS 2 regions crossed with five size of holding categories, and three separate strata (specialised pig units, specialised poultry units, and units greater than 100ha).

Collection Method

The Census was conducted entirely by post. Each Census of Agriculture questionnaire issued, included a pre-addressed freepost reply envelope. The that Census of Agriculture post was segregated from other post when it was delivered to the CSO and the national Post Office was able to provide an exact count of how many envelopes were returned this way. The envelopes were mechanically cut open across the top and the questionnaire held within was removed manually.

Each questionnaire was coded as either active or inactive, according to the information supplied by the respondent. The Central Statistics Office's Data Management System (DMS) includes a function, which allows for the rapid recording of returns. A hand-held electronic scanner read the unique reference number of each return, (which was pre-printed on the questionnaire in barcode format) and recorded the response code (active or inactive) and the date of return to the DMS. Inactive returns were batched separately.

Active responses were scrutinised to check for legibility of the data returned and obvious omissions or errors, scanned using an optical character recognition (OCR) scanner to capture the data on the questionnaire. A limited number of non-respondents were phoned. These consisted almost entirely of specialised pig holdings.

Questionnaire(s)

EU Regulations require information on holding location and geo-coordinates, legal status, ownership and tenancy, land use and crops grown, irrigation, livestock, organic farming, machinery (mandatory in 2013 FSS), renewable energy installations, other gainful activities, socio-economic circumstances (full and part-time farming), labour force (family, non-family, contractors), agricultural and vocational training of the manager, inclusion in rural development support programmes, soil tillage methods, crop rotation, and erosion protection, livestock keeping places and keeping methods, animal grazing, manure application and manure storage and treatment facilities, maintenance and installation of landscape features.

A number of characteristics listed for collection in the regulation were however, not collected as these were determined to be either non-existent or non-significant based on empirical data from previous Farm Structure Surveys, examination of more recent Single Farm Payment (Administration and Control System) variables as well as extensive consultations with Ministry of Agriculture and Teagasc (Ireland's national body for Agricultural Research & Training).

A small number of additional variables were collected for national purposes. The need for these variables was identified through a consultation process with the main stakeholders prior to the survey design stage. These additional variables related to sheep, poultry, equidae, deer, number of parcels of land, time to complete the questionnaire and the existence of farm accounts and their use in managing the holding.

An 8-page A4 sized questionnaire was issued to all farm holdings in the week prior to June 1st 2010 accompanied by an information booklet with detailed notes on each section of the questionnaire.

A separate 2-page A4 sized questionnaire was also issued to all specialist pig producers. The Survey of Agricultural Practices (SAPM) was issued in late September 2010. This took the form of a 4-page A4 questionnaire also accompanied by an information leaflet.

Controls to Minimize Non-Sampling Errors

All necessary steps were taken to ensure full coverage of the population. The amalgamation of information from various registers to create a frame for the Census inevitably led to duplicates. While every effort was made to eliminate these prior to issuing questionnaires, it was not possible to identify and remove all duplicates and therefore, some farms were surveyed twice. Generally farmers themselves returned the second questionnaire with the completed one. To eliminate cases where a farmer completed two separate returns, a thorough examination of the data were carried out to identify records with identical data. This was done primarily using name and address matching, but also using several of the outcome variables. In all, approximately 4,000 duplicates were identified.

A further 1,648 new holdings, not included in the initial register were identified in the 2010 administrative files and these were added to the register and included in the final population.

Innovative Methodologies

As was the case in many EU countries, Statistics Ireland relied heavily on the use of administrative data to reduce respondent burden. For example, data on cereals and potatoes were obtained from the Department of Food, Agriculture and the Marine's (DAFM) Single Payment Scheme while all data on cattle was obtained from DAFM's Animal Identification and Movement (AIM) system. A snapshot of the cattle population for a specific point in time could be extracted from the AIM system. Data from the AIM system was used for both building the register and to replace the collection of cattle variables on the questionnaire. The Integrated Administration and Control System database received from DAFM contained the geo-coordinates of every parcel of land on which a claim was being made under the Single Farm Payment scheme.

9. Data Entry, Edits and Imputations, Estimation and Tabulation

The data undergoes checks and controls throughout the processing stages. This takes place across three stages; scrutiny, verification and editing. Scrutiny is a manual process undertaken by processing staff. The function of scrutiny is to detect and rectify errors in advance of data entry. It involves visually examining the questionnaire, page by-page. Where a 'yes/no' tick box was left unchecked or an

inconsistency in the data was encountered, it was manually amended on the questionnaire where possible.

Optical character recognition scanning captured the respondent's reply to every question on the form. Each question had an answer field with a specific box for each digit to be entered. The OCR software created an image of each questionnaire. Where the OCR software could not clearly identify a character the software 'held' the questionnaire for review by a member of staff. Once this verification process was completed the data on the questionnaire was written to a flat file for import into the Central Statistics Office's database.

After data entry, the data enters verification stage. This is done electronically. Illegible digits and data are highlighted and corrected on screen by referring to previous returns or by deduction. The data then enters the edit phase where data are passed through a range of pre-programmed edit checks. Here, arithmetic checks, range checks and consistency checks (with previous returns) are carried out and data are examined where these checks fail and then edited if necessary. Each of these three stages was carried out by the Census processing staff in the CSO made up of temporary staff and more experienced supervisory staff.

10. Data Dissemination and Use

Preliminary results from the 2010 Farm Structure Survey were published nationally on February 14th 2012 as the Census of Agriculture 2010- Preliminary Results. This provided county-level data (NUTS4) for the main Census characteristics such as Utilised Agricultural Area, Livestock and Cereals. A special report on Agricultural Labour Input was published nationally in October 2012. A final detailed publication of the Census results was published in December 2012.

11. Census Data Quality

Wherever possible, census data were also compared with other sources including administrative sources. However, such comparisons were made difficult by differences in definitions and/or reference periods and as such were of limited use. The extensive substitution of administrative data for statistics that had been collected in the past directly from respondents using questionnaires also placed limits on the use of administrative data for validation and verification of the Census estimates.

12. Data Sources

Eurostat:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural_census_2010

Final report:

http://ec.europa.eu/eurostat/documents/749240/749313/IE_NMR_FSS_2010.pdf/8c218000-7700-4d1e-8ced-9fb253d210db

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