

ESTONIA – AGRICULTURAL CENSUS 2020 – METADATA REVIEW

1. Historical outline

The Agricultural Census (AC) 2020 was the seventh AC conducted in Estonia. The previous ones were conducted in 1919, 1925, 1929, 1939, 2001 and 2010.

2. Legal basis and organization

Legal framework

There is no specific national legislation for the agricultural censuses. The AC 2020 was conducted in accordance with:

- the Official Statistics Act of 1 August 2010;
- the Government Regulation "List of Statistical Activities of Statistics Estonia for 2020-2024", Order No. 51 (06 February 2020), approved by the Government of the Republic of Estonia;
- Commission Implementing Regulation (EU) 2020/405 of 16 March 2020 specifying the arrangements for, and contents of, the quality reports to be transmitted under Regulation (EU) 2018/1091 of the European Parliament and of the Council on integrated farm statistics;
- Regulation (EU) 2018/1091 of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011; and
- Commission Implementing Regulation (EU) 2018/1874 of 29 November 2018 on the data to be provided for 2020 under Regulation (EU) 2018/1091 of the European Parliament and of the Council on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011, as regards the list of variables and their description.

Institutional framework and international collaboration

The agency responsible for implementing the AC 2010 was Statistics Estonia; the responsible department was the Economic and Environmental Statistics Department. There was cooperation with the Ministry of Rural Affairs, as is customary in all agricultural statistics activities.

Census staff

Statistics Estonia uses the Generic Statistical Business Process Model in its work process, and therefore, each team is involved in the activities accordingly. A major part of the staff of Statistics Estonia participated in the AC 2020. At the same time, only a very small part of the staff were hired temporarily. The total number of annual work units of the AC 2020 can be estimated as more than 17.

3. Reference date and period

Reference day:

- 1 September 2020, for livestock and animal housing facilities.

Reference periods:

- year 2020, for land use;
- 12-month period ending on 1 September 2020, for irrigation, soil management practices, manure management, labour force;
- from 1 January 2018 to 31 December 2020, for rural development support.

4. Enumeration period

Data collection for the AC 2020 started in September 2020 and ended in January 2021. Data collection from agricultural holdings lasted from 1 September to 15 November 2020. The total unit non-response rate for core module data collection was 1.9 percent and 1.7 percent for both thematic modules (labour force and other gainful activities, and animal housing and manure management). Data collection from administrative sources continued until January 2021. Even though preparatory activities have gone according to the plan, due to Covid-19, staff has been teleworking mainly from home and have had to make additional efforts to obtain all necessary census data. Estonia experienced minor setbacks due to teleworking.

5. Scope of the census and definition of the statistical unit

The **census scope** covered agricultural activities (crop and animal production).

The **statistical unit** was the agricultural holding, defined as a single unit, both technically and economically, that has a single management and that undertakes economic activities in agriculture in accordance with Regulation (EC) No 1893/2006 belonging to groups A.01.1, A.01.2, A.01.3, A.01.4, A.01.5 or to the "maintenance of agricultural land in good agricultural and environmental condition" of group A.01.6 of ISIC within the economic territory of the Union, either as its primary or secondary activity, as it is stated in the Regulation (EU) No. 2018/1091 of the European Parliament and of the Council on integrated agricultural statistics. Regarding activities of class A.01.49, only the activities "Raising and breeding of semi-domesticated or other live animals" (with the exception of raising of insects) and "Bee-keeping and production of honey and beeswax" were included.

Community-level data

There were no community-level data collected along with the census.

6. Census coverage

Geographic coverage

The AC 2020 covered the entire country.

Cut-off threshold and other exclusions

Estonia applied the following threshold: (i) five ha of UAA; (ii) two ha of arable land; (iii) 0.5 ha of potatoes or vegetable and strawberries; (iv) 0.2 ha of aromatic and medicinal plants and herbs, flowers, seeds, nurseries; (v) 0.3 ha of fruit and berry plantations, or other permanent crops (except nurseries); (vi) 100 m² of greenhouses; or (vii) 1.7 Livestock Unit (LSU).

7. Methodology

Methodological modality for conducting the census

The modular approach combined with the use of administrative registers was used in the AC 2020. The AC was composed of a core module and two thematic modules on labour force and other gainful activities, and animal housing and manure management. Some census data for the core module and all census data related to a third thematic module on rural development were collected directly from administrative registers.

Relation to other censuses

No relationship with other censuses. Some data of smaller agricultural units below the threshold of agricultural holding have been collected through the household budget survey.

Frames

The frame for the AC was based on the Statistical Farm Register (SFR), which is continuously updated. This statistical register was first built on the basis of the AC 2001 and since then has been continuously updated on the basis of several administrative sources and statistical surveys. The main administrative sources used are: i) land use data and Register of Agricultural Animals from the Agricultural Registers and Information Board; and ii) Organic Farming Register of the Agricultural and Food Board.

Complete or/and sample enumeration methods

The AC 2020 used a combination of complete and sample enumeration. The core module was collected using complete enumeration of the 11 369 agricultural holdings, while the two supplementary thematic modules referred to labour force and other gainful activities, and livestock buildings and manure management were collected using sample enumeration. Rural development and organic farming data were sourced from administrative registers using complete enumeration.

Sample design

The AC 2020 used a stratified one-stage random sampling design to select agricultural holdings for the two thematic modules referred to labour force and other gainful activities, and livestock buildings and manure management. The stratification variables were standard output (SO)¹, type of farming² and type of production (organic/conventional). A full-coverage stratum was defined with holdings with: (i) SO of at least EUR 100 000; (ii) farming types 2 and 3 and SO of at least EUR 25 000; (iii) farming type 5 and SO of at least EUR 4 000; (iv) farming type 9; (v) new holdings. The total sample size for both modules was 4 798 holdings. Sampling weights were adjusted for non-response.

Data collection methods

In the AC 2020, data was collected using CAWI and CATI methods. The respondents were able to complete the questionnaire through the CAWI method from 1 September to 20 September 2020. Those respondents that did not complete the questionnaire using this method, were contacted by phone from 21 September 2020, and data was collected using the CATI method. Data for the core module was partially collected from administrative registers, while the rural development module were completely sourced from them. The administrative sources extensively used in the AC 2020 were: SFR, Integrated Administration and Control System (IACS), Statistical Business Register, rural developments measures, bovine register, ovine register, caprine register, organic farming register, cadastre, database of pigs, register of beehives, and employment register.

Questionnaire(s) and items covered

One questionnaire was used in the AC 2020. The questionnaire covered 20 out of 23 essential items recommended in the WCA 2020³.

8. Use of technology

CAWI and CATI were used for field data collection. A part of the census data was collected directly from administrative registers to reduce the response burden. Census results were disseminated online.

9. Data processing

Direct data capture was ensured by the CAWI and CATI methods. The data was validated through different checks: data format, completeness, range, relational, comparison with previous rounds of the data collection and with other domains in agricultural statistics. Validation rules were used in the questionnaires and within special data processing software, named VAIS. Additional validations were done through special queries. Arithmetic and qualitative controls were used in the validation process, including comparison with the data of previous periods, other surveys and administrative data sources. Items with non-response regarding land and animals were imputed using the current year's administrative data on these holdings. For the thematic modules, imputation was carried out for unit non-response in the full coverage stratum.

10. Quality assurance

A quality management system exists to assure and assess quality through different procedures: training courses, use of best practices, quality guidelines, designated quality manager, quality unit and/or senior level committee, compliance monitoring, and self-assessment. Statistics Estonia is guided by the requirements stipulated in section 7 "Principles and quality criteria of producing official statistics" of the Official Statistics Act. It performs all statistical activities according to the Generic Statistical Business Process Model (GSBPM), for which the final phase of statistical activities is the overall evaluation using information gathered in each phase or sub-process; this information can take many forms, including feedback from users, process metadata, system metrics and suggestions from employees. This information was used to prepare the evaluation report, which outlines all the quality problems related

¹ SO is an economic measure of the size of an agricultural holding. SO is based on the average annual yield per crop or animal category and is expressed in EUROS.

² The farm type is determined by the relative contribution of the different productions to the SO of the holding.

³ The following essential items were not covered: (i) 0407 Number of permanent crop trees in scattered plantings; (ii) 0601 Use of agricultural pesticides; and (iii) 0801 Household size by sex and age groups. The use of agricultural pesticides (0601) was not covered, as it is collected in another special survey according to the relevant EU regulation (EC) 1185/2009, while permanent crop trees scattered plantings (0407) do not exist in Estonia. Regarding the essential item 0801, the sex of family members is only collected if they are part of the family labour force under essential item 0901.

to the specific statistical activity and serves as input for improvement actions. Sampling errors were calculated for the estimation of variables collected through sample enumeration.

11. Data and metadata archiving

The Euro-SDMX Metadata Structure (ESMS) metadata is published on the website (<https://www.stat.ee/en/find-statistics/methodology-and-quality/esms-metadata/21210>). Data are published in the statistical database at <https://andmed.stat.ee/en/stat>. The dissemination of data collected for the purpose of producing official statistics is guided by the requirements provided for in sections 34 and 35 of the Official Statistics Act. Access to microdata and anonymisation of microdata are regulated by Statistics Estonia's procedure for the dissemination of confidential data for scientific purposes. Confidentiality was ensured by eliminating variables.

12. Data reconciliation

The threshold for agricultural holding changed starting from the AC 2020. In order to guarantee comparability with the AC 2010 data, the latter were recalculated whenever possible.

13. Dissemination of census results and microdata

The preliminary results of the AC 2020 were published on 27 January 2021. All results were published during the first half of 2021, and final results were published by the end of 2021 after their final acceptance by Eurostat. Results are available in the statistical database. Scientists can, under special contracts, use confidential microdata for research purposes at the safe centre on Statistics Estonia's premises or through remote access. They can make the analysis, but only an employee of Statistics Estonia can send the research results to the user's e-mail address after the disclosure control has been performed.

14. Data sources

Eurostat. 2021. *Integrated Farm Statistics - National quality reports 2020: Estonia* [online]. Luxembourg. [Cited 21 December 2021]. https://ec.europa.eu/eurostat/cache/metadata/en/ef_simsif_ee.htm

Statistics Estonia (SE). 2021. *Agricultural Census*. In: *SE* [online]. Tallin, Estonia. [Cited 21 December 2021]. <https://www.stat.ee/en/agricultural-census>.

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