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## ESTONIA - Census of Agriculture 2010 – Explanatory notes

### 1. Historical Outline

The Agricultural Census 2010 was the sixth in Estonia: the previous ones were conducted in 1919, 1925, 1929, 1939 and 2001. In 2001 the national threshold for the inclusion of an agricultural holding was used, the Eurostat threshold was applied after that and the 2001 data were re-estimated. On the basis of the re-estimated 2001 Census data, the current Farm Register was established, regularly updated with the available annual data and used as a frame for all agricultural statistics surveys, including the 2010 census of Agriculture.

### 2. Legal Basis and Organization

There is no specific national legislation for the 2010 Agriculture Census other than the Official Statistics Act and the official statistical programme.

Statistics Estonia conducts statistical activities according to the Official Statistics Act and the official statistical program, which is approved by the Government of the Republic each year. The Official Statistics Act states that in the collection and processing of data in the course of an Agricultural Census, a producer of official statistics shall proceed from the requirements provided for in Regulation (EC) No 1166/2008. The Government of the Republic approved the official statistical program for 2010, order No 524 (03.12.2009). These two documents stipulate the purpose of Agriculture Census, the list of data to be collected, the statistical units and respondents covered, their obligations, the reference date, etc.

The responsible agency for the Census was Statistics Estonia and the responsible department was the Agricultural Statistics Department. Several other departments of Statistics Estonia participated in the project, Data Collection Department (data collection); Data Processing Systems Department (IT); Methodology Department (electronic questionnaires); Marketing and Dissemination Department (promotion and dissemination), General Department (administration).

### 3. Reference Period or Date

The reference date was 1 September 2010, and the reference periods, in accordance with EC 1166/2008.

### 4. Enumeration Period

The Agriculture Census was conducted from 1 September to 15 November 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.

In 2010 Agricultural census in Estonia all agricultural holdings with at least one hectare of utilised agricultural area or where agricultural products produced mainly for sale were surveyed. In case of holdings with less than one hectare of utilised agricultural area and no information about products produced for sale, a physical threshold was used in order to determine potential holdings producing mainly for sale. The threshold was as follows: at least 3 cattle; 10 pigs, sheep or goats; 10 swarms of bees or 100 heads of poultry; 0.5 ha of fruit and berry plantations; 0.3 ha of fresh vegetables; 0.2 ha of nursery; 0.01 ha of outdoor flowers, crops under glass or arable land seeds.

### 6. Geographic Coverage

Covered the entire country.

### 7. Exclusions and Cut-Off Thresholds

None noted other than those stated as the minimum threshold of agricultural activity in the national definition of an agricultural holding.

### 8. Methodology

*Use of the FAO Modular Approach*

No

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### **Frame**

The target population includes all holdings that satisfy the definition of the statistical unit and that were on the Farm Register.

The Farm Register is regularly updated on the basis of several administrative and statistical sources:

- (1) Register of Agricultural Animals,
- (2) Register of Agricultural Support and Agricultural Parcels together with annual land use data,
- (3) Organic Farming Register,
- (4) Statistics Estonia Business Register (based on the Commercial Register, the Non-Profit Institutions and Foundations Register, Register of Taxable Persons, and the Register of State and Local Government Agencies),
- (5) Population Register, and
- (6) Data received by official agricultural statistics surveys.

### **Complete or Sample Enumeration Methods**

The 2010 Census of Agriculture or Farm Structure Survey and Survey of Agricultural Production Methods were a census, an enumeration of all holdings in the frame, there was no sampling.

### **Sample Design**

Not applicable.

### **Collection Method**

Two methods were used for data collection: Computer Assisted Web Interviews (CAWI) and Computer Assisted Personal Interviews (CAPI). Two routes were available to those using the CAWI option. All farms and farmers that had an account to Statistics Estonia's electronic data transmission environment eSTAT could submit data via eSTAT. If necessary, they could also deliver their data by mail or telephone. Farmers that had not joined eSTAT could also submit their data via the Internet - through the personal survey channel. An interviewer with a laptop visited those that did not make use of the Internet, telephone, or postal options.

Data regarding organic farming and rural development supports were obtained directly from the relevant registers. The general helpdesk of Statistics Estonia was available during the census. Data on crops and livestock were pre-filled in the electronic questionnaires for holders whose data were available in the relevant registers. Holders had to correct the data if needed (in some cases, explanations had to be provided).

### **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.

There was one specific 2010 Agriculture Census questionnaire but some of the information comes from administrative sources.

### **Controls to Minimize Non-Sampling Errors**

In order to minimize measurement errors, trained interviewers collected the main information from farmers wishing a Computer Assisted Personal Interview (CAPI). In addition efforts were made to ensure that the questionnaires were carefully designed and in an electronic format, and accompanied by internal arithmetical and logical checks to make sure that errors were caught and corrected during data collection.

### **Innovative Methodologies**

*CAWI : Electronic Questionnaires* - Respondents with an account to Statistics Estonia's electronic data transmission environment eSTAT could submit data via eSTAT.

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If necessary, they could also deliver their data by mail or telephone. Farmers that had not joined eSTAT could also submit their data via the Internet - through the personal survey channel.

*CAP:* An interviewer with a laptop visited those that did not make use of the Internet, telephone, or postal options.

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

The majority of data were collected through electronic questionnaires that included arithmetical and logical controls, the first stage of data checking was already done during data collection. Several types of controls were used, including controls to verify that the information was coherent and that the questionnaires were completed correctly and in full. There were also controls to identify inconsistencies compared to administrative data.

Controls were included both in the interviewer's laptops and in the Internet questionnaires. In case of unusual situations explanations had to be entered, and for others corrections were required. Only errors in the eSTAT Web questionnaires could be left for later correction and so holders sometimes quit and gave up on the application without making corrections. Interviewers corrected errors on the spot with the holder.

The corrected data were then given a final check at Statistics Estonia by a special program, which again included all the controls in the Data Suppliers Manual. All the initial checks were performed as during the data collection and as well as some additional checks, including comparisons with other surveys.

Imputation was used only on a very small scale and in general only in case of unit non-response (holders that could not be contacted or refusals). Imputations were mostly done using the cold-deck imputation method. Land use data and data on livestock were imputed only on the basis of the current year's administrative data. In the case of other characteristics, data from the Farm Structure Survey 2007 were used but when those data were missing, the hot-deck nearest-neighbour imputation method was used for imputation.

## **10. Data Dissemination and Use**

The preliminary data from the 2010 Census were published on 17 December 2010 in the form of a press release for the number of holdings and utilized agricultural area by size classes.

The final results together with metadata were published on 15 December 2011 in the statistical database of Statistics Estonia ([www.stat.ee](http://www.stat.ee)). Simultaneously with the publication of the data in the statistical database, a press release was published. Micro data files together with the methodological report were delivered to Eurostat within the first quarter of 2012.

Researchers can, under special contracts, use anonymised micro data for research purposes at the safe centre on Statistics Estonia's premises or using remote access. They can analyse the data but they must remain with Statistics Estonia until an employee has subjected the information to disclosure control.

## **11. Census Data Quality**

The Census data were compared with other sources both on the micro and macro data level. Comparisons were made with the Register of Agricultural Animals, Register of Agricultural Support and Parcels (including land use data from 2010), Organic Farming Register, Crop Production Survey and animal surveys. The differences in the micro data were clarified and corrected if necessary. Sometimes the holders were contacted for additional information. Differences in the macro data were often caused by differences in definitions and methodology.

## **12. Data Sources**

Eurostat: :

[http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural\\_census\\_2010](http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural_census_2010)

Final report:

[http://ec.europa.eu/eurostat/documents/749240/749313/EE\\_NMR\\_FSS\\_2010.pdf/13d96e39-5973-4aa0-9382-2e1dfd0343a4](http://ec.europa.eu/eurostat/documents/749240/749313/EE_NMR_FSS_2010.pdf/13d96e39-5973-4aa0-9382-2e1dfd0343a4)

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### **13. Contact**

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### **Website**

Statistics Estonia: [www.stat.ee](http://www.stat.ee)

2010 Agricultural Census: <http://www.stat.ee/ac2010>