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## LUXEMBOURG - Census of Agriculture 2010 – Explanatory notes

### 1. Historical Outline

A yearly Farm Structure Survey is organized in Luxembourg since 1953. This survey is used to meet the requirements of the European Farm Structure Survey (FSS). Until 2010 this survey was organized as a census with an indirect collection mode via municipalities.

For the reference year 2010, Luxembourg organized a direct data collection to satisfy the requirements of the Regulation (EC) no. 1166/2008 of the European Parliament and of the Council of 19 November 2008 on farm structure surveys and the survey on agricultural production methods and repealing Council Regulation (EEC) No 571/88.

### 2. Legal Basis and Organization

At the national level, the farm structure survey ("FSS") and the Survey on Agricultural Production Methods (SAPM) were based on the modified Law of July 1962 establishing STATEC. The law authorizes STATEC to undertake and/or coordinate public interest surveys for statistical purposes with the constraints of mandatory response for the respondents and statistical confidentiality for the National Statistics Institute (NSI).

As from reference year 2010, in order to minimize the burden of the survey on agricultural holdings and municipalities and to ensure the best possible quality of the FSS and SAPM variables, the survey was still organized as a census but by directly contacting the agricultural holdings, using a list of agricultural holdings extracted from the database managed by the Service d'économie rurale (SER). Administrative sources cover most of the FSS variables.

SER is responsible for the collection of data on land area, animals, organic farming and rural development. Land area and animal figures come from the application forms for subsidies, which were sent to all agricultural holdings. Data on organic farming exist in the Organic farming register and data on rural development are provided by the Ministry of Agriculture database (payments supporting rural development). These data sets were merged and made available to STATEC as an administrative source to minimize the statistical burden on agricultural holdings.

STATEC is responsible for collecting the data related to machinery, labour force, other gainful activities and agricultural production methods with a dedicated Agricultural Census. As from the reference year 2012 onwards, the annual Agricultural Census is referred to as the Farm Structure Survey.

### 3. Reference Period or Date

The reference date was April 1, 2010 for land areas, animals and rural development and May 15, 2010 for the other characteristics. Labour force characteristics refer to the 12-months period ending on May 15, 2010. Rural development characteristics refer to the 3 year period (2007, 2008, 2009).

### 4. Enumeration Period

At the beginning of April 2010, the agricultural holders received the National Statistics Institute (STATEC) questionnaire (reference date May 15, 2010) together with the Service d'économie rurale (SER) application forms for subsidies (reference date April 1, 2010). The questionnaires were returned to the Service d'économie rurale (SER) during May and June 2010 and then transferred as a single package to STATEC at the end of June 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.

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In line with the EU legislation, only those agricultural holdings meeting one or more of the following criteria at the reference date were obliged to respond to the survey:

- (1) at least 3 hectares of utilised agricultural area, i.e. arable land, permanent grass land, permanent crops, kitchen gardens ;
- (2) at least 0.25 hectares of fresh vegetables, melons and strawberries, flowers and ornamental plants or at least 0.30 hectares of fruit and berry plantations or at least 0.50 hectares of nurseries ;
- (3) at least 0.10 hectares of vineyards;
- (4) at least 10 horses/donkeys or 10 bovines or 20 sheep or 20 goats or 50 pigs or 1,000 laying hens or 1,000 other poultry or 1,000 rabbits.

With this threshold the Agricultural census covered 99,95% of total utilised agricultural area (UAA) and 99.89% of total livestock units ( LSU).

Holdings with less than 3 hectares of utilised agricultural area were not required to respond if they held woods or bushes or if they keep riding horses or fatten pigs for their own consumption or cultivate vegetables, strawberries and so forth for their own consumption.

## 6. Geographic Coverage

Covered the entire country.

## 7. Exclusions and Cut-Off Thresholds

Luxemburg's national threshold of 3 hectares of utilised agricultural area was used. The final list of agricultural holdings is provided by the Service d'économie rurale (SER) and used by STATEC as a basis to determine the frame contained 2,353 registered agricultural holdings with a total utilised agricultural area (UAA) of 131,166 hectares.

## 8. Methodology

### ***Use of the FAO Modular Approach***

No

### ***Frame***

The frame comprised of 2,201 agricultural holdings for the reference year 2010 defined in conformity with the EEC Regulation and was based on the database of agricultural holdings managed by the Service d'économie rurale (SER).

The source of the frame is the Register of Agricultural Holdings of the Ministry of Agriculture and it is complete for all holdings applying for payments within the common agricultural policy (CAP) or which have to be officially registered at the Ministry of Agriculture to comply with EU and national legislation (for example bovine register, food safety, animal welfare, etc.).

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

The 2010 Agricultural Census was an enumeration of all agricultural holdings that met Luxemburg's definition of a statistical unit and the Census consisted of both the Farm Structure Survey and the Survey of Agricultural Production Methods.

### ***Sample Design***

Not applicable.

### ***Collection Method***

Most of the FSS data came directly from administrative sources gathered by the Service d'économie rurale (SER) and provided to the STATEC. .

The administrative data sources used are the following:

- (1) Integrated Administration and Control System (IACS),
- (2) Bovine register (SANITEL),
- (3) Data base of the Ministry of agriculture on the payments made to farmers and other beneficiaries eligible for FEAGA or FEADER (MAFEA),
- (4) Organic farming registers.

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Data not available in administrative sources was obtained directly from the holders.

### **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.

The 2010 Agricultural Census used administrative data whenever possible in order to reduce response burden and be in compliance with EC Article 4 and Council Regulation No 1166/2008. In addition, Luxembourg included items on affiliation to a national health and retirement insurance; farm succession prospects.

There is a single comprehensive questionnaire for all holdings irrespective of their size consolidating the questions from both the Farm Structure Survey and the Survey of Agricultural Production Methods. The questionnaires were sent back by agricultural holdings via mail.

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

As is the case in many of the countries in the EU extensive use was made of all the available sources of administrative data used in support of European Union programs and policies, and as the data were subject to audit at the individual holding level data quality is considered very good. Results were compared over a period covering the last 4 years. This was mainly necessary due to the complete revision of the data production and validation processes.

The administrative data of the Service d'économie rurale SER were tested for multiple listing and misclassification errors. Multiple listing was possible because surface data were collected on viticulture by the SER for holdings that had also other surfaces and by the Institut viti-vinicole (IVV) for holdings with only vineyards. The multiple listings were resolved on a case-by-case basis. There were no misclassification issues.

### **Innovative Methodologies**

Wide use of administrative data to replace the data collection in order to reduce the respondents' burden.

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

STATEC staff as from July onwards using Blaise software for managing survey forms performed data entry. In autumn 2010, the administrative sources obtained through the Service d'économie rurale (SER) were combined with the survey data using an official common identifier to form a combined micro data set. Micro data validation was performed at STATEC to check the accuracy and plausibility of both the survey and the administrative data. Analysis was also performed at the national aggregate level with prior year data.

While data imputation was completed February 2011, the data validation process was only completed at the end of 2011. Item non-response was addressed using cold-deck imputation, hot-deck imputation and, to a minor extent, ratio imputation as well as deductive imputation. The unit non-response rate was 2.73 percent. Had it been for reasons of bias, unit non-response would not have needed to be addressed however, the EU regulations require a complete micro data set in the case of census data and missing values had to be imputed and the imputation procedures had to be extended to impute the characteristics covered by the STATEC survey to entire agricultural holdings. This process was performed in January and February 2012. The impact of this imputation was minimal, except for the workforce characteristics.

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

The dissemination of results of the Farm Structure Survey 2010 (FSS) and of the Survey on Agricultural Production Methods 2010 (SAPM) was delayed as there was a large revision of the production process

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and it was important that the quality met Eurostat's criteria first before there was any national dissemination. Data was disseminated in 2012 after the transmission of the final results to Eurostat.

The 2010 Agricultural Census publications, data, and tables are all available on-line on the Luxembourg statistics portal:

[http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF\\_Language=fra&MainTheme=4&FldrName=2](http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=fra&MainTheme=4&FldrName=2)

## 11. Census Data Quality

SER assisted the data validation by providing feedback on the aggregated data at national level for the purpose of the production of economic accounts of agriculture.

## 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/LU\\_NMR\\_FSS\\_2010.pdf/6744e715-e64e-4005-ac14-d25f4112647d](http://ec.europa.eu/eurostat/documents/749240/749313/LU_NMR_FSS_2010.pdf/6744e715-e64e-4005-ac14-d25f4112647d)

## 13. Contact

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