Food and Agriculture Organization of the United Nations

GREECE – AGRICULTURAL-LIVESTOCK CENSUS 2021 – METADATA REVIEW

1. Historical outline

The first census of agriculture and livestock was carried out in 1860 and the first systematic agricultural census in 1911. Greece also participated in the 1929/1930 World Census organized by the International Institute of Agriculture and the 1950 World Census of Agriculture organized by FAO. From 1961 to 1991, decennial agricultural censuses were organized in parallel with the population censuses. The last censuses were carried out in 1999/2000, 2009/2010, and 2021, the latter to which the data and metadata presented here refer.

2. Legal basis and organization

Legal framework

The legal basis for the Agricultural-Livestock Census 2021 (ALC) was provided by:
- the Law No. 3832 of 9 March 2010, which established the Hellenic Statistical Authority (ELSTAT) as the national statistical service responsible for conducting censuses and other statistical surveys;
- the Government Gazette 2390/B of 28 August 2012, regarding the regulation on the operation and administration of ELSTAT;
- The Government Gazette 4083/B of 20 December 2016, regarding the regulation on the statistical obligations of the agencies of the Hellenic Statistical System;
- the Law No 4772 of 5 February 2021, regarding the conduction of General Censuses for the year 2021 by ELSTAT, emergency measures for counteracting the consequences of COVID-19 pandemic, emergency fiscal and tax measures;
- 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 Structure of Agricultural and Livestock Holdings section under the Agriculture Livestock Fishery and Environment Statistics Division of ELSTAT was responsible of the ALC 2021. A work team, consisting of staff from ELSTAT and the heads of its two general directorates, coordinated the work of organising, conducting, processing data, exporting, and disseminating the results of the Census, providing relevant instructions and guidelines on various issues concerning the procedures and the output, including quality issues. The census was co-financed by the country and the European Union.

Census staff

The ALC 2021 involved 418 staff from ELSTAT. Permanent or on long-term contract employees were responsible for survey design and organization, quality control and data presentation. For data collection supervision and the initial data checks and processing, they were supplemented by short-term contract employees. In addition, 3405 enumerators were trained by ELSTAT on data collection. The enumerators were (i) private short-term contractors; and (ii) employees of Municipalities and other public services.

3. Reference date and period

Reference day: 1 November 2020, for livestock and animal housing, and 30 September 2020 for all other variables.

Reference periods:
- from 1 October 2019 to 30 September 2020, for land variables, irrigation and soil management practices, and labour force;
- from 2 November 2019 to 1 November 2020, for manure management; and
- from 1 January 2018 to 31 December 2020, for rural development measures.

4. **Enumeration period**

The ALC fieldwork was conducted from March to June 2021. Due to COVID-19, census work was affected by the lockdown and some problems with teleworking and procurement of CAPI equipment The ELSTAT had to change the data collection method from face-to-face interviews to self-reporting of the holders using CAWI with personal interviews only when necessary. ELSTAT had to shift the data collection period first from October-December 2020 to January-March 2021 and then to the final period.

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

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

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 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" (except for raising of insects) and "Bee-keeping and production of honey and beeswax" were included. In some cases, it occurred that a few holders did one declaration for several single units.

Community-level data

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

6. **Census coverage**

Geographic coverage

The ALC 2021 covered the entire country.

Cut-off threshold and other exclusions

The following thresholds for agricultural holdings were applied in the ALC 2021: (i) 0.1 ha of UAA; (ii) 0.01 ha of greenhouses, regardless of the production type, ownership, or the location of the holding; (iii) one head of cattle; (iv) two head of other "large animals" of any type and age (oxen, horses, donkeys, mules); (v) five head of small animals (sheep, goats, pigs of any age and type) or ostriches; (vi) 50 head of poultry or female rabbits; (vii) 20 hives of "domestic" or "European" bees; or (viii) any area of mushrooms. Thresholds were lowered compared to Regulation (EU) 2018/1091.

7. **Methodology**

Methodological modality for conducting the census

The ALC 2021 was composed of a core module and three thematic modules on labour force and other gainful activities, rural development, and animal housing and manure management. However, the classical approach (one-off complete enumeration) was used, even for the thematic modules.

Relation to other censuses

No relationship with other censuses.

Frames

The farm register of ELSTAT was the list frame used in the ALC 2021. The register is based on the AC 2009/2010 with regular updates from administrative sources (Registers of the Ministry of Rural Development and Food and the Ministry of Finance, mainly the Register of IACS), as well as other surveys conducted by ELSTAT, i.e., the annual specialized national agricultural surveys. Management is the responsibility of the Agriculture Livestock Fishery and Environment Statistics Division of ELSTAT, while the update procedures are implemented by experienced staff from the Applications Development Section of the Informatics Division of ELSTAT.

Complete or/and sample enumeration methods

The ALC 2021 used a combination of complete and sample enumeration. The core and the three tematic modules were collected using complete enumeration, while core data on frame extension, holdings below thresholds, were collected using sample enumeration.

Sample design

In the ALC 2021, the sample for frame extension was selected using a one-stage stratified systematic sampling from the farm register. The stratification variables were unit size, unit location, and unit specialization. Full coverage strata were considered for large scale holdings that presented high population variance for the main variables, determined by applying the cumulative root rule. The sample size of 15878 holdings was determined so that the relative standard errors of the estimates of the main variables did not exceed five percent at the country level and was allocated using Neyman allocation.

Data collection methods

In the ALC 2021, data was collected through CAWI, CAPI and CATI methods. As explained earlier, face to face interviews using CAPI were avoided to the extent possible due to Covid-19, while self-reporting using CAWI was promoted. CATI was used for non-responding holdings. Data on common land was collected from the Payment and Control Agency for Guidance and Guarantee Community Aid (OPEKEPE) which, in turn, had collected the data from the applicants for the Community Aid (farm holders), under its competence as the Integrated Administration and Control System (IACS) operator.

Questionnaire(s) and items covered

A single questionnaire was used for data collection in the ALC 2021. The questionnaire covered 19 out of 23 essential items recommended in the WCA 2020[1].

8. Use of technology

CAWI, CAPI and CATI were used for field data collection. Census results were disseminated online.

9. Data processing

Direct data capture was ensured by the three data collection methods. Data was validated by staff from local and central departments using data format checks, completeness checks, range checks, relational checks, and comparisons with other domain in agricultural statistics. Validation was carried out using internally developed Oracle SQL based custom applications and Microsoft Excel. In order to minimize processing errors, data collection and processing were automated to the extent possible. Specifically, a Computer Assisted Instruction (CAI) approach was adopted, using a web questionnaire incorporating as many logical and quality controls, as possible. Correction of the remaining processing errors was attempted by imputation using ratio imputation and administrative sources such as the Integrated Administration and Control System (IACS). Imputation was carried out using custom Oracle SQL based applications developed in-house and also Microsoft Excel. The sampling weights for the frame extension sample were calculated using design weights and non-response adjustments.

10. Quality assurance

ELSTAT aims to ensure and continuously improve the quality of the statistics produced and to maintain the trust of users in these statistics. These objectives are achieved, as described in the Quality Policy available at http://www.statistics.gr/documents/20181/2571f853-1e37-46da-9387-595bbe2a162b, through the following principles: safeguard and substantiate the operational independence of ELSTAT, produce timely and relevant statistics using scientifically sound methods, establish and maintain user confidence in the reliability of statistics, and safeguard the trust of the statistical units that provide their confidential information for the preparation of statistics. These quality objectives are achieved by incorporating the guidelines listed above at all stages of statistical collection, production, and dissemination. Some procedures were carried out to assure and assess quality in the ALC 2021 such as training courses, quality guidelines, self-assessment, and peer review. The quality assessment procedures included: the evaluation of the statistical procedures and output of every statistical survey/work, on the basis of Code of Practice (CoP) principles and best practices in the European Statistical System; the participation in the peer reviews, which are periodically conducted throughout

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[1]The following essential items were not covered: (i) 0107 Main purpose of production of the holding; (ii) 0407 Number of permanent crop trees in scattered plantings (for each tree crop); (iii) 0601 Use of agricultural pesticides; and (iv) 0801 Household size by sex and age groups.

the European Statistical System; and the evaluation of the implementation of CoP principles 1 - 6 in the Hellenic Statistical System by the Good Practice Advisory Committee, which is an independent advisory committee, whose members were selected from among experts with exceptional skills and national and/or international experience in matters relating to the CoP. Sampling errors were estimated for estimates computed from the frame extension sample. Non-sampling errors were minimized carrying out the following actions: pre-testing questionnaire, explanatory notes or handbooks for enumerators or respondents, on-line FAQ or Hot-line support for enumerators or respondents, and training of enumerators to minimize measurement errors; follow-up interviews, reminders, and weighting to minimize unit non-response; imputation to minimize processing errors.

11. Data and metadata archiving

ELSTAT publishes tables containing aggregated data, usually at the level of NUTS3, along with the respective metadata at https://www.statistics.gr/en/statistics/agr. Microdata was disseminated using EU methodology and was anonymized using removal of variables, reduction of information, and merging categories. Data will be available on the ELSTAT website during the second semester of 2023.

12. Data reconciliation

There was no reconciliation process of ALC 2021 data.

13. Dissemination of census results and microdata

ALC 2021 preliminary results are disseminated through news release available at https://www.statistics.gr/en/news-announcements. A printed publication of the main final results is available in Greek and English, named Greece in figures, and is a quarterly publication since 2015, also available online at https://www.statistics.gr/en/greece-in-figures. Online detailed publications of the final results, as well as the relevant metadata file, in Greek and English, will be uploaded on ELSTAT webpage in the second part of 2023. ELSTAT grants researchers access to anonymized microdata after a favourable recommendation by the Statistical Confidentiality Committee (SCC) operating within the Hellenic Statistical System. Users can request access to microdata at data.dissem@statistics.gr.

14. Data sources

Eurostat. 2022. *Integrated Farm Statistics - National quality reports 2020: Greece* [online]. Luxembourg. [Cited 16 March 2023]. https://ec.europa.eu/eurostat/cache/metadata/en/ef_simsif_el.htm

15. Contact

Hellenic Statistical Authority
Agriculture Livestock Fishery and Environment Statistics Division / Structure of Agricultural and Livestock Holdings Section
Address: Pireos 46 & Eponiton St.,185 10 – Piraeus, Greece.
Telephone: (+30) 213 1352055; (+30) 213 1352052
E-mail: primary1@statistics.gr; primary.sector@statistics.gr, a.brati@statistics.gr
Website: https://www.statistics.gr/en/home.