1. **Historical Outline**
The studies in Poland, which to some extent corresponded to the EU farm structure surveys (FSS), were the annual June agricultural censuses (covering the entire population of farms) conducted until 1988. Since 1989, they were replaced with the June sample surveys (except for the years of agricultural censuses, namely, 1996 and 2002). In the preparation of the 1996 agricultural census, the recommendations of the FAO document "2000 World Census of Agriculture" and some requirements of Eurostat, were taken into account.

In the agricultural census carried out in Poland in 2002, most of the surveyed characteristics and their definitions were already in line with the EU requirements for the farm structure survey 1999/2000. In 2005 and 2007, as a EU Member State, Poland launched a Farm Structure Survey in accordance with the requirements and calendar of the European Union. The list of characteristics included in the survey and their definitions were in full compliance with EU requirements and the scope of the survey also included national requirements.

The 2010 Agricultural Census (Farm Structure Survey) and the Survey on Agricultural Production Methods were conducted jointly, within the same organizational structure, at the same time, and using a single electronic questionnaire and the same data collection and processing system.

2. **Legal Basis and Organization**
The institution with the authority and responsibility for conducting the Census of Agriculture was the Central Statistical Office (CSO). The Law specifies that the Census work is to be managed by the President of the CSO as the General Census Commissioner.

National legislation also specifies the list of characteristics surveyed for domestic needs, the time limit of both surveys and the reference day/period, the method of financing, and the right to use certain administrative sources and also imposes on respondents a duty to take part in the Agricultural Census and the Survey on Agricultural Production Methods and give reliable answers. Pursuant to the provisions of the Law on official statistics all the individual and personal data collected and stored are covered by statistical confidentiality.

The census organization had a hierarchical structure reflecting the state’s territorial divisions. The following levels can be distinguished in:

1. Central (country level),
2. Voivodship (NUTS 2),
3. Gmina (NUTS 5).

The census organization on the voivodship and gmina levels was established only for the time of the preparation and execution of the Census and the Survey on Agricultural Production Methods, and it was dissolved after the end of the Census. The General Census Commissioner (President of the Central Statistical Office) directed the Census work. The posts of the Deputy Census Commissioners were held by:

1. Director of the Central Census Bureau,
2. Persons appointed by the President of the Central Statistical Office.

The Central Census Bureau was responsible for the operational activities of the Census and it was supported in content-related matters by the 2010 Agricultural Census Working Group (composed of specialists in the areas of methodology, labour statistics, and agricultural statistics).

3. **Reference Period or Date**
The reference date for data on land use, sown area, livestock and the number of tractors, agricultural machines and equipment was 30 June 2010. Information on support for rural development, the average irrigated area and linear landscape elements were collected for the last three years. The reference period for the remaining data related to the 12-month period preceding the survey (1 July 2009 to 30 June 2010).

4. **Enumeration Period**
The enumeration period for the Agricultural Census and the Survey on Agricultural Production Methods was between the 1st September and 31st 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 the 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 line with the EU legislation, Poland applied the following criteria for natural persons’ holdings:
- at least 1 ha of agricultural area, or
- less than 1 ha of agricultural area and:
  - 0.5 ha fruit trees plantations or fruit shrubs plantations or field vegetables and strawberries or hops, or 0.3 ha ornamental plants and orchard nurseries, or 0.1 ha vegetables and strawberries under cover or flowers and ornamental plants under cover or tobacco, or
  - 10 head total cattle, or 5 cows, or 50 pigs, or 10 sows, or 20 sheep/goats; or 100 poultry; or 5 horses.

All legal persons’ holdings were surveyed.
The national definition was coherent and covered the EU definition. For domestic purposes, the farms with the smallest area and of little economic importance were included in the sample survey carried out jointly with the census.

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

Frame
The frame for the Agricultural Census and the Survey on Agricultural Production Methods was based on the list of agricultural holdings which was the result of an extensive multiyear exercise. The list creation started from identification of all land parcels used for agricultural purposes. The land parcels found in the set of the Agency for Restructuring and Modernisation of Agriculture (including the Records of holdings and Records of producers). For the rest of land parcels, the holders were defined from the Land and Buildings Register and the data concerning users were updated by the set of Real Property Tax Record.

The list was complemented by information on organic farms for Agricultural and Food Quality Inspection and by holdings running special branches of agricultural activity based on the data of Ministry of Finance.

The list was also updated with data of the Personal Identification Number (PESEL) and the National Official Business Register (REGON) in respect of personal data and addresses. The target population for both a full-scale farm structure survey and the sample survey on agricultural production methods constituted around 1.8 million units.

Complete or Sample Enumeration Methods
The Farm Structure Survey was a complete enumeration of all agricultural holdings in the list. The Survey on Agricultural Production Methods was conducted on a sample basis with a sample of approximately 200 thousand farms.

Sample Design
The Survey on Agricultural Production Methods was designed as a sample survey of about 10% of the holdings included in the Census. The Agriculture Census frame was used as the sampling frame. The sample selection for the Survey on Agricultural Production Methods was based on a stratified random sampling scheme. It was assumed that the size of a sample would include in total 200 thousand agricultural holdings. The size of the sample was determined by the EU requirements, Regulation (EC) 1166/2008, for data precision and by the budget constraints.
It was decided that some categories of farms would be considered as take-all strata, with no sampling. These were the following farm types:

1. Organic farms,
2. Agricultural holdings running special branches of agricultural activity,
3. Agricultural holdings of natural persons with a very large scale of cattle breeding (over 2 thousand head) or pigs (over 20 thousand head),
4. Agricultural holdings with a meaningful scale of sheep and goats breeding (over 50 head).

A specific algorithm was used in order to allocate the sample among 16 voivodships and among the corresponding strata created in those voivodships. The algorithm optimised simultaneously the limits of strata and allocation of sample between these strata in respect of accepted criteria as described in Lednicki & Wieczorkowski (2003).

**Collection Method**

In order to reduce the respondent burden and after recognising the quality of the administrative data, it was decided that the information concerning the use of support within the Rural Development Programme and organic production would be collected directly from administrative sources.

The Agricultural Census data were collected using Computer Assisted Personal Interviews (CAPI), Computer Assisted Telephone Interviews (CATI), and Computer Assisted Internet Interviews (CAII). For the first time in an agricultural census, paper forms were entirely abandoned in favour of electronic questionnaire. The used computer applications enabled the control completeness and correctness of the data already at the collection stage.

Participation in the Census was compulsory, which meant that holders were obliged to provide reliable and comprehensive answers on the questions included in the questionnaire.

**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.

In addition, Poland included items on: income structure of holder’s household; share of direct sales in the overall sales of an agricultural holding; number of separate plots composing one farm and the distance from the holding’s headquarter; area of the main crops: in kitchen gardens, for energy production, fruit trees and bushes plantations, edible legumes and feed crops for seeds, field vegetables and vegetables under cover; winter and spring cereals, and mixed cereals; number of head of heifers of beef breed and crossbreeds; specific weight and use groups of pigs; number of head of lambs and ewes used for dairy production; number of head of horses aged 3 years and older; number of head of laying hens producing eggs for consumption and hatching purposes; number of head of female fur-bearing animals (other than rabbits); number of tractors per the power of engine; number of agricultural machines, use of mineral and organic fertilisers; types of crop protection products used; current activities (as of the last week of June 2010) of the user and his/her family members (employed, active job search, readiness to be employed); number of workdays provided in the form of neighbour-to-neighbour assistance.

In Poland, the Agricultural Census (Farm Structure Survey) and the Survey on Agricultural Production Methods were carried out under the same organizational structure, at the same time and using one combined questionnaire.

**Controls to Minimize Non-Sampling Errors**

With a view to minimising the number of human errors made by enumerators and interviewers, a number of training courses were conducted at the central and regional level. A set of very detailed questionnaire completion guidelines was also developed. The use of an electronic questionnaire was extremely helpful, as it contained the necessary definitions and clarifications that could be used by both enumerators and respondents in the questionnaire completion.
process. It guided the response process, contained useful dictionaries, reported errors and suggested how they could be eliminated, validated and calculated some of the data, and automatically transferred the recurrent values, as well as, preventing omissions.

Except for a few isolated cases, the CAPI and CATI method resulted in fully completed questionnaires. Incomplete questionnaires were the most frequent in the case of the self-enumeration via Internet, and the missing data were to be completed by of interviewers or enumerators.

**Innovative Methodologies**

Administrative data replaced survey information to both reduce respondent burden and ensure data quality with regard to information on the use of Rural Development Programmes and organic production.

Multimode data collection and merging data from several sources were implemented

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

The data collected by the CAPI, CATI and CAII channels were transferred and stored in the Operational MicroData Base (OMB) built for the 2010 Agricultural Census control and correction of data using edits and imputations.

As a result of refusal or lack of contact, some 80 thousand agricultural holdings were not surveyed during the Census. Imputations were performed in the case of approximately 68 thousand farms, for which The Agency for Restructuring and Modernisation of Agriculture (ARMA) data on the area of agricultural land was available, was based on the “closest-neighbour” method. Having selected the donor farm, specific census data were transferred to the corresponding fields in the recipient farm’s record. Missing data were infrequent, and it could be usually completed on the basis of other information collected through the questionnaire.

In special cases, where the imputations failed to work, individual records were analysed and adjusted by experts, based on the data obtained from the Census as well as data concerning a given farm, which came from other surveys. This mostly concerned the cases of a large area of agricultural land, a large crop area, or a large number of certain animal species. In such cases, it was verified whether other data in the analysed records confirmed the occurrence of such a high value of certain characteristics, and whether a similar phenomenon scale was also reflected in specialised crop and animal surveys.

Following edits, imputations and the weighting of the data for the Survey of Agricultural Production Methods the data were exported to an Analytical Microdata Base (AMB) for further analysis, and the preparation of the data set for transmission to Eurostat and the development of multi-dimensional tables for internal and external users.

**10. Data Dissemination and Use**

The preliminary results of the agricultural census were published in February 2011 (basic data at the national level), and then in July 2011 in the publication entitled “Report on the Results of the 2010 Agricultural Census” (in a broader thematic scope and at NUTS 2).

The following publications are also available containing the final results of the Census and the Survey on Agricultural Production Methods:

- (a) Land use (November 2011),
- (b) Livestock and selected elements of animal production methods (December 2011),
- (c) Agricultural crops and selected elements of plant production methods (January 2012),
- (d) Means of production in agriculture (January 2012),
- (e) Horticultural crops (February 2012),
- (f) Characteristics of agricultural holdings (April 2012),
- (g) Labour force in agricultural holdings (October 2012),
- (h) Characteristics of agricultural holdings in voivodships (June 2012).

All publications contain methodological information, together with basic definitions, and basic result analyses, as well as tables and figures presenting numerical data. The reference publications are
released in paper form, and are available on-line (www.stat.gov.pl), and on CD's. The Census results are also available in a number of other formats, see the website for more information.

11. Census Data Quality
The comparison of the 2010 agricultural census results with the results of ongoing statistical surveys regarding land use, crop production and animal production, with the survey on the structure of agricultural farms in 2007, and with administrative data, indicated coherence between the observed and expected trends for major characteristics.

12. Data Sources
Eurostat:

Final report:

13. Contact
Agriculture Division, Central Census Office, Central Statistical Office
Address: Al. Niepodległości 208, 00-925 Warsaw, Poland
Telephone: (+48 22) 608 30 00

Website
Central Statistical Office Poland: www.stat.gov.pl