

Economics of agriculture  
SI – 2  
UDK: 311.312:316.334.55

## 2011 AGRICULTURAL CENSUS IN SERBIA – STRATEGIC TOOL FOR BOOSTING RURAL DEVELOPMENT PROGRAMS

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### Abstract

*The elaboration of strategic programs for the development of rural areas requires rigorous and comprehensive analysis accompanied by an increased demand for data, as an inherent support for this work. The objective of this paper is to bring into the attention of the academic community the particularities and the main concerns regarding the implementation of the 2011 Agricultural Census in the Republic of Serbia, as an answer to the endeavors for satisfying the data demands of the bodies involved in the use of agricultural statistics for analyzing the emerging issues in agriculture, especially those concerning environment and rural development. On the road of accession to European Union the role of agricultural statistics in the frame of the European Statistical System is a prerequisite for comparable information, indispensable to the implementation of the Common Agricultural Policy. Main methodological and organizational aspects regarding the next agricultural census are the main topics of this paper.*

**Key words:** Rural Development, Harmonized Statistical System, Agricultural Census, methodological principles, indicators.

### Introduction

The present European agricultural statistics system has developed as the common market organizations were implemented. These statistics acted both as a support to the rise of the common market organizations, but also as a support on the ongoing

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implementation of the common agricultural policy. Agricultural census is an essential tool for providing data needed to develop an effective strategy for the sustainable development of rural areas and of the agri-food sector. Serbia officially applied for the EU membership on 22 December 2009. The government of Serbia has the goal for the EU accession in 2014. Upon accession to the EU, each of the new member states is required to apply the *acquis communautaire*, or body of EU law, to its own national body of laws. This is why preparation for the enlargement involves intensive accession negotiations on a whole series of policies presented in the so-called *chapters*. Statistics itself is a *chapter* for negotiation. Carrying out an agricultural census is part of the calendar of actions needed on the road of accession to EU for concluding the negotiations on *Statistics Chapter*. The key challenges for statisticians in the enlargement process are the provision of data to support the negotiation process and the integration of the statistical information provided by the National Statistical Offices into the European Statistical System. For comparability reasons, at developing the *census methodology* must be considered the need for harmonization of the national statistical system with EU and international requirements and standards. The EU requirements in the statistical field, considered as a starting point for tomorrow's needs, form a comprehensive and harmonised body which fits also into the requirements of the world statistical system (FAO, OECD, UNECE, etc). The data used in the accession negotiations are based as much as possible on the European Statistical System provisions.

### Goals and objectives of an agriculture census

Agricultural census is one of the core activities in the agricultural statistical system of a country. A census of agriculture provides an accurate image of the agricultural activity and farming system of the country at a particular point in time, with a single reference date for the information. The last Agricultural Census was conducted in the Republic of Serbia in 1960. Basic data on agricultural family farm holdings were collected through the Population Censuses in 1971, 1981, 1991 and 2002. The **main goals** of the 2011 agricultural census are to provide relevant statistical information both for the development of the *national agricultural policy*, but also for *conducting the negotiations for the accession* of the Republic of Serbia to European Union. Integration in European structures imposes, as an essential condition for participation in the common agricultural policies, the existence of accurate and reliable information on the structures of agriculture of the member states.

The **main objectives** of the 2011 Agricultural Census are:

- To obtain a comprehensive list of all known agricultural holdings, as a database for conducting the current statistical sample surveys during the year.
- To supplement and update all statistical data and information on agriculture with regard to structural characteristics of the holdings.
- To provide reliable statistical information at territorial level and to picture the changes in the structure of agriculture, as a result of the privatization process (number, types and sizes of holdings).

- To provide information for commodities where level of production is limited.
- To provide data and information needed for setting up the Statistical Register of the Agricultural Holdings<sup>4</sup>.

*Achieving these objectives will help the statistical institute:*

- To provide information to decision makers with regard to the real potential of the agricultural sector, under a high regional breakdown.
- To ensure harmonized indicators needed for comparisons with other countries, by taking into account the FAO recommendations and EU regulation on carrying out an agricultural census<sup>5</sup>.
- To adopt correct decisions and the best approach during the integration process.

### **Farm structure surveys carried out in the EU – backbone of the European agricultural statistical system**

For assessing the situation of agriculture and for monitoring the trends in agricultural structures, two types of *Farm Structure Surveys* are carried out, on a harmonized base, by all EU Member States:

- a) One **basic survey** conducted at every **10 years** as an **exhaustive** full scope *Agricultural Census*;
- b) Several **sample based** *Farm Structure Surveys*. conducted every **3 years** in the period in-between two agricultural censuses; these surveys are carried out following the same methodological principles of an agricultural census, thus ensuring comparability with census data series.

If an agricultural census is generally carried out on *exhaustive* principles, farms structure surveys are carried out on a *representative sample of agricultural holdings* drawn out from the census database, regularly updated by the help of current statistical surveys

Farm structure statistics play a key role in the design, implementation, monitoring and evaluation **of the Common Agricultural Policy**. This is why, for comparability reasons, it is imperative that the methodological principles of the Farm Structure Surveys, compulsory to be regularly carried out in all EU Member States, to be fully harmonized.

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4 The Statistical Register of the Agricultural Holdings will be the main sampling frame for conducting regular surveys in agriculture.

5 FAO recommend in the guidelines for 2010 World Round of Agricultural Censuses that a census should be undertaken between 2005 and 2015. In the frame of FAO recommendations, European Union defines 2010 as being the year for carrying out the census of agriculture in all Member States.

## Census particularities

The census can provide information that cannot be regularly supplied by administrative data or sample surveys. Information is to be collected from all agricultural holdings, regardless of size or geographic location. Enumerators have to interview or leave a census of agriculture questionnaire at every agricultural holding or every farm operator. The strengths of a census lie in the collection of data from all members of the statistical population, providing very valuable information useful for historical comparisons. The census limitations reside in its significant high cost and the logistics associated with the need for considerable human and financial resources for a relatively short period of time. Having in view the large number of agricultural holdings, complete enumeration is an expensive and time-consuming operation. A large number of people and resources need to be organised and mobilised to collect and process a large volume of information in a short period of time. Even if theoretically there are no sampling errors associated with a census, the errors of concern may include errors in the frame, in establishing precise methodological definitions, in misinterpretation of the questions by respondents, in inconsistencies in field collection procedures or mistakes coming from data processing. Due to his high costs, an agriculture census is not a practical means for providing annual or seasonal agricultural data on crop or livestock production. **The census will provide only structural information on agricultural holdings but not data on production.** After the census, data on crop and livestock production will be obtained by the help of the surveys conducted regularly on the **representatives samples** selected form the census database, which will enable the statistical institute to provide accurate results in a timely manner. The large quantity of data that will be collected during the agricultural census request an extended time for their processing and analysis and, consequently, succeeding the data collection period, it is needed more then one year for being released. Preliminary data on a restricted number of indicators will be released immediately after the census.

## Methodological principles

The agricultural census is the main source of homogeneous information for providing comparable and comprehensive agricultural data at territorial level. Its results will accurate reflect the agricultural situation at the level of the country. For using the census data, one must understand the concepts and definitions underlying the information, but also what the data intent to measure. At developing the census tools it was undertaken an extended work of documentation through the international standards and recommendations on the concepts, definitions and classifications. As well, national requirements and particularities were taken into consideration for insuring the comparability of historical data series. Concordances between concepts, definitions and classifications produced by Eurostat and FAO with the national standards were insured. The data of general interest collected during the agricultural census will provide

accurate information on the size and structure of the agricultural holdings, according to their main characteristics.

**The Census Questionnaire and the Enumerator's Handbook** are the main methodological tools when conducting the census. The design of a good *questionnaire* plays a central role in the data collection process. The questionnaire has a major impact on data quality, respondent burden, interviewer performance and respondent relations. Good questionnaires can both minimise respondent burden and collect the required information with a minimum of errors. It requires a lot of work and careful testing to achieve the final version of a questionnaire. Efforts are done to operate with words and concepts that have the same meanings for both respondents and statisticians. Questionnaires also need to be designed to be attractive and easy to complete. Questionnaires are always pretested with an informal test that helps identify the most obvious problems such as poor wording, ordering of questions, layout or instructions. Finally, a pilot test is always conducted following the pretest to observe how all the census operations work together. The *census questionnaire* contains questions that will need careful attention from the part of the interviewed person, in order to be provided, as much as accurate, the entire information that makes the object of the census program: legal status of the holding; identification of the holding; destination of the agricultural products obtained in the holding; total area of the holding; utilization of agricultural area of the holding; application of irrigations and fertilizers on the holding; livestock herds raised on the holding; labour force involved in the agricultural activities developed on the holding; agricultural machinery and equipment utilized on the holding; agricultural buildings in use on the holding; other information on the activities carried out on the holding; etc. The *Enumerator's handbook* provides detailed information on the census methods, on the interviewing techniques, on the modality of filling in the information in the Questionnaire and into the centralization forms, as well as on the modality to solve up certain problems that may appear, most frequently, during census running. To the most possible extent, concepts and wording utilized for describing the characteristics are to be harmonized with those foreseen in the documentation studied. This will allow the comparability of data both at national and at international level.

### Field data collection

The impact of data collection actions on data quality is critical, as *field data collected* are the primary input to the final estimates. Complex statistical procedures proved to be of little help in correcting the effects of faulty collection operations. Interviewers are an essential element of the collection operation so it is critical that the interviewers are given the appropriate training and tools to ensure success. On the road of preparing the agricultural census there will be done all efforts to set up a comprehensive coverage of the agricultural holdings, but also to a carefull planning for efficient and effective data collection operations. This is envisaging operations like: testing the census tools, interviewers training and quality control. Questionnaires and Enumerator's manuals editing, field data collection, coding and data entry are some of the complex activities done by census employees and the use of quality control

procedures are particularly useful in providing feedback reports of information on frequencies of and causes of error for the census manager, operations employees and statisticians.

### Statistical unit of observation at agricultural census

The statistical unit of observation at agricultural census is the **agricultural holding**, defined as a single unit, both *technically* and *economically*, that during the reference period has as its main or secondary activity agriculture, answering simultaneously to the following three criteria, regardless of type of property or location of land and animals:

1. **Carries out a production activity from which agricultural products are obtained** (*the list of activities referred to in the definition of agricultural holding is based on the European Statistical Classification of Economic Activities (NACE Rev.2)<sup>6</sup> for crop and animal production, hunting and related service activities with some exceptions specified in additional notes in the Annex I to the European Parliament and Council Regulation (EC) No 1166/2008. In particular, holdings exclusively maintaining agricultural land in good agricultural and environmental condition are included in the scope of the census*).
2. **Have certain size according to EU and national requirements** (*a minimal threshold may be applied according to specific national decision - e.g: more than 0.5 ha; farms under the threshold are included if reporting an intensive agricultural production*),
3. **Has a unique management** (*managed as a single unit and using the same production means: labor force, agricultural equipments and buildings, storage capacity, etc*).

**The unique current management** can be exercised by a person or family farm, by an association consisting of two or several persons or households, acting jointly, or by a legal entity (agricultural association, commercial company, public administration unit, cooperative unit or other organization forms). The total land area of the agricultural holding may comprise one or several parcels, located in one of several areas of the locality, or in one or several administrative-territorial divisions, on which are utilized the same production means, while the holding is *managed on a joint basis*: labor force, agricultural buildings, agricultural machinery and equipment or draught animals (working animals). The requirement to manage on a joint basis the same production means, used on the holding, represents a compulsory condition, so

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6 Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 (OJ L 393, 30. 12. 2006, p.1) and amending Council Regulation (EEC) No 3037/90 of 9 October 1990 on the statistical classification of economic activities in the European Community (OJ L 293, 24.10.1990, p. 11–26) as well as certain EC Regulations on specific statistical domains.

that the parcels of the holding could be considered as part of the same economic unit. **By unique management of the agricultural holding** it is meant the current adoption of decisions on the works that are carried out on the holding and on the operations with no major economic effect upon the activity of the holding, such as: date of planting, of harvesting, of phyto-sanitary treatment application, of crop irrigation, the sale of a culled animal, etc. This management is ensured by only one person or by a group of persons. On the family farm, the chief of the farm is the farm head or another adult member of the respective farm.

### Census frame

Whether conducting a sample survey or a census, a core component of methodology is the sampling frame. The frame usually consists of a listing of observation units, but alternatively it might be a structure from which clusters of units can be delineated. For agricultural censuses, the frame is likely to be a Farm Register. In the absence of a farm register, at the elaboration of the List of the Units of observation particular attention must be paid to: (i) accurate identification among the agricultural households which are the ones that can be defined as agricultural holdings; (ii) accurate and updated coverage of all legal units developing agricultural activities.

### Census funding

Due to the lack of enough financial resources, agricultural censuses are often conducted with less than the optimum level of funding. *Insufficient funding* can impact on the methodology of the census of agriculture which has to be adjusted to adapt to the level of funding available. This will be reflected, on one side, into a reduction in the scope and coverage of the data collected and, on the other side, if sampling is used, in a reduction in the geographic detail available and the range of items. *External funding* may be an option but, while there are increasing demands for such funds for other government activities, often agriculture and statistics do not always feature as high priorities.

### Conclusions and observations

The census results will play a very important part in the **decision making process** for both *private* and *public* decision makers, enabling them to adopt **knowledgeable decisions** with regard to the future of their operations in the agribusiness and farming sector, but also in the **formulation of strategic programs for the development of rural areas**, as well as for monitoring, evaluation, and forecasting the agricultural sector.

Even if farmers are required by law to respond to the Census of Agriculture, it may be encountered a certain degree of non-response rate. For diminishing eventual bias in the final estimates, it is important to make all efforts to decrease the non-response rate by ensuring an accurate coverage of the census and by providing a proficient training to the enumerators. Selection of skilful enumerators represents one of the core activities in the census planning, with a high impact on the quality of the final results.

The sound statistical practices obtained by conducting regular surveys in agriculture represent a valuable experience for the Statistical Office of the Republic of Serbia, applicable to the forthcoming census activities.

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