65 години
Аграрен университет - Пловдив, Научни трудове, т. LV, кн. 2, 2010 г.
Юбилейна научна конференция с международно участие
Традиции и предизвикателства пред аграрното образование, наука и бизнес
Agricultural University - Plovdiv, Scientific Works, vol. LV, book 2, 2010
Jubilee Scientific Conference with International Participation
Traditions and Challenges of Agricultural Education, Science and Business

ХАРМОНИЗИРАНЕ НА МЕТОДИТЕ ЗА СЪБИРАНЕ НА ИНФОРМАЦИЯ ЗА ПОТЕНЦИАЛА НА БИОМАСА ЗА ЕНЕРГИЯ В ЕВРОПЕЙСКИЯ СЪЮЗ

АННА АЛАДЖАДЖИЯН, НИКОЛАЙ КАКАНАКОВ,
АЛЕКСАНДЪР ЗАХАРИЕВ

HARMONIZATION OF METHODS FOR INFORMATION COLLECTION ABOUT BIOMASS FOR ENERGY IN EUROPEAN UNION

ANNA ALADJADJIYAN, NIKOLAY KAKANAKOV, ALEKSANDAR ZAHARIEV

Abstract

Last events in the field of energy supply have raised the role of Renewable Energy Sources in world scale. The use of biomass in Bulgaria is presently confined to heat production from residues. The production of biomass per capita is considered high. It must be noted that assessments of the actual fuel biomass consumption is hardly estimated by now due to irregular statistics and only several assessment studies done in the country until now, still not at a national level. Development and harmonization at European level of specific methods for assessment of biomass potential is necessary. This is one of the major aims of CEUBIOM project.

Key words: Biomass, Renewable energy sources, Harmonization

INTRODUCTION

The general aim of CEUBIOM is to develop a harmonized method for assessment of biomass potential for bioenergy; this method should be easily applicable, relatively easy to implement and corresponding with user requirements.

The current situation in the field of biomass potential assessment in Europe is very heterogeneous. Different countries use different methods for collecting statistical data about agricultural biomass that can be used for bioenergy. The development of common EU policy for substitution of fossil fuels with Renewable Eenergy Sources (RES) requires planning of electricity and heat production from biomass. This task requires assessing available biomass–for-energy resources with acceptable accuracy is needed.

In the case of biomass-for-energy use it is necessary to assess biomass potential keeping in mind the quantities required for feed and food production. The

common EC planning requires compatible data about agricultural biomass-for-energy potential. That means data from different countries-members of EC to be collected in the similar way. That is why it is necessary to harmonize the rules of data collection in the countries of EC.

DEFINITION OF THE RESEARCH GAPS FOR THE AGRICULTURAL BIOMASS ESTIMATION

IDENTIFICATION OF THE STATE OF THE ART

Present situation in the statistical approach for the agricultural biomass estimation in some EU member states and in the states-participants in the project CEUBIOM is illustrated in Table 1. There is additional information for some other European states, non-included in the project. It can be noticed that most of the countries have published the methodology for information collecting. From the data in Table 1 three groups of EU member states and project participants can be formed.

Table 1

Statistical approach for the agricultural biomass estimation

Country	Methodology		
	Published /last	Description	Synchronized
Austria	Yes /2008	Databases: National Statistics on Land use and production (on districts/communities), Specific data from scientific publications, Expert knowledge on potential for energy crops (land use and productivity) and other issues.	Yes
Bosnia and Herzegovina	NA	Data not presented.	NA
Bulgaria	Yes / 2008	NSI survey based on the statistical forms filled–in. Also data received from the Cadastre Agency at the Ministry of Regional Development and Public Works, the BULSTAT register on the distribution of the agricultural units by kind of ownership and type of production and the data from MAF on the farm equipment.	Yes / Council Regulations: 571/88/EEC No. 837/90 No. 959/93
Croatia	Yes /2008	Yes (not confirmed)	NA
Czech Republic	Yes /2008	100% structural surveys covering all active agricultural units, conducted at longer time intervals in the framework of Agrocensuses.	Yes /Since 2002

Denmark	Yes /2008		Denmark lays down the EU agricultural policies
Germany	YES/ 2008	Different statistical data on Nuts 1 – Nuts 3 level. The data are managed by the German federal statistical office (Statistisches Bundesamt Deutschland) DESTATIS and updated yearly.	YES, Council Regulations: 571/88/EEC No. 837/90 No. 959/93
Greece	Yes/ 2009. For several prefectures 2010 as well	The survey (every 2 years) is based on questionnaires filled by the farmers through interviews. The survey is supervised by the Greek Statistical Authority the last 30 years.	Regulation 1166/2008 of the European Parliament Before 2008, Council Regulations: 571/88/EEC.
Hungary	Yes/ 2008	Overall the Central Statistical Office finalize and publish data every year about agricultural in general (area of species, land use, yields etc.). Surveys are executed on county level (even smaller (farm) level) and data are aggregated and summarized on country level.	Statistical data provision and data sharing follow all EC regulations.
Italy	Yes/2008	Main sources of information - statistical forms filled–in during the survey conducted by Regional Administration according to 3 MoU Istat-Mipaf-Regions. Also Farm Structure Survey on different crops and livestock, as well as structural information on the form on labor costs.	Council Regulations: 571/88/EEC 837/90 EEC 959/93 EEC
FIROM	NA	Data not presented	NA
Poland	Yes /2009	Collecting information from farmers by means of survey comparing then with other sources of information in administrative systems, assessment of quality on level of conformity	Yes / EU regulations on statistics
Portugal	Yes /2008	Yes, using biannual inquiries with "*core questions approach*"	Yes / Council Regulations: nº 571/88 nº 2467/96 2139/2004 1444/2002
Romania	Yes /2009	Beginning with 2004, statistical sample surveys aligned to community acquis in the field of agriculture statistics on crop area and production, livestock and animal	Yes / EU regulations on statistics No 837/90 of 26 (EEC) No

		production.	959/1993
Slovakia	NA	Data not presented	NA
Slovenia	Yes /2008	The Farm Structure Survey (FSS) is one of the basic statistical surveys in the field of agriculture. In accordance with EU regulation, it is conducted as a census every 10 years. Between censuses it can be conducted as a sample survey.	Yes /Since 2002; harmonized with recommendations for EU members.
Norway	Yes / 2009	Three different questionnaires in conjunction with the census, sent directly to the data providers in mid-July. The census date is 31 July 1999. Administrative registers play important role together with the questionnaire,	NA
Spain	Yes / 2006	Information obtained under evaluation of agricultural structure and compilation according to the normative of European Union	Yes / Council Regulations 0571/1988; 0837/1990; 0959/1993
UK	Yes / 2007	Estimated quantity of crops and grass harvestedare obtained from related production figures	NA

The countries that declare they have synchronized their methodology are included in the *first group*: Austria, Bulgaria, Croatia, Czech Republic, Germany, Greece, Denmark, Hungary, Italy, Poland, Portugal, Romania, Slovenia and Spain.

Some EU member states mention the adopted EU regulations on statistics: most often it is Council Regulations nº 0571/1988; nº 0837/1990; nº0959/1993.

Data on structure of agricultural holdings is obtained by *Farm Structure Survey (FSS)* carried out according to EU requirements – Council Regulation 571/88/EEC and its further amendments. An exhaustive farm structure survey (Agricultural Census) is carried out every 10 years. The methodology of survey is based on Eurostat requirements (EU Decision 1445/2000).

Agricultural biomass is estimated through the data on crop production that is obtained on the basis of the harvested area. The methodology is based on the EU legislation: Regulation No. 837/90 – consolidated, Regulation No. 959/93 – consolidated. The survey is harmonized with the EU requirements.

Agricultural residues can be estimated also on the basis of agricultural production. The data on the area under vineyards and the production of wine and table grapes are obtained through the *Survey on Vine and Wine production,* methodology and the questionnaire based on the regulation 357/79 EEC.

The survey gathering information on the fruit producing area in the farms growing orchards – apples, pears, plums, cherries, peaches, apricots etc. is obtained in correspondence with Regulation 2001/109/EC.

The *second group* includes the countries that have published the methodology used for collecting information about agricultural biomass, but it is not declared if

the methodology is synchronized with the requirements of the European Parliament and the Council Regulation. The states in this group are UK and Norway. These states are not participants in GEONARDO project (http://www.geonardo.org/).

The *third group* involves countries, in which no available information has been found about the methodology of collection statistical data on agricultural biomass. This group includes Bosnia and Herzegovina, Croatia, Macedonia, Ukraine and Slovakia. First four countries are not members of European Union yet. Data on agricultural statistic about Slovakia were not available in Internet.

IDENTIFICATION OF THE REQUIREMENTS

The requirements of national users have been identified through the interviews based on developed Questionnaire. The output based on the processing of questionnaires collected from countries participating in the project, allowed to formulate the following conclusions on users' requirements:

1. Data should deliver all types of biomass potential for energy;
2. Data should be annually updated;
3. Data should be available at no cost;
4. Data should be suitable for different purposes including policies and reporting;
5. The accuracy should be near 100 %;
6. The biomass potential should be split into crop types, wood types, sawmill product types, waste types;
7. The data should be available as a GIS or WEB-based continuous map.

DESCRIPTION OF THE GAP

The analysis of the state-of-the-art in the statistical approach for the agricultural biomass estimation and comparison with the generalized requirements of the national users allows us to define the gaps between them.

- Concerning point 2: expected temporal resolution (update of the assessment), revealed from the Questionnaire is: 'annual' and '5-6 years'. The states belonging to the first group and being participants in CEUBIOM actualize their agricultural statistics yearly. So in this point there is no gap between users' requirements and data availability.
- Concerning point 5 and 7 – accuracy and the space resolution, 42 of 43 interviewed partners want spatially distributed information; 60% prefer the data as a continuous raster data set, and 14% need data on municipality level.

According to the available data most of the countries belonging to the first group collect agricultural data on NUTS-1 and/or NUTS-2 level.

In this point a gap is ascertained, which manifested in the lake of enough detailed data on agricultural data statistics. More detailed statistical data on agricultural biomass is related to more costly acquiring technique.

DEFINITION OF THE RESEARCH ROADMAP FOR THE AGRICULTURAL BIOMASS ESTIMATION

The development of RES, specifically biomass, requires good knowledge of biomass-for-energy potential. Statistical information on available agricultural biomass exists, but should be more detailed and spatially distributed.

More information is needed about the availability of agricultural residues. At the moment its quantities are assessed on the basis of crops yield with some accuracy, which should be improved.

The competition between different use of biomass – for food and feed against industrial use, should be planned and controlled through statistical data collection.

Sustainability of agricultural biomass supply should be assessed and controlled.

CONCLUSIONS

Research Roadmaps for Agriculture are developed by consortia from different countries and in different format. Closest formulations to our goals appeared in the paper "Task Force on Building a Science Roadmap for Agriculture", prepared by National Association of State Universities and Land-Grant Colleges [1].

The research has already been performed in the field of agricultural biomass needs to be developed further to give more profound knowledge about quality and quantity of available biomass from agricultural crops and the residues after collecting the yield. The conditions of its sustainable production and use must be explored and clearly formulated.

The potential **outputs** from this research would be:

- New environmental management technologies; and,
- More options and alternative uses for the byproducts of agriculture.

The potential **outcomes** would be:

- Reduction in the quantity of agricultural wastes produced on- or off-farm;
- Better use of animal waste, crop residues, and food-processing industry waste;
- Increased production of fuel and feed from waste agricultural byproducts;
- More efficient use of fertilizers and pesticides, and reductions in nutrient losses;

The potential **impacts** of this research include:

- Less environmental damage from agricultural production practices including:
- Cleaner air;
- Better water quality;
- More productive soils;
- Better economic returns for producers and processors.

REFERENCE

1. Task Force on Building a Science Roadmap for Agriculture, National Association of State Universities and Land-Grant Colleges, Experiment Station Committee on Organization and Policy, "A Science Roadmap for the Future." November 2001. (www.nasulgc.org/comm_food.htm).