

FARM STRUCTURE SURVEY 2007: NATIONAL METHODOLOGICAL REPORT, BULGARIA

SUMMARY

The survey on the structure of agricultural holdings in Bulgaria (Farm Structure Survey 2007) was carried out on the field in the period October –November 2007 by surveyors, specifically recruited and trained for that purpose.

The survey was conducted in compliance with the EU legislation in the field of agrostatics (Council Regulation (EEC) No 571/88/EEC and its amendments) and in implementation of the National Statistical Survey Programme of Bulgaria for 2007. Characteristics specified in Commission Regulation (EC) No 204/2006 and applicable to Bulgaria as well as some additional characteristics of national significance were surveyed through the Farm Structure Survey 2007.

Bulgaria carried out an Agricultural Census in 2003 in compliance with the EU regulations. The farm threshold applied was significantly lower than the thresholds applied by the Member States, with the aim of covering at least 99% of the agricultural production and only very small agricultural units remained under the threshold. The sample of Farm Structure Survey 2007 was drawn on the basis of the agricultural holdings from the census, and as further, to the units from the sample, the newly created agricultural holdings after 2003 which meet the threshold criteria, were also surveyed.

Organisation of the Farm Structure Survey 2007 was carried out by the Ministry of Agriculture and Food (MAF) Agrostatics Directorate, with the assistance of the regional agrostatics experts from the 28 MAF District Directorates “Agriculture” (NUTS 3 level). Data on agricultural holdings was collected by 700 specifically trained surveyors, who visited on the field the agricultural holdings from the sample and conducted interview with their holders or managers.

Collected data was entered in special data entry and control software in the 28 district MAF structures, by recruited and trained operators. The Agrostatics Directorate aggregated the 28 data files at national level, and carried out control, processing and analysis of the national database. Following the completion of national database controls, the Agrostatics Directorate experts carried out the procedures on data transmission to Eurostat.

Results of Farm Structure Survey 2007 were disseminated by two publications – the preliminary results and analyses of the basic characteristics at national level in April 2008, and the final results at NUTS 2 level in the form of data tables in Bulgarian and English languages at the end of October 2008.

All publications are available for users on the MAF website:

<http://www.mzh.government.bg/Article.aspx?rmid=538&id=538&lang=1&lmid=0>

1. INTRODUCTION

1.1. History, scope

A survey on the structure of agricultural holdings was carried out in Bulgaria for a first time in 1999 by the MAF Directorate Agrostistics. It was a part of the process of adoption of acquis in the field of agrostistics started in 1997, and establishment of flexible and effective system on producing agrostistical data in Bulgaria, compatible and in conformity with the EU criteria, and ensuring current and reliable information to the authorities responsible for the agricultural policy of the country.

Due to the lack of list of agricultural holdings, which was to serve as a base for the sample plan, the main objectives of the Farm Structure Survey 1999 was testing the applicability of the methodology and questionnaire, developed in compliance with the requirements of the EU legislation. Two farm structure surveys were conducted consecutively in 2000 and 2001 in Bulgaria, as the shortcomings related to the sample type used in 1999 were eliminated to a high extent, and the results obtained gave the opportunity for better evaluation of the number and structure of agricultural holdings in Bulgaria.

The farm structure surveys conducted in 1999, 2000 and 2001 were part of the preparation for carrying out the census of agricultural holdings in 2003 – they gave to the statistical practices of the country the possibility to introduce the basic definitions and terms of the EU agrostistics and to test the organisation and conducting of surveys by interview.

In 2003 MAF conducted for a first time in Bulgaria Agricultural Census in compliance with the regulations of the European Union, Council Regulation (EEC) No 571/88 and its amendments. Agrostistics Directorate within MAF conducted two sample surveys on the structure of agricultural holdings in 2005 and in 2007.

1.2. Legislation

Bulgaria carries out the surveys on the structure of agricultural holdings in compliance with the requirements of the EU legislation: Council Regulation (EEC) No 571/88 and its amendments, including Commission Regulation (EC) No 204/2006 on the organisation of Community surveys on the structure of agricultural holdings in 2007. The frequency of conducting the survey on the structure of agricultural holdings in the country meets the requirements of the European legislation.

No specific legal base was adopted in Bulgaria for the purposes of the Farm Structure Survey 2007. Organisation and conducting of the survey was based on the laws in force, i.e. the Law on statistics and the Law on agricultural census in the Republic of Bulgaria in 2003 (SG, issue 17 dated 21.02.2003).

Scope and coverage of the survey of the Farm Structure Survey 2007 are defined in the Law on agricultural census in Republic of Bulgaria in 2003 (SG, issue 17 dated 21.02.2003). That Law contains the physical thresholds and conditions to be met by the agricultural units in the country, subject of the census in 2003. These thresholds were applied also in the Farm Structure Survey 2007.

Farm Structure Survey 2007 was a part of the National Statistical Survey Programme in Bulgaria for 2007 and for first time was financed by grant agreement with EU. About 60 agrostistics experts at central and regional level took part in the organisation. The survey on site was carried out by 700 surveyors specifically recruited and trained for that purpose.

The Law on statistics in force (Article 20, paragraphs 1 and 3) imposes obligations on the agricultural holders to submit reliable data on their activities. The Law provides for penalties in case of non-response or submission of incorrect data.

The rules of confidentiality on statistics are provided for in Chapter VI of the Law on statistics. According to these rules individual data, collected during the survey shall represent a statistical secret and may be used for statistical purposes only. Surveyors, operators and experts of agrostatics must not divulge, nor submit:

- individual data about the holdings;
- statistical data, which allows particular person to be directly identified;
- statistical data, which summarizes data for less than three persons or where the relative share of one person is more than 85% of the total volume.

All surveyors participated in data collection during Farm Structure Survey 2007, as well as the operators, who entered the data on holdings in the software, signed affidavits on respecting confidentiality rules on statistics. Rules of confidentiality on statistics were followed in publishing the survey results as well.

2. CONTENT

2.1. Characteristics and reference period

Survey characteristics included by Bulgaria in the questionnaire of Farm Structure Survey 2007 were all applicable to the country characteristics of Commission Regulation (EC) No 204/2006. The questionnaire included also additional characteristics of national significance, however their number was minimal and in most of the cases they served for desaggregating the characteristics of the list provided for in Regulation (EC) No 204/2006 for the year 2007.

Characteristics, not included in the survey questionnaire due to their inapplicability in Bulgaria as follows:

- **CC03** *Agricultural area utilised for shared farming or other modes* – NE;
- **D22** *Fallow land subject to payment of subsidies with no economic use* – NE;
- **D20** *Other crops* – NE;
- **D29** *Linseed (oil flax)* – NS;
- **D31** *Flax* – NS;
- **D32** *Hemp* – NS;
- **G01B** *Fruit and berry plantations - subtropical climate* – NE;
- **G02** *Citrus plantations* – NE;
- **G03** *Olive plantations – total* – NE;
- **G03A** *Olive plantations - table olives* – NE;
- **G03B** *Olive plantations - oil production* – NE;
- **G04A** *Vineyards - quality wine* – NE;
- **G04D** *Vineyards – raisins* – NS;
- **G07** *Permanent crops under glass* – NE;
- **I08B** *Set-aside areas under incentive schemes - raw material for non-food purposes* – NE;
- **I08C** *Set aside areas under incentive schemes - converted into permanent pasture* – NE;
- **I08D** *Set aside areas under incentive schemes - converted into wooded areas* – NE;
- **I08E** *Set aside areas under incentive schemes – others* – NE;
- **M01F** *Other gainful activities - production of renewable energy* – NS.

(NE – not existing characteristic; NS – not significant characteristic)

In the questionnaire was included certain characteristics which are not in the list of Regulation No 2139/2004 for 2007 but which have great significance for Bulgaria or are used to facilitate the data collection in the questionnaire. These characteristics were as follows:

- areas under triticale;
- areas under bean;
- areas under lentil;
- areas under peas;
- areas under broad beans;
- areas under chickpeas;
- areas under pumpkins for seeds;
- areas under oil rose;
- areas under lavender;
- areas under coriander;
- areas under apple trees;
- areas under pear trees;

- areas under quince trees;
- areas under peach trees;
- areas under apricot trees;
- areas under plum trees;
- areas under cherry trees;
- areas under morello cherry trees;
- areas under walnuts trees;
- areas under almonds trees;
- areas under hazelnuts trees;
- areas under raspberries trees;
- areas under young plantations by species trees;
- number of buffalos by categories, corresponding to J/2, J/3, J/4, J/5, J/6, J/7 and J/8 of Regulation No 2139/2004.

The reference period of the survey was the crop year 2006/2007 from the 1st of October 2006 to the 30th of September 2007. The number of animals was reported as of the date of the survey. The labour input in the holding was recorded on the 12 months preceding the day of the survey.

2.2. Questionnaire

The questionnaire for the FSS`2007 in Bulgaria was based on Council Regulation (EEC) No 571/88 and its further amendments. The questions included in the questionnaire reflected the list of characteristics to be surveyed by the Member States within the FSS`2007 – Commission Regulation No 204/2006. The questionnaire of Farm Structure Survey 2007 is comprised of 8 pages, as the first page contains questions, related to the survey and sample management. The other questions in the questionnaire are related to the characteristics required in the European legislation and are distributed as follows:

- Questions on defining the total utilised agricultural area of the holding and the land tenure (questions 7, 8, 9, 10 and 11 of page 2 in the questionnaire);
- Questions, related to the areas under main crops and other areas of the holding, areas for production of cultivated mushrooms, areas with successive crops, irrigation installations, areas with irrigation potential and total irrigated areas (questions 12, 13, 14, 15, 16, 17, 18 and 19 of pages 3-4 in the questionnaire);
- Questions, related to the number of animals in the holding and the agriculture equipment (questions 20, 21 and 22 of page 5 in the questionnaire);
- Questions, related to other activities, organic farming, production used for own consumption, volume of direct sales, education of manager (questions 23, 24, 25, 26 and 27 of page 6 in the questionnaire);
- Questions, related to labour force (questions 28, 29, 30 and 31 of page 7 to 8 in the questionnaire).

3. SURVEY METHODOLOGY

3.1. Survey organization

All activities on drawing up the questionnaire, instruction, sample and software for entry and control of survey data were carried out at central level in MAF Directorate Agrostistics. Training of agrostistics experts from the district agrostistical offices (NUTS 3) was made at central level as well. Experts of Directorate Agrostistics carried out all the coordination of the survey management process at national level. They merged regional data files and implemented control on the compliance and exhaustivity drew up and disseminated publications on the survey results and transmitted data to Eurostat.

Recruiting and training of surveyors and operators, control on their work and entering the results obtained was carried out by the agrostistics experts in the 28 administrative districts of the country (NUTS 3). They implemented also control on the compliance and exhaustivity of the data entered into the regional files.

3.2. Work process

Four main stages can be outlined in the survey time-table: preparation for conducting the survey; surveying the holdings from the sample; data entry and control; analysis of data, drawing up publications and dissemination of results.

Activities	Period
I. Preparation of the survey	01.04.2007 – 15.10.2007
- drawing up the first version of the questionnaire and instruction. Testing the questionnaire and instruction on site.	01.04.2007 – 31.08.2007
- drawing up the final version of the questionnaire and instruction. Printing out the documents necessary for the survey conducting (questionnaire, instructions, lists of the holdings subject of surveying, etc.).	01.09.2007 – 30.09.2007
- drawing up the sample plan and the list of the holdings subject of surveying.	01.09.2007 – 30.09.2007
- training of agrostistics experts, recruiting and training of surveyors.	01.10.2007 – 15.10.2007
- design of the software for data entry and control. Recruiting and training of operators.	01.10.2007 – 20.10.2007
II. Collecting the information on site	15.10.2007 – 30.11.2007
III. Data entry and control	31.10.2007 – 30.01.2008
- control on compliance of data entered in the questionnaires and entries of data in the software in the 28 district offices.	20.10.2007 – 30.01.2008
- control on the sample;	01.11.2007 – 30.01.2008
- 4% control on site and 6% control on the work of each surveyor by phone;	15.11.2008 – 30.01.2008
- merging of the 28 district files with the data at national level and control on exaustivity and compliance of data. Correcting the found errors in the 28 district offices.	30.01.2008 – 31.05.2008
IV. Analysis of data, drawing up publications and dissemination of results	31.03.2008 – 31.11.2008
- analysis of data at national level in Directorate Agrostistics.	31.03.2008 – 31.08.2008
- drawing up and dissemination of publication with preliminary results and analyses.	31.03.2008 – 15.04.2008
- drawing up and dissemination of publication with final data	01.09.2008 – 10.10.2008
- data transmission to Eurostat	31.10.2008 – 20.12.2008

3.3. Preparing the survey operations

3.3.1. Population and frame

The statistical definition of agricultural holding in Bulgaria was determined in the Law on Agricultural Census in the Republic of Bulgaria in 2003 (SG, issue 17 dated 21.02.2003). According to this definition an agricultural holding is an independent unit both technically and economically, which has independent management and meets at least one of the criteria below:

- Cultivates at least 0.5 hectare utilized agricultural areas, or 0.3 hectare arable land;
- Cultivates at least 0.1 hectare of specialised crops (vegetables, tobacco, hops, cotton, aromatic and medicinal plants, seeds, flowers, fruit plantations, vineyards, nurseries, or 0.05 hectare greenhouse crops, or 0.2 hectare permanent grassland;
- Breeds 1 cow/buffalo, or 2 bovines/buffalos, or 1 female animal (equidae), or 2 working animals (equidae), or 1 breeding sow, or 5 pigs, or 5 breeding sheep, or 2 breeding goats, or 50 laying hens, or 100 poultry for fattening, or 10 beehives, or 10 breeding rabbits, or 1 reproductive male animal or if their production exceeds certain physical thresholds.
- Maintaining the land in good agricultural and environmental condition – this characteristic is included as agricultural activity by the reform of the Common Agricultural Policy in 2003 (article 2, Regulation (EC) No 1782/2003).

The farm threshold applied was significantly lower than the thresholds applied in the EU Member States, with the aim of covering at least 99% of the agricultural production and only very small agricultural units remained under the threshold. According to the Census results about 665.5 thousands units met the farm definition in 2003. About 508.2 thousands agricultural holdings had an economic size less than 1 ESU and they accounted for 20% of the total SGM of the country. According to the results from the Farm Structure Surveyes in 2005 about 534.6 thousands units met the thresholds according to the definition, and about 493.1 thousands units - in 2007.

Bulgarian agrostistics has no special up-to-date farm register. The sample of agricultural holdings for FSS`2007 was drawn from the latest Agricultural Census in 2003 including the new created after 2003 holdings.

The sample size was defined as 40 382 holdings. After the survey was implemented the number of the holdings decreased with 6 686 farms (which are refusal, not found, ended activity and temporary not active) and increased with 2 501 farms (which are succeed to part of ended activity farms). In this way as active farms are defined 36 197 farms into which the threshold for agricultural holding is applied according to the statistical definition of agricultural holding in Bulgaria, determined in the Law on Agricultural Census in the Republic of Bulgaria in 2003 (SG, issue 17 dated 21.02.2003). The farms under the threshold are 1 443 and this ones over the threshold are 34 754 which after extrapolation present the population of agricultural holdings in Bulgaria as 493 193 farms.

3.3.2. Survey design

Following the logic of the statistical survey on the structure of agricultural holdings in Bulgaria in 2007, it aimed to survey the change in the production structures of agriculture for a certain period.

The FSS considered a set of holdings and their developments in the course of time in order to allow the analyzers to follow the evolutions, the process of production concentration, and the change of specialization of the holdings. Taking into account that a big part of the agricultural holdings in Bulgaria have standard gross margin below EUR 1 200, number of the holdings in this sub-aggregate, included in the sample should be significant. It is obvious that the most serious changes shall be expected in the very small agricultural units (disappearance, combining, transforming, etc). It is necessary therefore to obtain a very good assessment of these occurrences, and following this to have sufficient number of units in the sample, corresponding to these holdings. The sample developed aims to take into account all above-mentioned elements.

The units of the sample for implementation of the FSS`2007 were selected randomly from the units covered by the 2003 Agricultural Census. Based on the information from the special annual product surveys carried out by Agrostistics Directorate, the sample of the survey was expanded by new created agricultural holdings after 2003.

Bulgaria used the typology of the holdings as main criterion on stratification of the sample. For the purposes of stratification under this methodology the main farm type of the holdings was used (17 types).

Stratification was made initially for all districts (NUTS 3), followed by correction by districts, taking into account some of their peculiarities. Selection of holdings was made at district level.

Two variables participated in the stratification:

- Farm type (group);
- Economic size (class).

Due to the great number of combinations between main farm type and economic size (17 x 10) it was decided these two variables to be additionally grouped. Definition of the variable *farm type group* is shown in table 1.

Table 1 Definition of the variable farm type group

Value	Definition
01	First two positions of the farm type code are equal to 13 or 14, or 20, or 31, or 32, or 33, or 34; Includes the holdings, specialist in cultivation of field crops, vegetables or permanent crops
02	First two positions of the farm type code are equal to 41 or 42, or 43, or 44; Includes the holdings, specialist in breeding of herbivorous animals
03	First two positions of the s farm type code are equal to 50; Includes the holdings, specialist in breeding of pigs, poultry and rabbits
04	First two positions of the farm type code are equal to 60; Includes the holdings with mixed cropping
05	First two positions of the farm type code are equal to 71 or 72; Includes the holdings with mixed livestock breeding
06	First two positions of the farm type code are equal to 81 or 82, or 90; Includes the holdings with mixed cropping and livestock breeding and non-classified holdings (with SGM equal to 0)
10	<p>Regardless the the farm type, in case at least one of the following conditions is true:</p> <ul style="list-style-type: none"> holding with organic farming and $SGM < EUR\ 9\ 600$, or holding in conversion to organic farming and $SGM < EUR\ 9\ 600$, or holding with organic livestock breeding and $SGM < EUR\ 9\ 600$, or holding cultivating rice and $SGM < EUR\ 9\ 600$, or holding with at least 50 dca fallow lands and $SGM < EUR\ 9\ 600$, or holding, cultivating at least 50 dca tobacco and $SGM < EUR\ 9\ 600$, or holding, cultivating hops and $SGM < EUR\ 9\ 600$, or holding, cultivating cotton and $SGM < EUR\ 9\ 600$, or holding, cultivating at least 5 dca oil rose and $SGM < EUR\ 9\ 600$, or holding, breeding at least 5 buffalo cows and $SGM < EUR\ 9\ 600$, or holding, breeding at least 10 buffalos total and $SGM < EUR\ 9\ 600$, <p>it takes the value 10 of the variable for the group.</p> <p><i>This value of the variable farm type is created with the aim to isolate specific productions, for which better representativeness in the sample can be achieved. All holdings with $SGM \geq EUR\ 9\ 600$ are already separated in value 07 of the variable size class and shall be included in the exhaustive stratum.</i></p>

The auxiliary variable for defining the variable economic size class is the standard gross margin. Values, that the variable economic size class may take, are specified in table 2.

Табл. 2 Values of the variable economic size class

Value	Definition
01	$SGM < EUR\ 600$
02	$SGM \geq EUR\ 600 \ \& \ SGM < EUR\ 1\ 200$
03	$SGM \geq EUR\ 1\ 200 \ \& \ SGM < EUR\ 1\ 800$
04	$SGM \geq EUR\ 1\ 800 \ \& \ SGM < EUR\ 2\ 400$
05	$SGM \geq EUR\ 2\ 400 \ \& \ SGM < EUR\ 4\ 800$
06	$SGM \geq EUR\ 4\ 800 \ \& \ SGM < EUR\ 9\ 600$
07	$SGM \geq EUR\ 9\ 600$

Taking into account the distribution of the agricultural holdings and the low number of holdings with SGM at least equal to EUR 9 600, all these units were grouped in one which was exhaustively surveyed.

The variable *stratum* is obtained by combining the variables *farm type* and *size class*.

Where the variable *group* has the value 10, the variable *stratum* takes the value 1000, and where the variable *class* has value 07, the variable *stratum* takes the value 1100. These two strata were surveyed exhaustively.

Considered by districts (NUTS 3) the holdings in some of the strata were very few. In that case additional combining was needed, as new value of the variable *stratum* 1200 was created. The holdings of this stratum were also surveyed exhaustively.

The holdings, created in the period after 30th November 2003, were added to the sample in the exhaustive stratum with extrapolation coefficient equal to 1.

The size of the sample was fixed to 40 382 units. Distribution of the units in the sample was made using the Newman principle of optimal distribution, as several conditions were placed in advance in order to allow consideration of the limits (sample size, expected precision) and the objectives of the FSS:

- to have sufficient number of holdings to be surveyed in each stratum, i.e. the number of units in stratum to be at least 15;
- strata 1000, 1100 and 1200 to be surveyed exhaustively;
- the extrapolation coefficient not to exceed 30 (for the district Sofia-city, which has quite specific distribution of the holdings, additional limit on the extrapolation coefficient was placed, which should not exceed 15).

The variable of interest for allocating questionnaires was the standard gross margin (SGM).

The expected accuracy of the sample should be good for the basic variables for area and number of animals at national and regional level, i.e. the structure survey data should be representative at the level of Bulgaria and the six regions for planning (NUTS 2).

3.3.3. Pilot survey

Drawing up the questionnaire comprised of two stages: drawing up preliminary version of the questionnaire, which was tested in about 100 holdings all over the country. Tests were carried out by the agrostatistics experts in the 28 agrostatistical offices (NUTS 3 level). Testing of questionnaire was made both in large (professional) holdings and small holdings. The final version of questionnaire and the instruction attached to it were made based on the above test results.

3.3.4. Informing and training the staff and respondents

Training of the agrostatistics experts and surveyors was organized and conducted in two stages:

- The agrostatistics experts of the 28 district offices of MAF (NUTS 3) were trained at central level. Training was carried out within 3 days by the experts of Directorate Agrostatistics of MAF, who were responsible for conducting of FSS`2007 in Bulgaria;
- The agrostatistics experts of the 28 district offices of MAF (NUTS 3) carried out the training of the surveyors for three days.

No particular information campaign was used at conducting FSS`2007. Surveyors had a letter addressed to the agricultural holders, where the survey objectives and the necessity of conducting the survey were presented, and also the obligation of respondents to submit reliable information, together with the obligation of the surveyors and statisticians to use the data collected for statistical purposes only, and to keep the confidentiality rules.

3.4. Sampling, data collection and data entry

3.4.1. Drawing the sample

In each stratum, holdings were sorted by type of farming and economic size. Holdings were drawn randomly.

3.4.2. Data collection and entry

Data collection was carried out by surveyors specifically trained for that purpose, who visited the holdings from the the sample and conducted interviews with their holders or managers.

Interview duration varied from ½ h to 2½ h, as the longest time was used for filling in the labour force data in the large agricultural holdings with plenty of workers.

Data entry was made in the 28 district offices of MAF (NUTS 3) by operators specially recruited for that purpose. Data was entered in a computer module designed for that purpose, which ensured control of the data still at the entry. The software allowed also control over the entered data by creating of so called queries to the programme regarding the individual fields of questionnaire and combinations between them. The data entered in the 28 district offices of MAF was transmitted via internet to Directorate Agrostistics of MAF where the 28 data files were compiled into the national database.

3.4.3. Utilisation of administrative data sources

Bulgaria did not utilize administrative data sources for the purposes of FSS`2007.

3.4.4. Control of the data

Control of the data was carried out from the start of the survey on site – surveyors were obliged to check the sums and logic connections in the questionnaire while filling in the data during the interview with the holders, and the regional agrostistics experts carried out these controls when receiving of the questionnaires from the surveyors in the district statistical offices.

After end of work on the field the agrostistics experts of the district offices carried out 10% control over the number of the filled in questionnaires from each surveyor regarding the quality of data collected – 6% control by phone and 4% control on site by second visit to the surveyed holdings.

During entry of data from each questionnaire to the data entry and control software, an automatic compliance check was implemented. The programme was designed by the agrostisticians in the central office of MAF.

Control of the data entered in the software was implemented at central and regional level as well. For that purpose agrostistics experts form the central office of MAF designed a specific guide, where a set of obligatory checks are described, which may be executed by queries to the

database. These checks were implemented in regard to the individual and aggregated data in the software, at regional and national level.

At regional level control included the following stages:

- check for completion the sample of holdings to be surveyed in each region;
- logic and arithmetic control of the aggregated data for the region by the help of the obligatory , control on the completeness of data collected.

Control at central level included:

- check for completion the sample at national and regional level: number of interviews conducted, number of non-responses and non-conducted interviews due to other reasons, number of questionnaires entered into the software;
- logic and arithmetic control of data entered at national level;
- direct control on site in the agricultural holdings and control by phone.

For the purposes of control over the data entered into the software, the agrostatistics experts from the central office of MAF designed a specific guide where a set of obligatory checks are described, which may be executed by requests to the database. These checks were implemented in regard to the individual and aggregated data in the software, at regional and national level.

Errors found during checks of the national database in the central office of MAF were corrected in the district databases in the 28 district offices, and the corrected files were afterwards sent again to the central office.

3.4.5. Non-response

In accordance to the status the farms included in the sample are distributed in the follow way:

	Number of the holdings	Percentage
Sample size	40382	100.00%
Non-response farms	48	0.12%
Not found farms	22	0.05%
Ended activity farms	3689	9.14%
Temporary ended activity	426	1.05%
Farms under the threshold	1443	3.57%
Farms over thr threshold	34754	86.06%

In the cases of non-response and not found farms, surveyors notify in time the agrostatistics experts from the region concerned, who contacted the holders, refusing to submit information and very often the interviews were conducted by the agrostatistics experts or conducted during a second visit of the surveyor to the holding.

Definitely refused to respond holdings were replaced by other holdings from the respective stratum. These replacements were made at central level by the agrostatistics expert.

In the cases of non-response of holdings from the comprehensive stratum, surveyors searched for assistance from the regional agrostatistics experts, and interviews in those holdings were conducted with their help.

The cases where the holders of large agricultural holdings with many workers refused to submit data about the labour force should be considered also as a form of non-response. Responding to that question in the large agricultural structures required a detailed information

about each worker of the holding and sometimes it took 2 or more hours to the holders for filling in that part of the questionnaire.

3.5. Data processing, analysis and estimation

3.5.1. Methods for handling missing or incorrect data items

Depending on the nature of the errors found during implementation of the control at national and regional level, corrections were made by the regional agrostatistics experts or by the surveyors themselves, by second visit to the holding or contacting the respondents by phone.

3.5.2. Estimation and sampling errors

For the important characteristics, the values of coefficients of variation at national level are presented in the table as follows:

Variables	%
Utilized agricultural area	0.18
Standard gross margin	0.06
Cereals	0.17
Dried pulses	1.21
Potatoes	1.17
Forage plants	0.75
Fresh vegetables - outside	1.18
Fresh vegetables – under glass	2.51
Tobacco	0.97
Oil- seeds	0.27
Fruit and berry plantations	1.26
Vineyard	1.08
Irrigated area	0.71
Total bovines	0.65
Dairy cows	0.55
Total sheep	1.13
Total goats	1.11
Total pigs	0.58
Total poultry	0.25

3.5.3. Non sampling errors

These errors were identified by different methods of checks of the collected data. The major parts of this type of errors were found at regional level, but there were some errors visible at national level only. The responsibility for correction of the errors belonged to the regional agrostatistics experts.

3.5.4. Evaluation of results

Results about number of animals and the area of different crops of FSS`2007 were compared with the results of other product surveys which Directorate Agrostatics conducts each year – livestock survey, vegetable survey, orchard survey, vineyard survey, yield survey, land use survey BANCIK (survey similar to LUCAS) and other surveys and administrative sources. Typical for this stage of development of the Bulgarian agriculture is the great dynamics of the number and the production units – each year large agricultural holdings cease their activities, other increase many times their size, and third retain the size of their agricultural activities but change their legal status and name. This dynamics in the structure of the agricultural holdings requires the statisticians to be very thorough in sample management and when they comprise the results from the different surveyes with purpose to be consider this dynamics.

4. PUBLICATION AND DISSEMINATION

At national level the results of FSS`2007 were disseminated by two publications, prepared by the agrostatics experts of MAF:

- Publication of 4 pages with the survey preliminary results where the most important data about the number and structure of the holdings was presented at national level, together with short comparative analysis to the data of the Agricultural Census 2003 and FSS`2005. In that publication were presented also methodological notes on the organisation and conducting of the survey;
- Publication of 60 pages in English and Bulgarian with methodology and tables with the final results of the survey. Results were published at national and regional level (NUTS 2) and were presented in seven sections:
 1. General characteristics of the structure of holdings
 2. Land use
 3. Livestock breeding
 4. Agricultural machinery
 5. Other activities
 6. Labour force
 7. Farm typology

Publications are available to all internet users on the MAF website on the following address:
<http://www.mzh.government.bg/Article.aspx?rmid=538&id=538&lang=1&lmid=0>