



FOOD RESOURCES OF BULGARIA – REGIONAL DIMENSIONS

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ABSTRACT

The aim of the paper is to assess the regional dimensions of the commodity production of major food products in the agriculture of Bulgaria as an important element of the food resources of the country. Changes in the territorial structure (by regions) of production of main food products have been deduced. Evaluation of the role of the factors “area” and “yield” for their production has been made, as well as ranking of the regions by the production of food products per person. Conclusions have been made about the territorial location of commodity production by products and about the standing of different regions with regard to average for Bulgaria concerning the indicator production quantities per person.

Key words: commodity production, agriculture, food products, areas, average yields, population.

INTRODUCTION

The food resources of Bulgaria are formed from three sources: commodity production (in agriculture and food industry), import and production in home farms of the population (1). Each of them has a specific role for the food resources. The import is a source for providing agricultural products for which there are no natural and climate conditions to grow in the country and for covering eventual food deficits (2, 3). Taking into account the conditions of economic crises and unemployment, the production of food products by the home farms of the people has become an important source of food resources, because it provides for feeding of the population in small towns and villages (2, 3). Stable trends of decreasing the quantities of the production of food products have been observed for many years in Bulgaria (4). As a result of this, the quantity parameters and the purpose both of the import and of the production in home farms change significantly. The nomenclature and the quantity of food products

import expands, and main food products, as for example tinned fruit food, are ensured mainly (above 70%) by home farms of the population. However, irrespective of the current unfavourable proportions in Bulgaria among the three sources of food resources, the commodity production plays an important role in the economy of the country and is a factor for safeguarding the national food security.

The food resources are important on all levels – individuals, regions and the country as a whole.

The purpose of the study is to assess the regional dimensions of the commodity production of major food products in the agriculture of Bulgaria as an important element of the food resources of the country. The focus is on:

- territorial structure (by regions) of commodity production of main food products;
- the role of the factors “Area” and “Yield” of production;
- ranking of the regions by the production of food products per person.

The following questions are getting answered: What is the territorial location of the commodity production and are there changes in it? What is the ranking of the regions by the indicator “Quantities of products produces per person”?

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1. Commodity production

Commodity production is examined on the base of 14 agricultural crops and crop groups: cereals (wheat, barley, maize for corn), beans, potatoes, vegetables (tomatoes, peppers), fruit trees (apple, plum, cherry, peach and apricot) and grapes (wine and dessert). The regional dimensions of the commodity production are defined for the six regions: Northwest, North Central, Northeast, Southeast, South Central and Southwest. The period under investigation is 2008 – 2010, because comparable data is available for this period. The necessary information about the production, areas and average yields of the crops under investigation and about the population number of Bulgaria by years is taken from the official statistical yearbooks of the National Statistical Institute (5).

The regional dimensions of commodity production of crops are defined by two criteria:

- 1) Minimum size of commodity production - as a share (in %) of the total production in the country, and
- 2) Maximum size of commodity production - as a share (in %) of the total production in the country.

These criteria define the minimal-maximal limits within which the production is “settled” by regions, i.e. the “border points” of the production are outlined.

The results of **criterion 1** (*minimum* size of commodity production by regions) are as follows:

- **Northwest**

- a) crops with minimum size of production (by years) entirely in the region (in ascending order): cherries – 0,5-0,6%, pepper – 1-2,2%, peaches – 1,7-3%, beans – 2,1-2,8%;
- b) crops with minimum size of production (by years) in more than one region: tomatoes (2008-2009, Northwest - 2,2% and 2010, Northeast - 2,4%).

- **North Central**

- a) crops with minimum size of production (by years) entirely in the region: potatoes – 0,5-1,7% and apples (1,9-2,8%);
- b) crops with minimum size of production (by years) in more than one region (2008-2009, North Central 5,7-8,2%); 2010 - Northwest-6,65%); plums (2008, Southeast-8,4%; 2009, North Central-10,5%, 2010 – Southwest-5,6%);

- **Northeast**

- a) crops with minimum size of production (by years) entirely in the region: dessert grapes – 1,2-5,8% and peaches – 1,7-3,0%;
- b) crops with minimum size of production (by years) in more than one region: tomatoes (2008-2009 г., Northwest -2,2%), 2010-Northeast -2,4%);

- **Southeast**

- a) crops with minimum size of production (by years) entirely in the region: - only maize – 1,7-1,9%;
- b) crops with minimum size of production (by years) in more than one region: plums (2008-2009, Southeast -8,4%); 2009-2010, Southwest, 5,6-9,3%) and apricots (2008-2009, Southeast, 0,4-1,1%; 2010, Southwest -0,9%);

- **South Central**

No crops with minimum size of production.

- **Southwest**

- a) crops with minimum size of production (by years) entirely in the region: barley – 1,3-2,3% and wheat – 1,7-3,2%;
- b) crops with minimum size of production (by years) in more than one region: maize (2008-2009, Southeast, 1,7-1,9%); 2010, Southwest -1,6%), plums (2008-2009, Southeast -8,4%; 2009-2010, Southwest, 5,6-9,3%), apricots (2008-2010, Southeast, 0,4-1,1%).

The results about **criterion 2**, (*maximum* size of commodity production) clearly indicate the specialisation of the production of food products by regions. The cultivated crops are as follows: in **Southeast** region: wine grapes – 33,4-43,4%; cherries – 37,5-52,3% and peaches – 55,7%; in **South Central** region – plums – 27,4-39,5%, apples – 37,2-46,6%, dessert grapes – 48,6-71,8%, tomatoes – 62-89% and pepper 62,4-75,3% and in **North Central** region – apricots – 83,1-91,5%.

The territorial structure of the commodity production in 2008 – 2010 remains stable for most of the crops, except for the dessert grapes. On the one hand its production in 2010 decreased sharply and reached 44% of the level in 2008. On the other hand, although the specialisation has been preserved, the South Central region is the leader, its relative share in the total production of the country decreased

from 71,8% to 59,4%. There are partial exceptions (by regions and years) for beans, apples, peaches and apricots. The reasons for the regional dimensions and the territorial structure of the commodity production of food products, described above, are related to the natural and climatic conditions, the specific requirements for the crop growth, the experience gained in the cultivation and the traditions of production, as well as the general economic situation of the regions (for example, the Northwest and the South Central regions are on the two poles of the economic development). The development of the commodity production of food products in the country and by regions should be developed by creating conditions for the change in the decreasing trend, by stabilisation and increase in the quantities produced. Such task is possible when the potentials of the country and of the regions are taken into account, as well as the results achieved in the production in the past.

2. Areas and yields

The commodity production of agricultural crops depends on the size of the areas and the level of the average yields.

The changes in the areas are different for the different crops. The following groups could be identified:

- crops, for which the size of the areas remains the same – wheat and barley;
- crops, for which no clear trend could be identified – maize and pepper;
- crops, which areas decrease and reach: tomatoes – 84,2%, beans – 68,6%, potatoes – 63,6%, wine grapes – 59,4% and dessert grapes – 44,6% of the maximum areas for the period 2008-2010. The situation with the grapes is especially alarming;
- crops, for which a positive trend can be found – the trend of increase in the areas. This is provisional however, because the analysed period is short. The positive trend is found for the fruit trees: areas with apricots increased by 31,2%, apples – 33,3%, peaches – 51,2%, plums – 77,5% and cherries – by 128%.

A conclusion could be made, that most of the crops (9, or 64% of the crops under investigation) the changes in the area size are mainly toward decreasing, and less – toward keeping the same level. Increase in the area sizes

is observed for 36% of the crops, and these are mainly fruit trees.

Concerning the average yields, the distribution of the agricultural crops is the following:

- crops, which the level of the average yields is preserved – tomatoes, apricots;
- no clear trend could be identified for the wine grapes;
- crops, which average yields decreased in the period 2008 – 2010 and reached: pepper – 92,8% wheat – 90,2%, cherries – 89,1%, barley - 86,2 and dessert grapes – 41,6% of the maximum levels for the period;
- crops, which average yields decreased in the period 2008 – 2010: peaches – by 8,5%, potatoes – by 11,9%, apples – by 14,9%, beans – by 25,9%, plums – by 44,8% and maize for corn – by 50,4%.

For eight (57%) of the crops the productivity, measured by level of the average yields, has remained the same, has decreased or it is difficult to define what the changes are. In contrast to the area sizes, the increase in the average yields influences different types of agricultural crops.

The combined influence on the production of the level of area sizes and the level of average yields is the following:

- cereals:
 - wheat and barley – the decrease in the production is mainly due to the decrease in the average yields;
- beans and potatoes – the increase in the average yields cannot compensate for the decrease in the areas;
- maize for corn and vegetables – no clear conclusion could be drawn about them;
- fruit trees – there is a positive trend of increase in the production, which is a result mainly of the increase in the areas, and for some crops – both in the areas and yields;
- grapes:
 - wine grapes – decrease in production is mainly a result of decrease in areas under cultivation;
 - dessert grapes – the reason of the sharp decrease in production is the shrink of areas with dessert grapes and decrease in the average yields of dessert grapes.

The distribution of crops by region according to the maximum size of the *areas* is the following: Northwest region – maize; North Central region – apricots, Northeast region – wheat, Southeast region – barley, cherries and peaches, South Central region – tomatoes, pepper, apples, plums, wine and dessert grapes, Southwest region – potatoes and beans.

The distribution of crops by region according to the maximum size of the *average yields* is the following:

Northwest region – maize; North Central region – barley, Northeast region – apricots, Southeast region – wheat, apples, plums, cherries, peaches and wine grapes, South Central region – tomatoes, pepper, beans, potatoes, apples, plums, cherries, dessert grapes and Southwest region – beans, potatoes, peaches and wine grapes. The repetition of some crops in more than one region is explained by the fact that the maximum average yield is realised in different regions in different periods.

A conclusion could be drawn that in the period 2008 – 2010 commodity production of most crops is realised without change or with decrease in the areas, as well as without change or with decrease in the average yields. Concerning the territorial distribution of the areas under crops, it is interesting to note that there are regions in which there are the maximum of the areas of: only one crop (Northwest, Northeast and Southeast), two crops (Southwest), three crops (Southeast) and more crops (South Central). Undoubtedly, the South Central region of Bulgaria stands out as the region in which the greatest number of crops with maximum areas and realized maximum yields is concentrated.

3. Quantities of food products produced per person of the population

In order to calculate the indicator “Quantities of food products produced per person” it is important to consider the levels and changes in the population numbers in the country and by regions, along with the quantities of food products produced. In 2010 the population of Bulgaria was 7 504 868 people, which is by 101 683 people less than in 2008 and 98,7% of the 2008 level. This trend can be observed in all regions in the country. It is the strongest in the Northwest region where the population has decreased by 29 143 people and has reached 96,8% of the population in 2008. In the biggest

region with respect to population – Southwest, the population has decreased insignificantly (by 1 487 people). Its relative share of the population in the country has ranged from 27,8% in 2008 to 28,1 % in 2010. Irrespective of this, the ranking of the regions in Bulgaria by population numbers in ascending order is preserved and is the following: Northwest, North Central, Northeast, Southeast, South Central and Southwest.

The ranking of the regions by the indicator “Quantities of food products produced per person” is made according to two criteria, which are related to the minimum and the maximum value of the indicator.

Criterion 1: *Minimum* quantities of food products produced per person – typical representatives (that take last sixth place among the regions) are:

- Northwest: beans, potatoes, tomatoes, pepper, cherries and peaches;
- North Central: apples;
- Northeast: dessert grapes;
- Southwest: wheat, barley, maize, plums, apricots, wine grapes.

Criterion 2: *Maximum* quantities of food products produced per person – typical representatives (that head the list of the regions) are:

- North Central: plums, apricots;
- Southeast: cherries, peaches, wine grapes;
- South Central: tomatoes, pepper, apples, wine grapes

Concerning the other crops – wheat, barley, maize, beans and potatoes the results are heterogeneous and it is difficult to make ranking by regions.

CONCLUSIONS

On the base of the results of the study the following main conclusions could be drawn:

1. Commodity production of food resources in Bulgaria is an important source for forming the food resources of the country and for guaranteeing the national food security. The main characteristics of the commodity production of food products are its limited volume and, as a result of this, limited capacity to satisfy the needs of the food-processing industry, the export and the people.

2. Concerning the majority of the crops, it is observed that not only areas under crops decrease, but also their average yields. In many

cases the growth in the average yields cannot compensate for the sharp decrease in the areas under cultivation.

3. The territorial structure (by regions) of the production of main food products depends on the natural and climatic factors, the requirements of the crops, the traditions and experience in their cultivation, as well as the socio-economic development of the regions. The Northwest and the South Central region occupy the two poles (minimum and maximum) of the production. The South Central region stands out among the regions with maximum levels of the number of crops, areas under cultivation and average yields.

4. The population numbers has decreased in the country as a whole and in the regions. Polarisation is observed on the North – South axis, i.e. between the most thinly populated Northwest region and the most densely populated one – Southwest. Irrespective of the decreasing trend of the number of population, the ranking of the regions by the population density has not changed.

5. Concerning the total production and the production of food products per person – the Northwest region holds the least favourable position in the country, and the South Central and the Southeast regions have the best position.

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