



AGRICULTURE IN THE NORTH CENTRAL REGION AND THE SOCIO-ECONOMIC AND ENVIRONMENTAL ASPECTS OF ITS IMPACT ON THE DEVELOPMENT OF THE REGION

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Abstract

The aim of the study is to assess the importance and socio-economic and environmental aspects of the impact of agriculture in the North Central region for the development of the region. The analysis uses statistical data for the period of our country's membership in the EU. To assess the importance of agriculture in the region and the trends in its development, data from expert assessment by specialists from the regional offices of the State Fund "Agriculture" and the National Agricultural Advisory System are presented. On this basis, are disclosed the peculiarities of the established model of agriculture in the North Central region in terms of changes in the size of farms, production specialization, organizational parameters, diversification of activities, application of agri-environmental practices and others.

Key words: rural areas, agricultural model, structural changes

INTRODUCTION

Agriculture still plays an important role in rural development, it remains vital for the sustainable use of natural resources in them and helps to diversify the economy in rural communities (Corral, Díaz, Monagas, García, 2017) In recent decades, a number of studies prove that there are changes in organizational structures, production methods, accompanied by increasing polarization and a high degree of concentration of agricultural production, which contributes to the emergence of serious problems in both intensive agricultural areas and disadvantaged areas (European Commission, 2010, 2011).

Climate change and rural development policy are changing both the impact of agriculture on rural development and its role in regional development (Horlings LG, Marsden TK, 2014, Peter, S., Knickel, K., 2016, Woods, M., 2007, Woods, M.,

2013). The analysis of the changes in agriculture and rural areas shows that the specific natural and climatic characteristics of the region, the demographic potential, the available traditions and production base, the connections with the other sectors are of great importance, which leads to different results in exploiting the potential of the region. and how to use natural resources and protect the environment. (Doichinova and Miteva, 2020, Doichinova and Stoyanova, 2020, Doichinova, Zaimova, Miteva, 2019) (Stoyanova and Harizanova, 2019; Harizanova-Bartos and Stoyanova, 2018).

The aim of the study is to assess the importance and socio-economic and environmental aspects of the impact of agriculture in the North Central region for the development of the region itself.

MATERIALS AND METHODS

A combination of qualitative and quantitative methods is used to assess the importance and development of agriculture and its impact on rural areas. Based on statistical information on

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the development of agriculture and rural areas for the period of our country's membership in the EU, the directions and trends of change are analyzed. Qualitative methods include the use of the expert assessment method, and the interviews were conducted with a preliminary prepared questionnaire with 32 specialists from the regional office of State Fund "Agriculture" and the regional office of the National Agricultural Advisory System in the North Central Planning Region. To assess the importance of agriculture and its pace of development, a five-point Likert positive scale is used, in which 5 shows complete agreement and 1 shows complete disagreement with the evaluated statement.

The object of study is the North Central Region (NUTS-2), and the subject is the model of agriculture and its impact on the socio-economic and environmental characteristics of rural areas.

OVERVIEW OF THE DEVELOPMENT OF AGRICULTURE IN THE NORTH CENTRAL REGION REGION AND ITS IMPACT ON THE SOCIO-ECONOMIC AND ECOLOGICAL CHARACTERISTICS OF THE REGION

The area of the North Central region is 13.5% of the country's territory. It covers the territories of five districts - Veliko Tarnovo, Gabrovo, Razgrad, Ruse and Silistra and 36 municipalities. The region borders on the north with the Republic of Romania, on the east with the Northeast region, on the south with the Southeast region and on the west with the Northwest region. The agricultural territories in the NCR are 64.07%. The highest share is in Rousse district (72.92%) and the lowest - in Gabrovo district (43.65%). The share of forest territories in the NCR is 29.12%, the highest being in Gabrovo district (50.42%) and the lowest - in Ruse district (18.16%). The share of urbanized areas in the region is 5.62%. The highest share is in Rousse district (6.71%) and the lowest - in Silistra district (5.67%).

The relief is mostly flat and hilly in the Fore-Balkans. The region includes the eastern part of the Central Balkan National Park, the Rusenski Lom, Bulgarka and Persina Nature Parks and the Srebarna Lake Biosphere Reserve, which is a proof of its rich biodiversity.

The demographic development of the North Central region as a whole follows the general negative trend for the country, characterized by a decrease in the population, accumulation of the population in the high age contingents and negative mechanical and natural growth. In 2020 the population numbers 769174 people / 11.1% of the total number of the country / and is on the penultimate place in the country from all regions. 57.8% of the population lives in the districts of Veliko Tarnovo and Ruse. The largest decrease for the country is in the North-West region (-1.8%) and the North-Central region (-1.4%), and the least in the South-West region (-0.29%). In 2019, all districts in the NCR have a negative natural increase (-10.2 ‰) and only in the North-West region (-12.6 ‰) more unfavorable trends are observed.

The North Central region is in a less favorable situation than the national average, as the relative share of the working age population is respectively - 13.76% in the NCR against 15.34% for the country and for working age is 58.38% in the NCR , against - 59.78% for the country.

In 2019, the unemployment rate of the population over 15 years in Bulgaria is 5.2% and for the North Central region it is 5.1%, the lowest being in Veliko Tarnovo district - 2.0%, and the highest in Silistra region -13.3%. The average employment rate of the population aged 20-64 for Bulgaria is 75.0%, and in the North Central region is 74.3%. In 2020, one of the lowest average annual salaries of employees in the country was formed in the region - BGN 12,105, and only the North-West region has a lower one. The total average income per household member in the North Central region for 2019 is 4.3% lower than the national average.

The studied region is on the penultimate place in the country in terms of gross domestic product per capita and creates 7.44% of the national GDP for 2019, with the largest contribution being the districts of Veliko Tarnovo and Ruse. GDP per capita is BGN 11,445, which gives it the last place in the country, and the highest - BGN 14,444 is this indicator for Gabrovo district. The share of GDP per capita in% of the EU average for 2019 for Bulgaria is 26%, and for the NRC -

it is 18%. There is an internal imbalance in the development of the areas in the SCR.

The region continues to occupy the penultimate fifth place among the other regions of level 2 in the country according to GVA and forms 7.4% of that of the country in the amount of BGN 7694 million for 2019. The services sector has the highest contribution - 59, 76%, followed by the industrial sector - 32.14% and the agricultural sector - 8.1%. Most developed are the industry and the service sector in the districts of Ruse and Veliko Tarnovo, while the contribution to the agricultural sector is equal for all districts of the region.

The favorable relief, the rich soil and appropriate climatic conditions presupposes the high share of usable agricultural area of the region within the country in 2020 - 16.0%, and due to its flat nature the share of arable land is even higher - 19.1%. The development of industry and tourism, the financial sector determine the lower importance and the lower share of agriculture in the region in the gross value added created in the region - 8.1% for 2019.

In 2016, 22855 farms were active in the region /11.4% of the total number of farms in the country /, with usable agricultural area amounting to 718831 ha /18.9% of the UAA of the country /. The largest share of UAA in the region is occupied by cereals - 52, 6%, mostly wheat, corn and barley are grown. The share of cultivated sunflower and rapeseed is high - 30% of the utilized agricultural area. More than 50% of pumpkins for seeds are grown in the region. Most sunflowers are grown in the districts of Ruse, Veliko Tarnovo and Silistra. This determines the high share of the region in the production of cereals and oilseeds within the country for 2020 - 23.6% and 14.9%, respectively.

Favorable soil and climatic conditions are a prerequisite for 9.5% of the UAA in the whole country occupied with field and greenhouse vegetables, watermelons and melons to be in the region, while this area represents only 0.48 of the UAA of the region. Important crops for the region are perennials - orchards and vineyards, which cover 13.2% of the total UAA in the country occupied by them. The largest farms growing fruits and grapes are registered in the

North Central region. With an average size for the country of 1.82 ha per farm, in the region it reaches an average of 2.72 ha per farm. The structure of production also requires the development of irrigated agriculture, but only 0.7% of UAA is irrigated. However, these areas represent 5.4% of all irrigated areas in the country, as leading in the development of irrigated agriculture in the country are the South Central and Southeast regions. Negative is the fact that 85.1% of farms use gravity irrigation, only 7.5% of farms use drip irrigation.

The production of cereals and fodder crops is a good basis for the development of animal husbandry. 58.3% of the farms in the region also breed animals. In the region are bred 17.2% of the animals in the country.

Due to the structure of the produced crops, the main raised animals are pigs and poultry. The North Central region ranks first in the number of pigs in the country, which is 29.1% of all pigs, and the average number of animals in a farm is 94. The region is in first place for bred poultry, which is 34.7% of all farmed birds in the country. The average number of poultry in a farm is 738. Pigs and poultry in the North Central region are kept on commercial farms mainly /over 78% of pigs and 56% of birds/. The remaining animals are kept by individuals' farms and cooperatives. 12.3% of the cattle in the country are kept in the region with an average of 17 animals per farm. In the years of our country's membership in the EU there is a tendency to reduce the production and income from livestock products.

According to data from 2016, specialized farms predominate in the region, with the largest share of those specialized in cereals, oilseeds and protein crops - 20% of all farms, followed by specialized farms for sheep, goats and other grazing animals - 13.1%, specialized dairy farms - 10.4%, specialized farms for other field crops - 8.4% and specialized farms for sheep - 5.9%.

The farms in the region employ 10.9% of all employees in the agricultural sector in the country, who also provide 13.6% of the annual work units in Bulgarian agriculture. The share of the family labor force is high - 76.5%, of which for 67.5% of the people it is the only or main employment. 25.9% is the share of the permanently employed labor force, which is a

proof for the growing role of the farms registered under the commercial law in the region. In recent years, the number of agricultural holdings has continued to decline at a high rate, falling from 43,281 in 2010 to 22,855 in 2016. This logically leads to an increase in the average size of utilized agricultural land, which is 35.2 ha per holding, which is quite higher than the average size of farms in the country - 20.58 ha, a sign of the higher size of farms in the region. The reasons for this are related to the production specialization, which allows a significant reduction in labor costs and widespread use of machinery.

In the years of our country's membership in the EU there have been significant changes in the organizational structure of agriculture in the region. The largest decrease was registered in the holdings of natural persons (by 215.4%), followed by sole traders, cooperatives and associations. At the same time, the number and importance of commercial companies increased by 61%. The average size of farms by legal status ranges from 795.1 ha in cooperatives, 99.1 ha for commercial companies to 9.1 ha in farms of individuals. Due to the rapid increase in the number of farms registered as commercial companies, there is a decrease in their average size from 395.4 ha in 2010 to 99.1 ha in 2016, and due to the faster decrease in the number of farms of sole traders, there is an increase in their average size to 319.5 ha.

The regional production structure, the size of the farms, the applied technologies also determine the average efficiency indicators - net income and net value added per annual work unit. According to them, the region ranks third among the regions in Bulgaria. On the other hand, the higher net value added per hectare and the lower net income per hectare / fifth place among the regions respectively /, which is formed in the region, is an indicator of the lower productivity of the agricultural sector in the region.

The structure of agricultural holdings by classes of economic size shows the strong predominance of small farms up to 2 economic units (44.6%) and between 2 and 4 economic units - 17.1%. The structure of agricultural holdings by economic size and by standard production in the North Central region shows a relatively rapid increase in the size of standard production by farms over

25,000 euros, as the tendency to decrease the number of farms with increasing their economic size is valid here. Farms with economic sizes over EUR 250 thousand have a contribution to the standard production of 68.5%, which is above the national average share for large agricultural holdings (over EUR 250 thousand) in the structure of standard production - 58.52%. This data, together with information on legal status, show the importance of commercial companies and sole traders in the area.

The characteristics, peculiarities and opportunities for development of the agricultural sector in the North Central region were assessed by 18 experts from the state administration at district and municipal level. Most of them have experience over 20 years - 55.5%, 38.9% have experience from 11 to 20 years and only one has experience up to 3 years.

The importance of agriculture in all five areas is highly appreciated by most experts. In general, the assessment for the planning region is 4.33 (max. 5), ranging from 3.5 for Razgrad district, 3.67 for Gabrovo district to 4.75 for Ruse and Silistra districts.

The social function of agriculture is rated lower. The average score is relatively high - 3.72 due to the ability of agriculture to generate income. It is highest in Silistra district, followed by Ruse district. The assessment of the experts from Gabrovo district is much lower - 2.33 - due to the semi-mountainous terrain and the more diverse opportunities for other sectors to generate income and provide jobs in this district. The importance of agriculture for providing jobs is highest in Silistra district - 4.5, followed by Ruse and Veliko Tarnovo - 4, which can be explained by the more favorable climatic and soil conditions in these areas.

The positive impact of agriculture on the environment is assessed with relatively close, relatively high estimates by experts, with an average score of 3.89. The maximum result was chosen by the experts from the region of Ruse - 4.25, and the lowest in Razgrad - 3.5. Experts do not fully support the claim that agriculture in the region is mainly of a family nature, with small and medium-sized family farms predominating. This is confirmed to a greater extent for the

districts of Ruse, Razgrad and Silistra - 50% each, with the lowest support for the district of Veliko Tarnovo - only 20%.

Experts carefully assess the specifics of the agricultural sector in the North Central region. The high score of 3.72 given by experts for the importance of large settlements and market centers to stimulate the development of agriculture and especially direct sales is understandable. The assessments of all experts vary - the lowest is for Silistra district due to the lack of large settlements in the district - 3.25, and the maximum score 5 was given by the experts for Razgrad district. Insufficient irrigated areas and non-maintained irrigation facilities are one of the main reasons for limiting the production of vegetables and fruits, according to experts (4.0 average rating for the region). For all areas the estimates are close. High support (3.89 on average for the region) is received by the statement that the shortage of labor is one of the main reasons for limiting the cultivation of labor-intensive crops. The highest estimates of the experts are for Razgrad district / 5 / and Ruse /4.5/, as the other production sectors are competitors of agriculture for access to the necessary labor force.

The average support of 2.22 received for the claim that farmers participate in cooperatives, producer organizations and other network structures is low. The assessments of the experts are low for all districts, ranging from 2.0 for the districts of Veliko Tarnovo, Gabrovo and Silistra to 3.5 for Razgrad district. The proximity to large consumer centers and processing facilities, the lack of good examples in this area, as well as the large size of farms in the area are part of the explanation for this low assessment.

The relatively high assessment of the experts for the statement that the farmers provide ecosystem services /2.94 average assessment for the region / can be assessed as a positive fact. The highest score is for the district of Veliko Tarnovo /3.4/, followed by the districts of Razgrad and Ruse /3.0/, Silistra /2.75/ and in the last place is the district of Gabrovo /2.33/. The expert assessment of trends in agricultural development is close. There is relatively high support for the claim that there is an increase in the number of farmers aiming to produce better quality products and not just increase their quantity (average score of

2.94). The experts for Silistra district have the highest score of 3.25, in second place the experts put the districts of Veliko Tarnovo and Ruse, with the lowest score for Gabrovo district.

Slightly higher support from experts is found by the statement that the number of farmers who aim to produce organic products is growing - an average score of 3.28 for the region. The highest score is for Ruse district - 4.0, Razgrad district - 3.5, the lowest is for Silistra district - 2.75. This low assessment can be explained by the remoteness of the area, the lack of large nearby consumer centers, the lack of experience in the certification of organic products and their marketing. The assessment of the statement that the number of farms applying agri-environmental practices is growing is relatively high - an average of 3.39 for the region. The higher ratings of the districts Razgrad 4.0, Veliko Tarnovo - 3.6, as well as of Ruse - 3.5 are due to the slightly more favorable agricultural conditions, experience, traditions for environmentally friendly cultivation of crops and animals.

Considerable attention should be paid to the opinion of experts on the development trends of agricultural holdings, especially on the importance of farms that have diversified their activities with non-agricultural activities, direct sales and which process agricultural products. Support is relatively low for the claim that the number of farms that have diversified their activities with non-agricultural activities is increasing - 2.4 average score for the region. There is a division of the areas into two groups. Experts support this statement for the districts of Gabrovo - 3.33, Razgrad - 3.0. Their evaluations for its realization in the other three areas is low / evaluations from 1.8 to 2.0 /. There is low support for the statement that farms process agricultural products - average assessment for the region is 2.4. The experts give relatively similar estimates ranging from 2.0 for Gabrovo district to 3.0 for Razgrad district, 2.75 for Ruse district and 2.33 for Silistra district. As expected, due to the specifics of some of the cultivated crops / fruits / there is a tendency for their processing in these areas.

The statement that the number of farms selling direct sales is growing has relatively high support - 3.1 average for the region. The highest support is for the areas with higher production of fruits

and vegetables and slightly better climatic conditions - Razgrad /4.5/ and Ruse /4.0/. At the same time, the opinion of experts on the number of farms providing livelihoods for households varies from 3.4 in Veliko Tarnovo, 3.25 - Ruse, 3.0 - Gabrovo and Razgrad to 2.75 in Silistra district, which can be explained by the nature of cultivated crops requiring a sufficiently large size of holdings to allow a household to provide a livelihood.

CONCLUSION

The following conclusions can be made from the analysis:

- Agriculture is well developed and is valued as an important sector in the region. In the structure of agricultural holdings in the North-Central region of Bulgaria there is a significant increase in the number of companies producing a limited number of crops, mainly cereals, pigs and dairy cattle. Due to the rapid increase in the number of farms registered by commercial companies, there is a decrease in their average size. On the other hand, there is a decrease in the number of holdings of individuals, sole traders and cooperatives, but at the same time their average size is increasing due to the faster decrease in their number. As whole the average size of farms is 75% that the average for the country.

- The product specialization of agricultural holdings is focused mainly on cereals, such as wheat, corn and barley, which occupy 52.6% of the UAA of the region, followed by sunflower and rapeseed, grown on 30% of the UAA of the region. Important crops for the region are perennials - orchards and vineyards, which cover 13.2% of the total UAA in the country occupied by them. The largest farms growing fruits and grapes are registered in the North Central region.

- The formed structure of agricultural holdings by economic size and by standard production in the North Central region shows a relatively rapid increase in the size of standard production of holdings over 25,000 euros, as the tendency to decrease the number of farms with increasing their economic size is visible. Farms with economic sizes over 250 thousand euros have a contribution to the standard production of 68.5%, which is above the national average, which emphasizes the importance of companies and sole traders in the region.

- The main reasons for not using all potential opportunities of the region are the limited number of labor force and the greatly reduced relative share of irrigated areas in the region.

- Despite the CAP-motivated ongoing processes of increasing the production of high quality products, direct sales involving producers and consumers, the development of organic farming, nature and landscape management by farmers, in the North Central region these trends are partly observed in some areas, mainly where there are large consumer centers and they are rated relatively low. Diversification of activities through tourism development does not meet enough support, despite the presence of good natural resources / Danube River, parts of Stara Planina, etc./ The tendencies for increasing the number of farms that produce quality products and implement agri-environmental schemes are highly valued.

In conclusion, it can be concluded that agriculture is crucial for the development of the region, especially in remote areas, where it has a vital role in ensuring the livelihood of the population and to secure environmental protection. It is necessary to implement measures that contribute to maximizing the objective advantages of rural areas and directing the emerging model of agriculture, concentration and production specialization of farms to make it a sufficiently secure source of new jobs and income for the population and protection of environment.

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