
AGRICULTURE IN THE SOUTHWESTERN REGION OF BULGARIA AND ITS IMPACT ON RURAL DEVELOPMENT

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ABSTRACT

The aim of the study is to analyze and evaluate the development of agriculture and its impact on rural areas in the Southwest Region. To assess the importance of agriculture in the region and trends in its development, a mixed methodology is used, combining quantitative and qualitative methods. The results and conclusions are based on statistical information from the Ministry of Agriculture and the National Statistical Institute, as well as on expert assessment of specialists from the regional offices of the State Fund "Agriculture" and the National Agricultural Advisory System in the four rural areas. The changes and features of the formed model of agriculture in the Southwest region have been analyzed and evaluated. The emphasis is placed on the processes for reducing the number of small family farms, in their size, on the processes of diversification of activities, on the greening of economic activity, etc.

Introduction

Rural areas are extremely important for the development of the European Union and our country. Rural areas of Bulgaria occupy 80.9% of the territory and include 87.5% of the total number of municipalities with 38% of the population. Despite its declining economic importance, agriculture continues to be vital for the sustainable use of natural resources and for the diversification of the rural economy (Corral et al., 2017) Climate change processes, the Common Agricultural Policy and national development rural areas policies change and expand the impact of agriculture on rural development (Horlings, Marsden, 2014; Peter, Knickel, 2016; Woods, 2013; Subić et al., 2016).

A number of studies show that the processes of concentration of agricultural production continue, the polarization in the size of organizational structures are increasing, which

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contributes to serious problems in rural areas, both in intensive and underprivileged areas (European Commission, 2010; European Commission, 2011; FAO, 2021).

The analysis of these changes in the regions shows that not only the specific natural, climatic and other characteristics of the regions, human resources and traditions, but also the connections with other sectors are of great importance and lead to different results in using the potential of the region (Doitchinova and Miteva, 2020; Doitchinova and Stoyanova, 2020; Doitchinova, Zaimova, Miteva, 2019) and in the use of natural resources and environmental protection (Stoyanova and Harizanova, 2019).

The purpose of this article is to analyze and evaluate the development of agriculture and its impact on rural areas in the Southwest Region of Bulgaria.

Methodology

In this article is used the method of expert assessment. For its implementation a questionnaire has been developed for the expert assessment of the impact of agriculture in rural areas and for the development trends. 32 specialists from the regional directorates „Agriculture“ and the offices of the National Agricultural Advisory System in the Southwest Region (BG31) were interviewed. The expert evaluation uses a five-point positive Likert scale. The highest degree is 5 (indicating complete agreement with the tested statement or opinion) and the lowest is 1 (complete disagreement).

The expert assessment is combined with an analysis of statistical information on the development of agriculture and rural areas for the period of our country's membership in the EU. In doing so, the directions and trends of change have been assessed.

The Southwest Region is the object of the study, and the subject are the changes in production specialization, the size and characteristics of agricultural holdings and the impact on the economic, social and environmental characteristics of rural areas.

Socio-economic characteristics of the Southwestern region

The area of Southwestern region occupies 18.3% of the country's territory. It covers the territories of districts - Blagoevgrad, Kyustendil, Pernik, Sofia and the city of Sofia and 52 municipalities, 48 cities and 904 villages. The agricultural territories are 46%, 47.1% are forest, and the urbanized ones occupy 4.9%. The relief is mostly mountainous, with rich biodiversity reflected in the three national parks - „Pirin“, „Rila“ and part of the „Central Balkans“ (*Figure 1.*).

In 2019, the population numbers 2,102,205 people (30% of the total number of the country) and ranks first in the country. 63% of the population lives in the capital, while in the other four districts live only 39% of it. The population density (105 people per sq. km) is significantly higher than the national average (66.3 people per sq.km), which is due to the Sofia-city district, which has a density of 960 people per sq.km.

The Southwestern region follows the general trend of negative natural growth in the country. Thanks to Sofia-city district, the natural growth is only minus 4.3% for 2018, compared to minus 6.5% for the country. There are big differences in the region, the lowest being the natural growth in Pernik district (minus 11.9%) and Kyustendil district (minus 13.4%) for 2018, while for the capital it is only minus 1.9%.

Figure 1. Southwest region



Source: <https://bg.wikipedia.org/>

The trend of aging of the population in the region is negative, which ranks it fourth among the rest in terms of share of the population over 65 years of age - 19.3%. This is above the national average - 18.5%. Only the North-West region and the South-Central region are in a worse situation. The share of the population in the region under 15 age old is 12.5% and is lower than the national average - 13.2%, which is a sign of the unfavorable demographic structure of the region.

The surveyed region ranks first in the country in terms of gross domestic product per capita and creates 50.5% of national GDP for 2019. Characteristic of the region is the great importance of the capital city, which produces 84.7% of the region's GDP and 42.8% of the country's GDP, while for the other districts of the region the relative share in the national GDP is from 1 to 3.5%.

GDP per capita is more than twice as large as the next region (Southeast) and is 14,751 euros (*Table 1.*) compared to the national average 8779 euros (2019). In this area, the largest intra-regional differences in this indicator are observed. Sofia city district has the highest value of GDP per capita - 19758 euros in 2019, while Pernik and Kyustendil districts have the lowest values - 4784 euros and 4841 euros, respectively. An explanation for this can be found in the structure of gross domestic product, in which the services sector is leading (over 81.7%).

The services sector in the region has a share of 57.9% of the gross value added of services in the country, 34.7% of industry and only 14.4% of agriculture and forestry in 2019. The Southwestern region is the region with the least importance of agriculture

among the other regions, due to the peculiarities of the mountainous terrain, the development of industry and tourism, the presence of the capital Sofia in the region, which is the largest industrial, financial and investment center of the country. This emphasized directing of resources to Sofia city for the economy and development of the region leads to depopulation of its western and southern parts.

Table 1. Socio-economic indicators of the Southwestern region

Index	GDP per capita, euro	Share of agriculture in the regional GVA (%)	Share of agricultural sector in national GVA (%) by region
Blagoevgrad	5281	7.89	5.78
Kyustendil	4841	9.12	2.45
Pernik	4784	5.2	1.2
Sofia	8691	4.4	3.86
Sofia-city	19738	0.14	1.6
Southwestern region	14751	1.07 ³ /6.24 ⁴	15
Bulgaria	8779	3.75	100

Source: National Statistical Institute, 2020

For these reasons, the average unemployment rate is 3.6% for 2020, which is 30% lower than the national average of 5.1% and is the penultimate place among other regions. The average employment rate of the population is 58.7%, also above the national average - 52.4% and the region retains its first place among other regions on this indicator. Within the region, Kyustendil and Blagoevgrad districts have the highest unemployment, and Sofia-city district - with the lowest value.

In 2020, the population at risk of poverty or social exclusion is the lowest for the Southwest region -26.9%, compared to the national average of 32.6%. Within the region, the lowest percentage of population at risk of poverty is in Sofia-city district, and the highest in Kyustendil district.

In 2019, the highest in the country average annual salary of employees in employment and official relations was formed in the region - 9727 euros. At district level there are large differences between the incomes received in the capital - 10758 euros and other districts, with the lowest annual salary in Blagoevgrad - 5016 euros.

The leading position of the region in the socio-economic indicators for the development of the country is due to the priority development of one of its districts - Sofia-city, which leads to an imbalance in the development of the districts in the region. The favorable demographic indicators of the region are again due to the capital, as the indicators for the labor market remain negative.

3 For the five districts in Southwestern region

4 Without Sofia-city

Conditions and changes in the agricultural sector

The southwestern region has a diverse, mostly mountainous terrain and different soil and climatic conditions in different areas, which presupposes the specifics of crops and animals raised in each of them. This determines the low share of utilized agricultural area of the region within the country in 2020 - 11.8%, and due to the mountainous nature, the share of arable land is even lower - 5.7%. The mountainous terrain, the predominant soil types of lower category, the development of other sectors are the reason for the declining importance of agriculture in the region in the gross value added created in the region - 8.4% for 2019. The share of the gross value added from agriculture in Sofia is the lowest - only 0.14%, the highest is in Kyustendil district - 9.12% and Blagoevgrad district - 7.89%.

In 2020, 25,154 farms operate in the district. This is 18.95% of farms in the country, with 8.4% of the used agricultural area (UAA). Cereal crops account for the largest share - 29.2%. Technical crops occupy 12.4% of the UAA of the region, with sunflower and tobacco being the leading crops.

In the Southwestern region (mainly in Blagoevgrad district) there are 39.2% of all farms in the country growing tobacco and together with the South-Central region they are leaders in the production of this crop. The region is a leader in the country UAA where potatoes are grown - 50.8% of the total UAA in the country of this crop is in the Southwest region. But this area represents only 1.5% of the UAA of the region. The production of potatoes is concentrated in the districts of Sofia, Pernik and Sofia-capital, their production is less in the district of Blagoevgrad.

Favorable soil and climatic conditions and proximity to the Mediterranean Sea are a prerequisite for 8.5% of UAA of the whole country for growing field and greenhouse vegetables, watermelons and melons to be in the region, while this area represents only 1.75 of UAA in the region. Over 70% of the production of field and greenhouse vegetables is concentrated in Blagoevgrad district. 96% of the grape production in the region is concentrated in this area, as the vineyards occupy 0.95% of the UAA of the region. Orchards are an important sub-sector, as their area is 9.4% of the total utilized land occupied by them in the country, and within the region they occupy 2.1% of UAA. Over 50% of them are in Kyustendil district.

The low relative share of irrigated areas in the region creates difficulties for the development of production. They are only 6% of the area's utilized land and 13.8% of all irrigated areas in the country. Due to the structure of production of the irrigated areas in the first place are the areas occupied by perennials and vineyards - 22% of all irrigated areas, followed by areas for growing potatoes - 16.4%, areas occupied by cereals - 11%, followed by areas with vegetables - 10, 3 and the areas with industrial crops - 6%. Negative is the fact that 96.4% of farms use gravity irrigation, only 3.6% of farms use drip irrigation.

Due to the mountainous nature of the region, 43.3% of its utilized agricultural area is occupied by permanent grassland. Logically, 64.6% of the farms in the region also keep animals. It raises 11% of the livestock units in 21.3% of the livestock farms of the country.

The presence of large areas of pastures, the lack of opportunity to produce a large amount of grain feed predetermines the greater number of raised cattle, sheep, goats and rabbits. 12.5% of the cattle in the country are kept in the region with an average of 8 animals in one farm. 16% of the sheep in the country are raised in the region (average size of the herd are 27 sheep) and 22.2% of the goats (average size of the herd - 8 animals). The southwestern region ranks first in the number of goats raised in the country. Compared to other animals, the share of poultry farms is the largest (49.2% of the farms in the region), but only 5% of the birds in the country are kept in them. Although the share of pig farms in the region is 37% of the total number of farms in the region, they keep 3.8% of pigs in the country, and these are farms mainly of individuals breeding several animals.

The development of agriculture under the conditions of application of the Common Agricultural Policy is characterized by a change in the importance of the production of animal products and their income. At the beginning of the period, the ratio between the value of plant and livestock production was 55:45. After the substantial increase in the value of crop production and reduction of livestock production, in recent years the ratio has reached 76:24. In the studied area the observed trend is less pronounced - for 2019 it is 65.8: 34.2 in favor of crop production, as the reduction in the number of animals compared to other areas is less.

Specialized farms predominate in the region, with the largest share of specialized cereal crops - 24.6% of all farms, followed by specialized sheep farms - 14.8%, specialized dairy farms - 8.4%, specialized farms for vines and fruits - 5.8% and 6.8% respectively. The importance of mixed farms is not insignificant. Mixed farms with predominantly field crops and grazing animals occupy 6.3% of the total number of farms, those with predominantly grazing livestock - 5.5% and those with other crops and animals - 11.4%. A large number of functioning agricultural holdings in the country are registered in the region - 20.96% of the total number in the country, only the South Central region has more farms. They hire 19.8% of all employed in the agricultural sector in the country who provide 18.4% of the annual working units of labor. The share of the family workforce is very high - 94.7%. For 56.7% of the family workforce, this is the only or main employment. These data confirm the pronounced family character of farms in the region.

After 2007, the number of agricultural holdings continues rapidly to decrease and the average size of the agricultural used area increases. The average size of farms in the Southwest region remains low - 7.39 ha, which is almost three times less than the average size of farms in the country - 20.58 ha. The reasons for this are the specialization of farms, their family nature and the significant number of produced products, which requires high labor costs.

Significant changes occurred in the farms in the region. The largest decrease was registered in the holdings of individuals (by 36.4%), followed by cooperatives and associations. The importance of trading firms and sole traders is increasing, growing by 55% and 8.26% respectively. The average size of farms is between 173.7 ha for cooperatives and 4.96 ha for individual farms. Due to the production specialization of the region and the soil and climatic features there is a decrease in the average size of farms registered as commercial companies, despite the large increase in their number - in 2010 their average size was 101.2 ha, in 2013 reached 128.8 ha and in 2016 decreased to 95 ha. The trend is reversed, although not so clearly expressed in the holdings of sole traders, where the average size of the holding increased from 52.7 ha in 2010 to 66.1 ha in 2016 (Table 2).

Table 2. Agricultural holdings by legal status in the South-Western region

Legal status	Number of agricultural holdings			Changes in number 2016 (2010) (%)	Structure, 2016 (%)	Average size in ha (2016)
	2010	2013	2016			
Agricultural holdings	62464	50794	39728	63.6	97.13	4.9
Sole traders	230	248	249	108.26	0.6	66.1
Cooperatives	98	76	73	74.48	0.18	173.7
Commercial companies	369	489	802	154.92	1.97	95
Associations and others	60	40	47	78.3	0.12	25.7
Southwestern region	64221	51647	40900	63.68	100	7.39

Source: MAFF, Agristatistics, 2019

The regional characteristics of the production of the agricultural holdings, the specifics of the applied technologies determine the lower efficiency indicators - net income and net added value per annual work unit. Their values put the region in last place among the regions in Bulgaria, lagging behind the Northern region and the South-East region. At the same time, the values of net added value and net income per hectare in the region are the highest for the country (Table 3.).

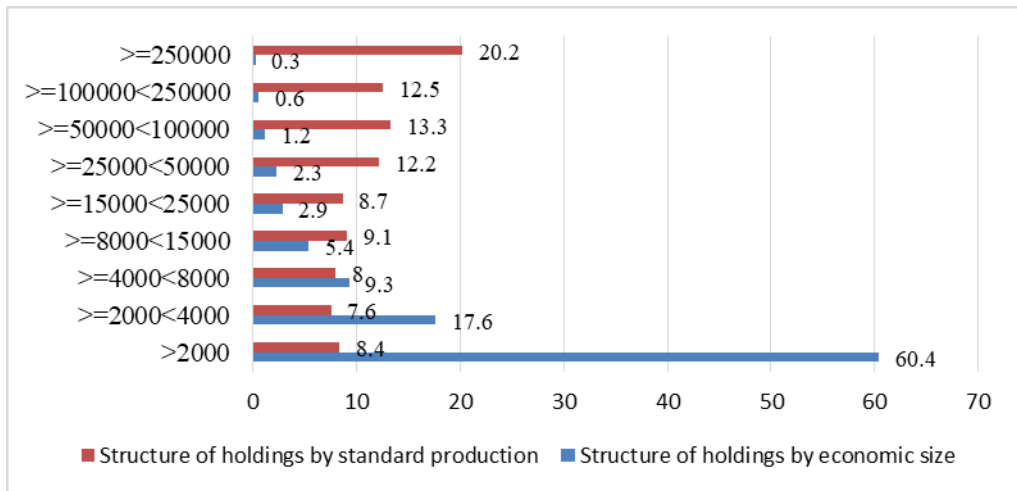
The area is heavily dominated by small farms with an economic size of up to 2 economic units and between 2 and 4 economic units - 78%. Farms over 25,000 euros are relatively evenly represented. Farms with economic sizes 25 - 50 thousand euros, 50 - 100 thousand euros and between 100 and 250 thousand euros have a similar contribution to standard production, varying between 12.2% and 13.3%. Only farms with an economic size of over 250,000 euros have a contribution to standard production of 20.2%, which is well below the national average share of large farms - 58.52%. These data, together with information on legal status, show the importance of family farming in the area. (Figure 2.).

Table 3. Regional differences in net value added and net income of AWU and ha (2020)

RegionS	Net value added per annual work unit (euros)	Net income per annual work unit (euros)	Net value added per ha in euros	Net income per ha in euros
Northwest	24290	11104	644	295
North Central	17314	5648	584	190
Northeast	15940	3354	535	113
Southwest	11854	8259	721	501
South Central	10755	6452	762	457
Southeast	13762	4968	490	177

Source: MAFF, Agristatistics, 2022

Figure 2. Distribution of agricultural holdings by economic size and by standard production volume produced by them



Source: NSI, Agristatistics, 2019

The characteristics, features and opportunities for development of the agricultural sector in the Southwestern region were assessed by 32 interviewed experts, as Sofia-city district due to the minimal importance of agriculture in it and the special status of the capital is excluded from the assessment. Most of them have more than 20 years of experience - 62.5%. 84% work in the state administration. More than half - 56.2% have a professional qualification in agriculture, 21.9% have a qualification in social sciences, 9.4% - technical sciences, 6.2% - humanities.

The importance of agriculture in all four districts is highly appreciated by most experts. In general, for the planning region the score is 4.19 (max 5), ranging from 3.5 for Sofia district to 4.5 for Blagoevgrad district (Table 4.).

Table 4. Expert assessment of the importance of agriculture by districts in the region

Expert assessment	Blagoevgrad	Kyustendil	Pernik	Sofia district	Southwest region
Importance of agriculture in rural areas	4.5	4.45	3.8	3.5	4.19
Agriculture provides income	3.7	3.82	2.8	3.5	3.38
Agriculture provides jobs	4	3.55	2.8	3.5	3.28
Agriculture positive impact on the environment	3.5	3.55	3.0	3.5	3.25
The region is dominated by small and medium-sized family farms (%)	100	91	100	50	87.5

Source: Own research

The average assessment of the social function of agriculture is relatively high - 3.38. The opinion that agriculture generates income is highest in Kyustendil region, followed by Blagoevgrad and Sofia region. The assessment of the experts from Pernik region is significantly lower. The possibilities of agriculture to create jobs are highly rated in Blagoevgrad district - 4, followed by Kyustendil - 3.55, Sofia district - 3.5. These estimates can be explained by the more favorable climatic and soil conditions in these areas and the opportunities for the development of other industries in Pernik region.

Expert assessments of the impact of agriculture on the environment are close in value - an average assessment of 3.25. Highest are the assessments of the experts from Kyustendil region - 3.55, and the lowest in Pernik - 3.0.

The predominantly family nature of the farms is supported by the experts, especially for the districts of Blagoevgrad and Pernik, followed by Kyustendil.

The importance of large settlements and urban centers in stimulating the development of agriculture and especially direct sales is rated highly with 3.5 (Table 5.). The assessments of all experts are close, ranging from 3.2 for Pernik region to 3.7 for Blagoevgrad region.

The low quantity of irrigated areas and unmaintained irrigation facilities are highly rated (with a 4.3 area average rating) as being among the main reasons for limiting vegetable and fruit production. For the districts of Blagoevgrad and Kyustendil, these ratings are higher - 4.8 and 4.5, respectively. This is understandable as a large part of the production of field and greenhouse vegetables and fruits is concentrated in these two areas and these productions are important on a national scale.

The lack of labor as a reason for the reduction in the cultivation of labor-intensive crops finds high support from the experts (3.9 average rating for the region). The highest expert ratings are for Blagoevgrad district (4.2) and Kyustendil (3.9). It should be taken into account that in Blagoevgrad district, along with vegetables, a significant part of tobacco in our country is grown, which is a labor-intensive crop.

Table 5. Expert assessment of the peculiarities and problems of the agricultural sector

Expert assessment	Blagoevgrad	Kyustendil	Pernik	Sofia district	Southwest region
Proximity to settlements or local markets stimulates farmers for direct sales	3.7	3.36	3.2	3.4	3.5
Farmers participate in cooperatives, producer organizations and other network structures	1.8	2.0	1.8	2.2	1.9
Farmers provide ecosystem services	2.7	2.27	2.6	2.4	2.5
The small number of inhabitants, the deteriorating age structure and their low qualification are the reason for limiting the labor-intensive productions on the agricultural holdings (labor shortage).	4.2	3.0	3.5	3.8	3.9
Insufficient irrigated areas and unsupported irrigation facilities are a reason to limit the production of vegetables and fruits	4.8	4.5	3.3	3.8	4.3

Source: Own research

A low score of 1.9 receives the statement that farmers participate in cooperative-type collective organizations, producer organizations, and other network structures. The evaluations of the experts vary from 1.8 for the Pernik and Blagoevgrad regions to 2.2 for the Sofia region. Proximity to major urban consumer centers and processing facilities, as well as the small size and predominantly family-run nature of the area's farms, are part of the explanation for this low rating.

The provision of ecosystem services by farmers was rated with a 2.5 average score for the Southwest region. The highest rating is for Blagoevgrad region (2.7), followed by Pernik region (2.6), Sofia region (2.4) and in last place is Kyustendil region (2.27).

The difference in the expert assessment of trends in the development of agriculture is significant (*Table 6.*). There is relatively high support for the statement that the number of farmers who strive to produce better quality products and not just aggrandize their quantity is increasing (average score 3.2). The experts for Blagoevgrad district have the highest rating of 3.7, followed by Pernik and Sofia districts, and the experts' rating for Kyustendil district is significantly lower - 2.7.

Slightly weaker support from experts finds the statement that the number of organic producers is increasing - 2.9 for the region within limits - 3.4 (Blagoevgrad) and 2.7 (Kyustendil region). The proximity to the capital, which is the largest consumer of organic products, explains the relatively high support for this statement.

The tendency to increase the number of farms with agro-ecological practices is estimated at 2.9 for the region. The higher ratings for Blagoevgrad region - 3.1, as well as for Sofia region - 3.4, are explained due to the greater variety of cultivated crops and animals and slightly more favorable conditions for agriculture.

Table 6. Expert assessment of the tendencies for development of the agricultural holdings

Expert assessment	Blagoevgrad	Kyustendil	Pernik	Sofia district	Southwest region
There is a growing number of farmers who aim to produce better quality products, not just to increase the quantity	3.7	2.7	3.4	3.2	3.2
There is a growing number of farmers who aim to produce organic products	3.4	2.7	3.3	3.0	2.9
There is a growing number of farmers who apply agri-environmental practices	3.1	2.64	2.3	3.4	2.9
The number of farms aiming to provide food for the household has increased	3.6	3.4	3.8	2.2	3.3
The number of farms with non-agricultural activities increased	3.6	2.2	2.0	2.2	2.6
The number of farms executing direct sales has increased	4.0	3.7	2.2	2.7	1.6
The number of farms that process agricultural products has increased	3.1	2.7	2.6	3.5	2.5

Source: Own research

An object of special interest are the changes in the direction of diversification of activities with non-agricultural activities, direct sales and processing of agricultural products. The estimate that the number of farms that have diversified their activities with non-agricultural activities is growing is relatively low - 2.5 for the region. For the Blagoevgrad district, the rating is 3.6, but for the other three districts, the ratings are from 2.0 to 2.2. The situation is similar in support of the claim that the farms process agricultural produce - an average rating for the region of 2.5. And here the regions are divided into two groups. Blagoevgrad (3.1) and Kyustendil (2.7) show expectedly higher support due to the specificity of the cultivated crops and the possibilities for their processing. The ratings of Pernik region (2.0) and Sofia region (1.6) are significantly lower. Due to the weaker development of agriculture and cultivated crops, there is no development of this trend.

The increasing trend in the number of farms with direct sales is estimated at 3.5 on average for the region. The highest support is for the districts of Blagoevgrad (4.0) and Kyustendil (3.7).

There are various estimates for the increase in the number of farms providing livelihood for households. They range from 3.8 in Pernik, 3.6 - Blagoevgrad, 3.4 - Kyustendil to 2.2 in the Sofia region, which is explained by the more diverse means of livelihood in Sofia region.

Conclusion

The analysis of the development of agriculture and its impact on the development of rural areas in the South-West region of Bulgaria created opportunities for the following conclusions and conclusions:

- In the structure of agricultural holdings in the studied area, a significant increase in the number of commercial companies and sole traders is observed. Although the number of small family farms that produce a large number of agricultural products is decreasing, they are still dominant. In these farms, only or mostly family labor is used, and only part of the work processes are mechanized. These farms have a number of characteristics of the Southern European model of agriculture.
- The product specialization of agricultural holdings is strictly profiled according to the location and soil-climatic conditions of the respective area. The production of oilseeds, cereals and potatoes is concentrated in the districts of Sofia, Pernik. Over 70% of the production of field and greenhouse vegetables, 96% of the production of grapes in the region is concentrated in Blagoevgrad district. Over 50% of the orchards are in Kyustendil district.
- The formed organizational structure of the farms in the region shows a relatively even distribution of farms by standard production with amounts over 25,000 euros. The relative share of large farms in standard production is more than twice lower than the national average, which is proof of the importance of family farming for the region.
- The formed model of agriculture contributes to the lower level of unemployment in some municipalities and the slower migration processes compared to other regions in the country.

The limited number of labor force and the low relative share of irrigated areas are among the reasons for not using the potential opportunities for production of crops and vegetables.

In the Southwestern region, the processes of increasing the production of high-quality products, the creation of new short chains involving producers and consumers, the development of organic agriculture, the management of nature and the landscape by farmers are taking place more slowly. In addition, diversification of holdings and direct sales in fruit and vegetable production areas is observed. Tourism is strongly represented in all municipalities in the district - especially winter, spa tourism, ecotourism.

In conclusion, it can be summarized that the implementation of the Common Agricultural Policy in the last 14 years has contributed to dynamizing the development and increasing the efficiency of the agricultural sector in the Southwest region. At the

same time, the forming model of agriculture, the size and production specialization of farms did not allow agriculture to become a source of new jobs and income for the population, its opportunities for regional development have not been revealed.

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