

# ANALYSIS OF GROWING AND TURNOVER OF TOBACCO IN REPUBLIC OF SERBIA

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## Abstract

Raw tobacco production in the world has a long tradition and is widespread throughout the continents. Due to polymorphism as one of its most prominent traits, tobacco has adapted to all conditions under which it is grown. In addition to natural conditions, the most important of which are soil type and climate, raw tobacco production is also influenced by economic factors such as the world market price of tobacco, government support and global anti-smoking policies. The aim of this paper is to present and analyze tobacco growing and marketing in Serbia, based on the collected data and information. The importance of the paper is in recognizing the structure and dynamics of production and marketing, as well as their causes, primarily because the production of this species brings significant economic benefits to the state, both through the realization of the products themselves, as well as through the creation of new jobs and income from taxes.

The statistical data of the Statistical Office of the Republic of Serbia, as well as the results of the research done on the place and role of tobacco production in the Republic of Serbia, served as the main source of data in the preparation of this paper. The data in this paper were processed using mathematical and statistical analysis, and relative dynamics indicators, baseline indices and average growth rates were used to look at the status, changes and potential in tobacco production in the Republic of Serbia.

**Keywords:** production, condition, market, selling

## Introduction

In Serbia, tobacco production, processing and fabrication represent a unique industry. The tradition of tobacco cultivation in our country began at the end of the 19th century. Significant production was recorded after the First World War. During this period, our country was a well-known and world-renowned producer of small-leaved, oriental tobacco. Tobacco processing - production was dominated by oriental-type cigarette production. Efforts to obtain higher yields, reduce labor force participation and increase production efficiency have led to significant changes in the structure of tobacco production. The introduction of tobacco culture on larger areas, namely large-leaved types of tobacco in the last decades of the 20th century, has led to their complete displacement of the production of oriental tobacco in our the Republic of Serbia.

Today, the tobacco market in Serbia is closely linked to the market for tobacco products, primarily cigarettes, with the world's largest multinational companies operating on this market: *Philip Morris International (PMI)*, *Japan Tobacco International (JTI)* i *British American Tobacco (BAT)*.

For the production of tobacco, it is useful to have a better knowledge of its technology, as well as the ability to achieve economically viable production. As more types of tobacco are produced, it is necessary to know the specificities in the production of each type individually. The development and distribution of all branches of agricultural production, and therefore of tobacco, depends more or less on the climate. Serbia is located between approximately 42°

and 46° north latitude. There are two major climatic regions in our country, the Pannonian and the mountainous. The Pannonian region is represented by the Pannonian-continental climate, slightly milder than the true continental climate that prevails in Eastern Europe, while the mountainous region is represented by three climatic types, temperate-continental, mountainous and parish. The presence and influence of different types of climate provides the opportunity to produce more types of tobacco.

In Serbia are represented different types of soil, which influences that tobacco production takes place on soil of different fertility, which has an impact on yield and quality. Soil types in Serbia can be classified into two groups: soil in the plains and hilly regions, and soil in mountainous areas. The first group is dominated by chernozem, vertisol, cambisol and eutric cambisol, while the second group contains acid brown and parapodzolaceous soils, followed terra rossa, kambisol and rendzines (Djokic et al., 2015).

Different types of climate and soil require respect for the needs of tobacco in terms of conditions for its successful cultivation, which is often neglected in practice. For this reason, we face the fact that there is a lack of reionization of tobacco types and varieties, which adversely affects the yield and quality of the raw material.

In Serbia, in recent years, there has been a slight increase in transplanted and cultivated areas, an oscillation of average yields, and a decrease in the number of holdings engaged in this production. The yield variations per hectare are the result of economic exhaustion and stem from the inability to implement all the necessary cultural practices and tobacco protection measures.

Support for tobacco growers in Serbia was discontinued in 2011, so today it is the biggest drawback in the production of this crop in our country.

### **The economic importance of tobacco**

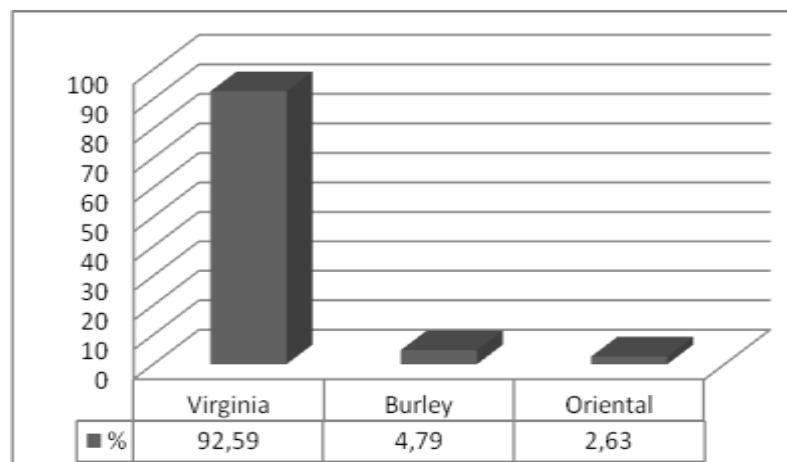
Tobacco in the leaf and its products represent significant products in the economy of the world, and occupy a high place in international trade in goods. In the economy of some countries, it occupies a very important place, so that the US is tobacco just behind wheat, cotton and maize, with about 8% share ([www.fao.org](http://www.fao.org)). The national economies of Greece, Bulgaria, Turkey and several other countries are highly dependent on the volume of tobacco production and exports. The importance of tobacco production in Serbia is reflected in a significant share in the formation of national income, income generated through taxes (which is one of the important revenues for the country's budget), etc. Tobacco production in the leaf requires considerable labor force participation, from production in the field to the production of finished products, which makes it important for tobacco, both in the formation of national income and in improving the country's balance of payments (Djokic et al., 2015).

### **Structure of tobacco production in the Republic of Serbia**

Serbia has a very long tradition of tobacco production since the second half of the 19th century, when the first small factories for the purchase and primary processing of tobacco were established. Almost all domestic tobacco production takes place on individual holdings, so this branch has a specific economic and social importance. Tobacco cultivation has traditionally been present in underdeveloped regions, especially in the south of the country. Since the 1970s, plantation cultivation of high-yielding, broad-leaved and high-quality tobacco varieties in lowland areas has been increasingly present in Serbia, but significant production is still taking place on small plots, with specific microclimate, soil quality, low level of technical and technological equipment and applications of modern cultural practices. In terms of economic importance, it is enough to mention that about 15.000 families in Serbia live and depend on tobacco production. Taking into account the seasonal labor force,

processing industry employees, service workers, manufacturers and suppliers of required materials, this number would increase many times over (Radojičić, 2011).

According to data of the Ministry of Agriculture, tobacco production in Serbia ranges from 6.842 to 9.341 tonnes on areas between 4.691 and 5.256 hectares and average yields of 1.4 to 1.9 t ha<sup>-1</sup>. In 2015, Virginia is the most represented in the production structure with about 93%, burley with about 5%, while oriental tobacco occupies about 2.5% of the area (Chart 1). Since 2016, oriental tobacco is no longer produced in the Republic of Serbia and production of Berley type tobacco has been declining for years.



Graph 1. Structure of tobacco production in the Republic of Serbia in 2015.

Source: <http://www.duvan.gov.rs/>

### Tobacco market in Serbia

Due to the strong interdependence of the tobacco market and the tobacco products market, it is best viewed as a single market. In this situation, key entities can be divided into three groups: producers, consumers and the state. In the production of tobacco and tobacco products, there are tobacco manufacturers, tobacco processors and manufacturers of tobacco products. In addition to these three entities, there are also companies involved in the production of tobacco inputs, transport, wholesale and retail trade.

Tobacco production in Serbia is a good example of the functioning of the agro-industrial complex, which consists of three significant parts: the pre-farm, farmer and post-farm sectors. The pre-farm sector includes input manufacturing companies, and in the case of tobacco production, this sector includes enterprises that produce tobacco drying driers, specialized planters or chemical agents for tobacco production. The farmer sector is represented by tobacco producers, while the post-farmer sector includes the tobacco industry, tobacco processors and manufacturers of tobacco products, wholesalers and retailers, as well as transport companies (Veljković, 2006).

Tobacco producers in Serbia are exclusively farms that produce tobacco in cooperation with tobacco processors. The number of agricultural holdings producing tobacco decreased from 2006 to 2012 from 3,922 to 1,765. However, the average size of the holding increased from 1.6 ha to 3.56 ha. The number of tobacco producers is greatly influenced by changes in the agrarian policy of the country, where the abolition of subsidies for tobacco production is most influenced by the fact that a number of producers give up this production (Djokic et al., 2015).

Tobacco processors are business entities that carry out the process of processing (one type of fermentation), stripping and packaging of tobacco. According to the Law on Tobacco,

tobacco processors are obliged to have contracts or pre-contracts with tobacco producers, and because of the specific business relationships between these two entities, they are defined as organizers of production on the farm. In addition to tobacco seeds or seedlings, production organizers also provide advances in the form of reproductive material, protective equipment, greenhouses, dryers, etc., in this way they credit their subcontractors (who, depending on the size of the investment, repay advances at the end of the season across tobacco, while for major investments such as dryers and greenhouses, producers make repayments over the next few years). The processors also organize training for producers in the form of seminars and experimental field visits to give them the opportunity to practically see the benefits of new technologies available.

Tobacco processors, who are also organizers of production in Serbia, are the *Tobacco Industry Ćoka Tobacco, Ljubovija, and JTI Senta*, which also manufactures tobacco products. In addition to the listed companies, there are also tobacco companies in the tobacco market that are only organizers of production but not processors. The most important of these companies are *Monus* from Belgrade, *COPEX* from Novi Sad, and until 2017, *Alliance One Tobacco* from Belgrade, which organized tobacco production and purchased tobacco for *PMI*. They do tobacco processing by paying for tobacco processing services to other companies.

Manufacturers of tobacco products are economic operators producing the final tobacco products, primarily cigarettes. The largest multinational companies such as *PMI* (formerly *DIN*), *BAT* (formerly *DIV*) and *JTI* (formerly the *Senta Tobacco Industry*) operate in the territory of Serbia. In addition to these three companies, the production of tobacco products is also carried out by the company *Monus* from Zemun (Djokic et al., 2015).

In the market of tobacco and tobacco products of Serbia the state has a multiple role. Through its agrarian policy measures, it influences tobacco production by giving different types of subsidies to tobacco producers. Such support also affects the business of other entities, above all tobacco processors. Through excise duties, the state also affects the price of cigarettes, thereby generating revenue and potentially reducing consumption, leading to reduced demand for raw tobacco. It also regulates the market through appropriate legislation. Through its agrarian policy, the state influenced the income of tobacco producers in various ways, so that from 2001 to 2011, tobacco production was subsidized through premiums per kilogram of manufactured tobacco or through premiums per hectare of planted tobacco. After 2011, the state no longer encourages tobacco production through special measures.

Consumers buy and consume the final products of the tobacco industry, but also indirectly generate demand in the tobacco market (the increase in consumption of tobacco products affects the demand for tobacco). According to the latest data, Serbia holds the first place in the world in per capita consumption of cigarettes, so as many as 2,861 per capita cigarettes are consumed annually ([www.tobaccoatlas.org](http://www.tobaccoatlas.org)). If we omit the fact that this information is extremely disturbing on the health side, on the economic side, it speaks to the high demand for tobacco products and the need for strong domestic production to make the foreign trade balance as favorable as possible.

Table 1. Tobacco production and average annual purchase prices of unmanufactured Tobacco from 2010 to 2016

Year	Republic of Serbia			Otkupna cena (RSD)
	Harvested area (ha)	Total yield (t)	Yield (t ha <sup>-1</sup> )	
2010	4,691	8,402	1.8	193.52
2011	5,139	8,192	1.6	191.55
2012	5,050	6,842	1.4	213.52
2013	4,939	7,977	1.6	244.24

2014	4,899	9,341	1.9	233.68
2015	5,012	8,776	1.8	221.71
2016	5,256	7,810	1.5	246.42

\*without data for AP Kosovo and Metohia

Source: Statistical Office of the Republic of Serbia, Belgrade

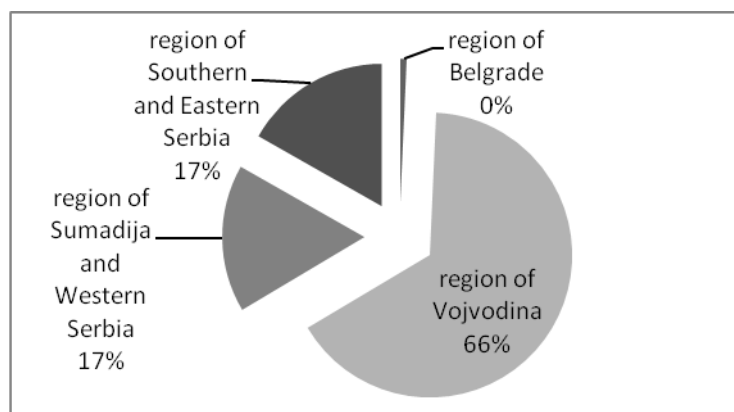
In the structure of field crop production in Serbia, tobacco has taken a marginal position in the past ten years. The largest areas under tobacco in Serbia in the analyzed period (2010-2016) were recorded in 2016 and amounted to 5,139 ha, while the highest production volume of 9,341 tons was recorded in 2014. In the observed period, the total cultivated area under tobacco fluctuated, and also the yield achieved by years recorded many deviations. Yield per hectare was the highest in 2009 (1.9 t ha<sup>-1</sup>), while the lowest was obtained in 2012 (Table 1). In this period, total yields did not vary much variate and variations in yields most likely due to the high dependence of tobacco production on weather conditions. The average purchase price of a kilogram of tobacco increased significantly in the observed period, with the highest level being achieved in 2013 and 2016 (around 245 dinars per kilogram of tobacco). In addition to the supply and demand ratio in the domestic and world markets, one of the factors that certainly has a great influence on the price movement is the state policy towards this production. The total area under tobacco in the Republic of Serbia during the observed period recorded a slight increase, although since 2011 it no longer there are subsidies from the state that are intended to encourage this production. The highest harvested areas in 2016 were recorded in Vojvodina, where the highest yield per hectare was also recorded. Significant areas under this crop were also recorded in the region of Southern and Eastern Serbia (1,081 ha), as well as in the region of Sumadija and Western Serbia (871 ha), with slightly lower yields per unit of capacity. The smallest area under tobacco in 2016 was recorded in the Belgrade region (Table 2, Graph 2).

Table 2. Tobacco production by regions in the Republic of Serbia in 2016

Region	Tobacco		
	Harvested area (ha)	Total yield (t)	Yield (t ha <sup>-1</sup> )
REPUBLIC OF SERBIA*	5.256	7.810	1,5
Belgrade region	39	55	1,4
Vojvosina region	3.265	5.136	1,6
Šumadija and western Serbia region	871	1.308	1,5
Southern and Eastern region of Serbia	1.081	1.311	1,2

\*without data for AP Kosovo and Metohia

Source: Statistical Office of the Republic of Serbia, Belgrade



*Graph2. The structure of tobacco production in the regions of the Republic of Serbia in 2016*

### **Supply of tobacco**

The foreign trade balance represents the value difference between exports and imports of the country in international trade. In the period from 2010 to 2016, Serbia's foreign trade balance was negative in the first years, and from 2014 it was positive (Table 3). A positive balance in recent years has emerged from a significantly higher increase in exports of tobacco products, compared to a slightly smaller increase in imports of these products.

Table 3. External trade of tobacco products from 2010 to 2016 (in millions of euros)

Year	Republic of Serbia		
	Export	Import	Balance
2010.	34,9	93,1	-58,2
2011.	31,7	83,4	-51,7
2012.	30,9	82,8	-51,9
2013.	73,8	118,6	-44,8
2014.	132,6	123,2	9,4
2015.	222,9	192,5	30,4
2016.	358,8	195,1	163,7

*Source: Statistical Office of the Republic of Serbia, Belgrade*

### **Production of tobacco without subsidies**

The tobacco production market stands out from others. It is very important for tobacco production to secure a placement, but also to achieve the best purchase price for tobacco, which can fluctuate a lot. The price of around 246 dinars per kilogram in 2016 for the first class of tobacco represents the value at which producers earn a minimum profit when producing this crop.

In all countries where tobacco is grown, the state provides premiums to encourage the activities of the agricultural population. In some countries, the state also mandates a minimum purchase price below which the tobacco industry must not go when buying tobacco from growers, and the motives for tobacco drying are usually to ensure a high and stable price, support small farms and increase the competitiveness of domestic tobacco. Serbia also used tobacco remediation measures as part of its policy to support agricultural competitiveness and rural development, but is no longer using it today.

This is also one of the major problems that accompanies this production in our country. The investments in this type of production are extremely large, it requires a lot of labor, and the costs, especially of tobacco drying, are quite high. Fertilization costs range from 9 to 12% in the structure of total production costs. The share of protective equipment costs in the structure of total costs ranges up to 7.40%. However, of all cost items, energy costs account for the largest share in the structure. They account for 26 to 28% of total costs (Radojičić, 2011). Tobacco producers, while subsidies existed, organized production more easily than they doing today. This is primarily reflected in the inability to achieve a more secure and higher profit today, which would allow for further investment in production (eg investments in necessary machinery, purchase of dryers, etc.).

Since there are no subsidies from the state, growing tobacco requires great costs, especially for small producers, while on the other hand, by working with large companies that provide seed, material and secure placement, much better results can be achieved, even more cost-effective than some standard field crop species.

### **Conclusion**

There are five key entities in the tobacco market in Serbia: tobacco producers, tobacco processors, producers of tobacco products, government and consumers. The Republic of Serbia has a multifaceted role in the market of tobacco and tobacco products, which is manifested primarily through agrarian policy measures, thereby affecting tobacco production. Also, through laws and regulations, through the competent ministries, the state regulates both the conditions of production, processing and fabrication, as well as the excise policy, through which it replenishes its budget.

In the observed period (from 2010 to 2016), the yields on tobacco production varied, most probably under the influence of weather conditions for each year. The largest cultivated areas in 2016 were recorded in Vojvodina (3,265 ha), where the highest yield per hectare (1.6 t ha<sup>-1</sup>) was also recorded. Significant areas under this crop were recorded in the region of Southern and Eastern Serbia (1,081 ha), as well as in the region of Sumadija and Western Serbia (871 ha). In the analyzed period, the average purchase price of unprocessed tobacco kilograms increased significantly and the highest level was achieved in 2016 and amounted to 246 dinars for the first class. Considering that the subsidization of tobacco production by the state has been abolished since 2011, it can be concluded that the organizers of production have tried to stimulate producers with higher purchase price of tobacco.

The foreign trade balance of tobacco products has a positive tendency, so a surplus has been recorded in recent years, compared to the deficit from previous years.

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