CHAPTER 6

CALCULATION PROCEDURE IN THE OPERATIONS OF A LARGE AGRICULTURAL FARM IN THE CENTRAL BANAT DISTRICT

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Agricultural farms that use their production resources more efficiently and effectively can more easily access investment funds, which leads to faster growth and development, regardless of their initial size. By increasing the efficiency of production of field crops that lead in AP Vojvodina, it is possible to increase exports and reduce imports, which also reduces production costs per unit of product. Among other things, great attention should be paid to the production of safe, environmentally friendly food, as well as the introduction of modern technology that serves to reduce costs and increase production. The state has a great influence in all this, which with its measures in the field of agrarian policy influences their development, with clearly defined models of field production which would optimally use the available resources in the function of increasing production and exports. Taking into account the research conducted in the period from 2014 to 2017, it was found that the Republic of Serbia is among the ten largest exporters of cereals in the world. This analysis was conducted by the Serbian Grain Association based on available data from the United States Department of Agriculture (USDA).

1. INTRODUCTION

The paper discusses costs according to calculation with rent, costs according to calculation without rent, ten-year increase in grain yield, ten-year price growth, increase in parity for raw materials and combining, worsening business conditions and other factors influencing profitability and profitability of this branch of crop production. In addition to the main goal of the research, the subject of research of this paper is the price calculation on the farm of the Central Banat District, with reference to business in 2018. The research task required the application of various methodological procedures, where we single out the following methods: analytical-synthetic, abstractions and concretizations and specializations, comparisons, and classifications. This paper aims to give a theoretical and practical contribution to defining the long-term orientation in crop production on this farm located in the city of Zrenjanin.

The main purpose of business within agricultural holdings is food production, which means that market management measures play an important role, especially for the products that are most prevalent in the area. These measures may include the purchase of certain storage products, with European Union money, if excess production or a significant increase in imports jeopardizes current market prices. The company expects the agricultural farm to produce enough health-safe food, various raw materials for energy production in a sustainable way, in the conditions of global changes and depletion of limited production resources (Todorović, 2018). Farms play an important role in the food supply chain, and are linked to the food industry and retail. Supply and demand as two decisive macroeconomic aggregates affect the business results of agricultural holdings, as a result of which the amount of state incentives for agricultural production is also very important. This contributes to higher investment, which results in increased productivity that facilitates access to loans, while significantly reducing the costs and risk of borrowing.

One of the main drivers of economic growth is to increase the efficiency of production of family farms. Given this, only some farmers have recognized the benefits that can be achieved by more efficient use of productive resources, while a larger number of farmers have not yet realized the importance of this economic transformation. Due to this shortcoming, the potential for saving resources and money remains untapped and unexplored (Fischer et al., 2004). Some analysts argue that

differences in farm management in terms of directing production resources to a particular type of production are more important to its efficiency than the size of a given farm itself. This means that efficiency is more related to cost control than to the size of the agricultural holding (Arsenović, Krstić, 2002). Therefore, the thing that all farms have in common is that the costs of mineral fertilizers make up a very significant share, about 20% in the total costs of field production. In the transition period, a large part of the land in the agricultural sector was redistributed, which is now directed towards producers who are more economically efficient, ie they are able to achieve lower production costs and higher profits. The basic element in the assessment of the economic efficiency of different models of field production is an individual family farm that improves, maintains and reduces the efficiency of its field production.

In order to carry out the calculating procedure of the analyzed agricultural holding, it is necessary to first collect data, classify them according to the degree of importance, then make the necessary corrections, which is the first measure that had to be implemented. After that, another measure is approached, which includes: data processing, application of the calculation method, method of analysis and synthesis, comparison of basic types of field products and production, and finally interpretation of the obtained results. The most important indicators that affect the financial result of any, even field production, are income and expenses. In this regard, it is necessary to analyze the achieved volume of production, quality and price of products, the amount of subsidies, as well as the size of processing capacity and the proximity of markets that reflect the economic power of the farm. Income of selected agricultural production on the farm, on the one hand represents the difference between the value of production of main and secondary products and subsidies, while on the other hand represents the difference between direct and indirect costs that can cause a positive or negative financial result (http://app.seerural.org/wp-content/uploads/2013/08/Federation-Agricultural-Policy-Report-Bosnian.pdf).

Gulan (2019) points out in his paper that individual agricultural farms irrigate an average of 0.1 hectare, while the areas irrigated by legal entities and entrepreneurs in the Republic of Serbia average about 15.1 hectares. Of the total irrigated area in the Republic of Serbia, about 55% is land owned by family farms, while the rest of the irrigated area is owned by companies and entrepreneurs. In each drought year, the

damage from drought is about 1 billion $, which was the case in our country in 2003, 2005, 2012, and 2017, when the damage was about 1.5 billion $ with a drop in production of 10.7% (http://www.politika.rs /sr/clanak/405318/Pogledi/Voda-dobar-sluga-zao-gospodar).

Bošnjak and Rodić (2010) point out that in a large number of agricultural farms in the region of Vojvodina, agricultural land is increasingly becoming a limiting factor for the rational use of other means of work in agriculture. Therefore, the times to come bring stronger competition and the need to either rationalize and enlarge production or to abandon it. (Bošnjak, Rodić, 2010).

Timmer (1991) states that since 1970, there had been set two ways in agricultural production, namely: developed way (advanced nations, with higher government contributions to agriculture) and anti-traffic (governments impose high customs duties on export products and high protective taxes on competitive imported agricultural products) (Gajdobranski, 2012).

Cvijanović (1994) states that Serbia has favorable natural conditions for the production of industrial plants, however, they are not used to a sufficient extent. The development of this production is influenced by both external and internal factors. The first ones include: development of the economy, changes in the structure of demand, diversification of economic branches and activities and on that basis connecting plant production with the food industry. Internal factors include: selection, agricultural technology, labor mechanization, labor force, or professional staff; they all change under the influence of scientific and technological progress (Gajdobranski et al, 2016).

Đurđić (1997) states that: „Agriculture is one of the few sectors where, traditionally, state interventionism is highly present. Even the most developed countries, which are also the biggest supporters of liberalism, have not resisted the pressure to create very complex and developed agrarian policies. In essence, the very specificity of agricultural production as well as the strategic importance of this sector were sufficient reasons for the application of strong protectionism in agriculture. The central place of many agricultural policies belongs to the system of guaranteed prices, which is best illustrated by the practice of the European Union, which has pursued such a policy since the creation

of the Common Agricultural Policy (CAP). In this way, high prices realize one of the basic goals of agricultural policies, to protect the material position of farmers (https://agroekonomika.rs/images/arhiva/ agroekonomika_55.pdf).

Based on the census of agriculture from 2012, it was determined that 77.4% of the total number of agricultural farms in Serbia with used agricultural land (abbreviated UAL) has a holding of up to 5 ha, so it can be concluded that domestic agriculture is dominated by so-called small and medium farms, low economic strength (from the aspect of the value of SO on the farm). They are most often used for farms that have a small area of UAL (up to 3 ha, or up to 5 ha) (Draft Strategy of Agriculture and Rural Development of Serbia, 2014-2024). According to the EC methodology for farm typology, with which the appropriate methodology of the SBS of Serbia is harmonized, the economic size of the farm represents the value of the total standard output (abbreviated SO) or results on the farm, ie the monetary value of gross agricultural production that a farmer can potentially expect from his land (crops / perennial crops / livestock) in a given region and "normal" production circumstances. The value of the total SO on the farm is expressed in euros and represents the sum of the values of individual SO of all agricultural products (characteristics) produced on the farm (European Commission – EC, 2008). Using the size of used agricultural land as a criterion for the classification of agricultural holdings, they were grouped into three groups, namely: small (use less than 20 ha of agricultural land), medium (use between 20 ha and 100 ha of agricultural land), and large (use more than 100 ha of agricultural land). The highest average economic size of an agricultural farm is in the region of Vojvodina (12,032 euros), and the lowest in the region of Southern and Eastern Serbia (3,414 euros). Thus, the average economic strength of an agricultural farm in the region of Vojvodina is 3.5 times higher than the average economic strength of an agricultural farm in Serbia (http://webrzs.stat.gov.rs).

2. RESEARCH METHODS AND DATA SOURCES

The main sources of data that we came across in this paper were obtained from a large agricultural farm in the area of the town of Zrenjanin, which belongs to the Central Banat District. We set the basic goal of the research, which is to use scientific methods to consider all costs and

expenses incurred in connection with crop production of five different crops that dominate this area (corn, wheat, sunflower, soybeans and sugar beets). These are direct (individual) costs such as raw materials and mechanical works, and indirect (general) costs such as property taxes and insurance. The set task of the research required the application of various methodological procedures, where the research is mostly based on the so-called „Desk research", on the data collection by surveying the holder of the selected farm, as well as the collection of other available primary and secondary data. The research was conducted for the period 2017/2018, with special emphasis on the calculation of the price of wheat and corn of the 2018 harvest. In addition to scientific methods, the paper will use tables in which summary data for the most important field crops will be presented through the profit and loss account, as well as determining the costs according to the calculation with rent and without rent in order to determine the final financial result.

The paper uses the methodology according to Milošević (1981), to investigate the dynamics of phenomena in a certain period of time, which, in addition to changes in absolute amounts, also determines changes in relative expression. This relative expression is obtained by relating each member of the time series to the size selected for the comparison base. The relative numbers formed in this way are called dynamics indices, which can be individual or group, and show the relations of different states of a phenomenon in the observed moments of time or time intervals in relation to the selected base. Depending on whether the same base is used in the calculation, ie whether the constant or variable base is used, two types of indices were calculated: base and chain, and their quotient is multiplied by 100.

Basic dynamics indices – members of the time series are compared on the same basis. This basis for comparison can be the first, last, smallest, largest or some other suitable value. The base dynamics index is calculated when the state of occurrence in the current period is entered as the calculated value (eg the value of Hgb in June), and the state of occurrence in the base period (eg the value of Hgb in May) is entered as the base value. The obtained value is multiplied by 100.

Chain dynamics indices – each member of the time series is compared with the previous member. The chain index shows the change of one phenomenon from the previous to the next time period. If the chain index is greater than 100, it means that the observed phenomenon is increasing

(compared to the previous period), and if it is less than 100, it means that it is declining. The chain index of dynamics is calculated when the state of occurrence in the current time period (eg the value of Hgb in August) is entered as the calculated value, and the state of occurrence in the previous time period (eg the value of Hgb in July) is entered as the base value. The obtained value is multiplied by 100. The chain index shows the change of one phenomenon from the previous to the next time period. If the chain index is greater than 100, it means that the observed phenomenon is increasing (compared to the previous time period), and if it is less than 100, it means that it is declining (http://www.mfub.bg.ac.rs /dotAsset/66577.pdf).

The paper selects indicators that will be used to identify the most diverse areas of field production within the analyzed agricultural holding, such as the index of concentration of field production and the yield index of field crops. When it comes to the concentration of field production, attention is focused on five different crops that dominate in this area, namely: corn, wheat, sunflower, soybeans and sugar beet. There is a trend of decreasing areas under sugar beet, at the expense of increasing areas under soybeans. The largest areas are occupied by corn, followed by wheat, while soybeans are in third place. When it comes to the yield of field crops, a higher value of the selected field crop indicates a higher level of production intensity of a given field crop in a particular area and vice versa.

The main sources of data used in this scientific research are statistical yearbooks of Serbia, internal material of the Serbian Chamber of Commerce, studies on the business of agricultural farms in the Central Bačka District, data collected via the Internet, as well as author's research published in books, other journals and publications.

3. BUSINESS RESULTS OF THE AGRICULTURAL FARM IN THE PRODUCTION OF SUGAR BEET IN 2018

One of the main preconditions for the development of agricultural farms, as we have already pointed out earlier, is - increasing the efficiency of production, which means that through saving resources (but also money) achieve the highest possible financial result with as few investments as possible. However, the potential for saving resources, and therefore often money, remains largely unexplored as well as inadequate (Fischer et al., 2004).
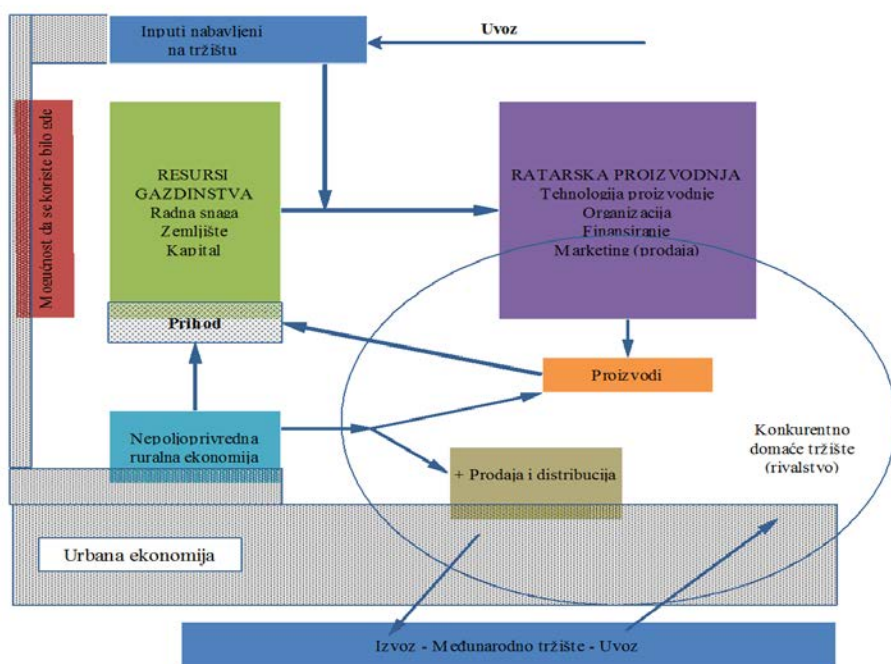
Figure 1. The place and role of an agriculture farm in the economic environment
Source: Tilman, D. (2001)

As a basic element in the assessment of the economic efficiency of different models of field production, an individual agricultural farm stands out, which improves, maintains and reduces the efficiency of its field production. Therefore, it is necessary to show the place and role of agriculture in the economic environment, which can be seen in Figure 1 (Tilman, 2001).

Based on Figure 1, it can be concluded that agricultural farms have an important role in the supply chain of agri-food products that procure inputs (seeds, mineral fertilizers, fuel) from the industrial sector, which are further used in agricultural production. However, the macroeconomic environment affects the business results of agricultural holdings through the basic market law, ie. relations of supply and demand, where economic policy measures must be taken into account, such as the introduction of premiums that have a stimulating and developmental character, parity of input prices and products arising from these relations (Arsenović, Krstić, 2002).

Parities, price ratios are important indicators not only of the economic position of individual production lines, but also of the income levels of primary agricultural producers in general. If there is a harmonious price relationship between certain price values, or the relationship is about price parities (favorable and equal), otherwise it is about disparities (unfavorable and unequal). The term "price scissors" is also used. Premiums are a means of overcoming the differences between the prices received by producers (which are considered stimulating for further development of production) and the ability of end users to pay such prices themselves. Through premiums, agricultural producers should be protected from sudden oscillations, ie falling prices below certain, guaranteed limits. (Gajdobranski, 2015).

In the Republic of Serbia, non-competitiveness of agricultural farms has been present for many years, which is reflected in the following: expensive and inefficient agricultural production (both in terms of cost and price); extensive agricultural production where relatively small funds are invested per unit of utilized agricultural area, which achieves lower yields; non-compliance with ISO 9001 standards imposed by the European Union in terms of quality; primary agricultural products (corn, raspberries, fruits) are mostly exported, as a result of which additional values (knowledge through modern technology) are neglected; the agro-industrial sector is underdeveloped; the supply of agricultural products is insufficient, ie the marketing mix related to this type of product; the development of small and medium enterprises in agribusiness is insufficient; as well as many other accompanying problems.

It has been noticed that in most of our agricultural farms, the quality of the existing calculations is not at the required level of development. This situation is a consequence, first of all, of the non-market environment in which our agricultural farms have been operating for a long time, as a result of which the development of appropriate management could not have taken place. Hence, this type of calculation of costs and effects is internally oriented, ie. refers to the global accounting reporting on the state and success of the business of a company as a whole, which is in the management competence and responsibility of management. Our farms almost exclusively use the system of calculation of real costs, which, thanks to the consistent application of the principle of full cost transfer, necessarily results in a variable cost per unit of product that directly affects the periodic result. To assess the intensity of demand in relation to

the change in the price of the product, it is not enough to rely only on experiences and data from the previous period. It is very useful to look at the market reaction to price changes through the price elasticity of demand. Price elasticity of demand represents the percentage change in the quantity demanded in relation to the percentage change in the price of the product. Demand is elastic when a decrease in prices results in a higher total income of the economic entity and when an increase in prices leads to a decrease in total income. Demand is inelastic when a decrease in prices results in a lower total revenue, and an increase in prices causes an increase in total revenue (Gajdobranski et al, 2017).

Table 1 shows the calculation of the price of sugar beet of a large agricultural farm of the genus 2018, where in the continuation of the paper we analyze the impact of the costing system on the periodic result (Mirkov, 2018a).

Table 1. Calculation of the price of sugar beet of the 2018 harvest

	I DIRECT COSTS	
No.	A.) RESOURCES	Amount
1.	Beet seeds	22.750
2.	Mineral fertilizer NP 12:52 435kg/ha x 41,30 din/kg	17.966
3.	Mineral fertilizer An 140kg/ha x 36 din/kg	5.220
4.	Means of protection	53.005
	TOTAL	**98.941**
No.	B.) MACHINE WORKS	Iznos u n.j.
1.	Ploughing 35 cm	10.812
2.	Pre-harvest preparation x 2	9.520
3.	Distribution of mineral fertilizer x 3	4.560
4.	Planting	3.280
5.	Watering x 9	28.125
6.	Inter-line cultivation	3.950
7.	Beet harvest	35.148
	TOTAL	**95.395**
No.	II INDIRECT COSTS	Iznos u n.j.
1.	Tax	5.120
2.	Health and pension insurance	670
	TOTAL	**5.790**
	TOTAL PRODUCTION COSTS	**295.521**
	RENT 1500 KG OF BEED x 4 DIN	**6.000**
	TOTAL PRODUCTION COSTS WITH RENT	**301.521**

Source: (Mirkov, 2018a) - based on data analysis

Based on SBS data, agricultural farms in the Republic of Serbia sowed about 60 thousand / ha in 2018, which is about 50% more than in 2019. As a result, depending on the yield, it is assumed that sugar will be barely enough for domestic needs, so exports will be suspended in that case.

Agrarian economist M. Prostran states that the Republic of Serbia has a quota for sugar exports to the European Union, and it amounts to 180 thousand / t.

According to the data obtained by the research, the maximum annual production of sugar in recent years was around 700 thousand / t, which is significantly above the domestic needs that would be met at about 200 thousand / t. While from 2015 onwards, there were changes in the European Union market in terms of liberalization, which allowed the import of cane sugar, the production of which is cheaper than the production of sugar from sugar beet, which caused sugar beet processing companies to fall into a major crisis. (https://naslovi.net/2019-04-22/beta/prostran-secera-jedva-za-domace-potrebe-mozda-ce-morati-i-da-se-uvozi/23279766).

The problem is also reflected in the fact that processing companies and producers usually do not have direct business contracts, but the purchase is done through the so-called intermediary production organizer. In general, the purchase price is not known until the end of the harvest, so these prices are not favorable for agricultural producers, while factories claim that they are market prices. So, market prices function freely, because factories agree on prices, while agricultural producers demand that the purchase price be known in advance, which is realistic. Farmers take inputs (seeds, fertilizers, chemicals) from production organizers or factories and want to pay off with a good price, which is possible at harvest.

What both farmers and analysts need to understand is the fact that it is no longer justified to expect processors to buy raw materials for year-round production (e.g. to buy sugar beet at harvest time).The solution is for farmers to invest in storage space and store goods. Therefore, it is necessary to build a storage space outside the processing capacity, for the reason that the grain would be sold when producers estimate, ie respect the offered prices, with the construction of dryers for storage in areas where this industrial plant is successfully grown (the largest areas are in Vojvodina).

Due to the lack of large warehouses in our country, agricultural producers are forced to hand over all produced quantities to processing companies, which in a very short time should provide large funds for purchase and bear the risk of financing large quantities in stock (Gajdobranski et al.,

2016). . The advantages of warehousing are reflected in a higher rate of stock loss, positive impact on service activities and market success, which in recent years has been recognized by the Ministry of Agriculture and Water Management of the Republic of Serbia, which offers part of the grant to invest in warehouses.

Based on the research, the change in the cost structure of the agricultural farm from Zrenjanin, as well as others that operate in a similar way, is clearly expressed, which is reflected in the constant increase in the share of general costs and costs of using mechanization. It has been noticed that in most of our agricultural farms, the quality of the existing calculations is not at the required level of development. This situation is a consequence, first of all, of the non-market environment in which our agricultural farms have been operating for a long time, as a result of which the development of appropriate management could not have taken place.

Hence, this type of calculation of costs and effects is internally oriented, it refers to the global accounting reporting on the state and success of the business of a company as a whole, which is in the management competence and responsibility of management (Gajdobranski, Latković, Janković, 2018). Our farms almost exclusively use the system of calculation of real costs, which, thanks to the consistent application of the principle of full cost transfer, necessarily results in a variable cost per unit of product that directly affects the periodic result.

Data on incurred operating costs in all organizational parts of the company must be collected, classified, and appropriately recorded, ie processed. For this reason, it is necessary to apply the method of additional calculation, which consists in the fact that the individual (direct) costs of each product or service (cost bearer) are "linked" to them directly, and general or indirect costs are added to them at the appropriate rate. indirectly. The additional calculation is not aimed at obtaining costs per unit of cost bearers, but above all, at determining the total costs of individual types of cost bearers (Petrović, 2009). The additional calculation is named after the fact that the cost price of the product first includes direct (individual) costs, and then, based on the keys, general (indirect) costs are added, which completes the cost price of the given product. In Table 2, we show an additional calculation on the example of sugar beet, which would include the production cost price (194,336 n.j.),

ie. direct costs (raw materials and mechanical works) and non-productive cost (5,790 n.j.), ie. indirect costs (tax-drainage and health-pension insurance). If the costs of non-production functions (5,790 n.j.) are added to this production cost price (194,336 n.j.), the full (commercial) cost price of the product (200,126 n.j.) is obtained.

Table 2. Additional calculation of the price of sugar beet of the 2018 harvest

No	Features	Amount
1.	Resources	98.941
2.	Machine work	95.395
3.	COST OF PRODUCTION (1+2)	**194.336**
4.	Tax and irrigation	5.120
5.	Health and pension insurance	670
6.	NON-PRODUCTION COST (4+5)	**5.790**
7.	FULL (COMMERCIAL) COST PRICE (3+6)	**200.126**

Source: (Mirkov, 2018a) - based on the analysis of data in Table 1.

Based on the calculations we obtained from Table 2, we notice that the production cost a total of 194,336 dinars, which includes direct costs such as raw materials in the amount of 98,941 dinars and mechanical works in the amount of 95,395 dinars. Unlike the production price, the non-production cost price totaled 5,790 dinars, and it included indirect costs such as taxes and drainage in the amount of 5,120 dinars and health and pension insurance in the amount of 670 dinars. If the costs of non-production functions in the amount of 5,790 dinars are added to this production cost price in the amount of 194,336 dinars, the full (commercial) cost price of the product (sugar beet) in the amount of 200,126 dinars is obtained.

For the production of sugar beet, based on the data obtained for 2018, we see that the analyzed farm has made a loss in its business, while most of them will not be able to cover rental costs, not to mention the costs of fuel, raw materials and other direct costs. What 2019 will be like will be determined by market conditions.

We will analyze the dynamics of phenomena related to the review of sugar beet price costs according to the calculation for 2017 and 2018 (Table 3), where in addition to changes in absolute amounts, changes are also determined in relative terms. This relative expression is obtained by relating each member of the time series to the size selected for the comparison base. The relative numbers formed in this way are called dynamics indices.

Dynamics indices show a relative change in characteristics over time. Depending on what serves as a basis for comparison, they can be: base and chain indices of dynamics (http://www.mfub.bg.ac.rs/ dotAsset/66577.pdf). Basic dynamics indices - members of the time series are compared with the same basis. This basis for comparison can be the first, last, smallest, largest or some other suitable value. Chain dynamics indices - each member of the time series is compared with the previous member. The chain index shows the change of one phenomenon from the previous to the next time period. If the chain index is greater than 100, it means that the observed phenomenon is increasing (compared to the previous period), and if it is less than 100, it means that it is declining.

Based on the data in Table 3, we notice that in the 2018 there was a slight decrease in costs per calculation by 2.5% in total compared to the previous 2017, ie. production costs decreased from 203,130 dinars / ha in the previous year to 200,126 dinars / ha in the current year. In the case of raw materials, the decrease is from 104,240 dinars / ha in the previous year to 98,941 dinars / ha in the current year or by about 5%.

 Indirect costs (taxes and health pension insurance) in the current year were reduced by about 9%, or from 6,350 dinars / ha in the previous year to 5,790 dinars / ha in the current year. We conclude that this agricultural farm in the production of sugar beet in both years has made a loss in its business, where most farmers will not be able to cover the cost of rent, especially when we take into account the high cost of raw materials. So, the loss from 2017 was transferred to 2018 as well, so it can be said that both analyzed years in the production of sugar beet were extremely unfavorable.

Table 3. Overview of sugar beet price costs according to the 2017 and 2018 calculations

No.	Features	2017	Index	2018	Index
1.	Resources	104.240	105	98.941	95
2.	Machine work	92.540	97	95.395	103
3.	Indirect costs	6.350	110	5.790	91
4.	TOTAL COSTS OF PRODUCTION	203.130	104	200.126	96

Source: (Mirkov, 2017/2018) - based on data analysis

Agrarian economist Vojislav Mirkov from Zrenjanin presented a calculation that refers to one very important aspect of this analysis and

that is how many sugar factories make extra profit per 1 kg of sugar. By the calculation procedure, the following indicators were obtained: sugar beet is paid by digestion, the standard is 0.16%, which means that if we divide 1 kg of sugar by 0.16, we get that 6.25 kg of sugar beet is needed for 1 kg of sugar. By processing sugar, about 10% is lost, so we have 6.25: 90 • 100 = 7 kg of sugar beet. Beets were paid 3.5 pfennigs or 4.30 dinars / kg for 1 kg of sugar • 7 = 30.1 dinars / kg. If we take that sugar beet participates in the production price of sugar 65%, it results in 30.1: 65 • 100 = 46.30 dinars / kg, which is the production price of sugar. In the markets, the selling price is around 90 dinars / kg and if we reduce it by the amount of VAT we get 74.30 dinars / kg, and if we subtract the production price from that we get the amount of extra profit made by sugar producers (retail price is reduced by trade margin).

It is known that in Serbia, from 400 to 500 thousand / t of sugar is produced, which means that sugar factories make an extra profit of 12.6 billion / din or 1 ha 229 thousand / din. If we divide the extra profit of 26 din / kg of sugar by 7 kg of sugar beet as much as we need to produce 1 kg of sugar, we get that the extra profit per 1 kg of sugar beet is 3.71 din / kg, and when we add this to the price of 4, We get 8.01 dinars / kg for 30 dinars, which proves that the price of 6 pfennigs is realistic, that is. 26: 7 = 3.71 + 4.30 = 8.01 din / kg. Prior to the introduction of the euro as the main currency in the European Union while the German mark was in circulation, the price of sugar beet was 6 pfennigs / kg or 60 DM / t.

After the introduction of the EUR in two to three years, the prices of sugar beet have doubled, based on which the price of sugar beet should be 60 Euro / t, and for this reason it is stated the following: "until that price is reached, sugar beet will not be the queen of the field" (Mirkov, 2018a).

Total costs according to the calculation for 2018. amount to 295,521 dinars / kg (Table 4), and annuity costs 6,000 dinars (301,521-295,521). The total cost of production with rent is 227,295 dinars / ha, and the costs / expenses (that is given money) are 167,226 dinars / ha, so the price for 1 kg of sugar beet at individual costs / expenses would be 4.10 dinars / kg, which is a very low price.

In Table 4, the data obtained by the calculation procedure tell us that we got an average price of 4.10 dinars / kg for all beets, so we have a rent of 7.09 - 4.10 = 2.99 dinars / kg or a loss per ha 2, 99 • 41,705 = 124,698

dinars or without rent 7.23 - 4.10 = 3.13 dinars / kg or 3.13 • 41,705 = 130,537 dinars. So, in 2018, we made a loss on sugar beet in the amount of 124,698 dinars / ha, while its crop also failed, where it gave birth to only 41,705 kg / ha.

Table 4. Costs / expenditures (sugar beet) per ha in 2018

Features	Costs without rent per Ha	Costs with rent per Ha	Costs/expenditures per Ha
Cost amount in din	301.521	295.521	6.000
Realized in kg	41.705	41.705	41.705
Price in din/kg	7,23	7,09	4,10

Source: (Mirkov, 2018a) - based on data analysis

In this example of sugar beet, we see that the basic market rules have not been followed, and that is that: "If the supply of a certain product is at a low level, then the price rises, and vice versa." The reason for such a poor financial result lies in the role played by obligations through excises and VAT on fuel and raw materials, the disfavor of monopolists and large buyers and warehouses that dictate the conditions of agricultural production in the country and the banking sector that determines market interest rates stands behind such a bad environment, and does not take adequate measures to protect farmers from large losses.

4.COMPARATIVE ANALYSIS OF FARM BUSINESS RESULTS IN 2018

The agricultural area of AP Vojvodina is recognizable by favorable natural and socio-economic conditions for organizing field production. A large role in this is played, first of all, by the available arable fund, which makes up close to 90.00% of the total agricultural land in this area (Bošnjak, Rodić, 2011a). In the Severna Bačka area, there is a high specialization of field production and cultivation of only those crops that can be said to be most adapted to the natural and socio-economic conditions that prevail in this area. Here, in addition to high production, higher yields are achieved in basic field crops (corn, wheat, sunflower, soybean and sugar beet), in contrast to the North Banat area where this level is medium. The Severna Bačka and Severni Banat areas make up 27.79% of the area of the Republic of Serbia and contain 58.34% of arable land and gardens, and also the share of harvested areas of five basic field crops (corn, wheat, sunflower, soybean and sugar beet) in the total agricultural area, far larger than in areas that are not recognized as

the most important for field production in the Republic of Serbia (Bošnjak, Rodić, 2011b).

In the research endeavor within the analyzed agricultural farm of Vojislav Mirkov from Zrenjanin, in addition to sugar beet whose cost and income structure we have presented in detail, we will also look at other field crops that this farm grows, namely wheat, corn and sunflower which are in the structure of sowing area within this area and the most represented. Before we start a more detailed analysis of these sowing structures of the selected agricultural farm, in the area of AP Vojvodina there are several limiting factors: there is a low share of these farms of a certain type of production in the total sown area; the share of small and economically weak agricultural farms in the total areas where basic field crops are grown is low; it is unlikely that these farms will be involved in market flows as they are expected to continue to produce for their own consumption instead of for the market; despite the fact that large and economically strong agricultural holdings are included in market flows, they, like small and economically weak agricultural holdings, have a low share in the total sown areas where basic field crops are grown.

Table 5 shows the revenues, expenditures and investments of basic field crops of a large agricultural farm from Zrenjanin of the 2018 harvest, where in the continuation of the paper we analyze the impact of the costing system on the periodic result (Mirkov, 2018b).

Table 5. Calculation of basic field crops of the 2018 harvest

No.	I - Incomes		Amount
1.	Wheat	235.500 kg x 18,70 din	4.216.850
2.	Corn	300.000 kg x 15,50 din	4.690.000
3.	Corn - stored	195.800 kg x 17,30 din	3.387.340
4.	Sunflower	184.500 kg x 32,70 din	6.039.150
5.	Sugar beet	504.000 kg x 4,10 din	2.066.400
6.	Subsidies	20 ha x 4.000 din/ha	80.000
		TOTAL	**20.407.740**
No.	II - Expenditures		Amount
1.	Seeds		2.265.030
2.	Mineral fertilizer		1.527.085
3.	Means of protection		810.000
4.	Dizel		2.294.000
5.	Work of helping workers		540.000
6.	Current maintenaince		610.000
7.	Health and pension insurance		96.180
8.	Tax and irrigation costa		631.300
9.	Cost of storage		180.530
10.	Loan for resources		2.500.000
		TOTAL	**11.284.995**
No.	III - Investments		Amount
1.	Loans for land purchising		2.202.000
2.	Lease of land		3.500.000
3.	Loan annuity for the machine		1.488.000
		TOTAL	**7.190.000**
	TOTAL EXPENDITURES (II+III)		**18.474.995**
	TOTAL PROFIT (I-(II+III))		**1.931.745**

Source: (Mirkov, 2018b) - based on data analysis

From Table 5 we can see that the agricultural farm realized the highest income with sunflowers in the amount of 6,039,150 dinars (184,500 kg • 32.70 dinars / kg), while the lowest income was realized with sugar beet in the amount of 2,066,400 dinars (504,000 kg • 4.10 din / kg). We notice that the most produced field crops were sugar beet in the amount of 504 thousand / kg, the price of which was extremely low, only 4.10 dinars / kg, and as a result, the lowest income was achieved, while the least sunflower was produced in the amount of 184.5 thousand / kg whose price was even 8 times higher than the price of sugar beet, and as a result, a much higher income was realized. Total revenues (wheat + corn + stored corn + sunflower + sugar beet + subsidies) amounted to 20,407,740 dinars. In terms of expenditures, the largest expenditures were on land lease, loans for raw materials and land purchase, purchase of diesel fuel, seeds and mineral fertilizers, which totaled 18,474,995 dinars. The difference between income and expenses is in favor of income, which achieved a positive financial result (profit) in the amount of 1,931,745 dinars.

According to the available data of the analyzed agricultural farm, four field crops were grown on 142.75 ha in the investigated area. Of the total harvested area, wheat occupied 31.65 ha, corn 47.58 ha, sunflower 51.45 ha and sugar beet 12.07 ha, with sunflower grown on the largest area and sugar beet on the smallest, which can also be seen in the Table 6.

As for the financial effect, we can see from Table 6 that the business year was positive, ie. this large agricultural farm, which cultivates a total of 142.75 ha of arable land, made a profit. But the financial effects were very different, depending on the crop that was grown, where if we take into account the wheat that was harvested on an area of 31.65 ha, we can say that a symbolic profit of 131,885 dinars / kg (31.65 ha) was achieved.

Table 6. Income statement by agricultural crops on the farm in 2018

Plant	Area - in ha	Total income	Costs per calculation	Costs of rent	Profit	Loss	Extra profit
Wheat	31,65	133.237	100.770	28.300	4.167	-	-
Corn	47,58	192.104	99.070	28.050	32.884	-	32.100
Sunflower	51,45	119.477	81.231	28.070	10.432	-	-
Sugar beet	12,07	170.995	200.091	24.200		56.270	-
Subsidies	-	80.000	-	-	80.000	-	-
TOTAL	142,75	695.813	481.162	108.620	127.483	56.270	32.100

Source: (Mirkov, 2018b) - based on data analysis

The best financial effects were achieved with corn whose sown area was 47.58 ha, while the realized profit was 1,409,663 din / kg (47.58 ha • 32,884 din / ha) or 32,884 din / ha, and the extra profit was 32,100 din / ha. For sunflowers, the sown area was 51.45 ha, while the realized profit was 536,726 din / kg (51.45 ha • 10,432 din / ha) or 10,432 din / ha. The sugar beet had a negative financial effect, that is. loss in the amount of 638,164 dinars / kg (12.07 ha • 56,270 dinars / ha) or 56,270 dinars / ha, which was especially reflected in the high costs according to the calculation in the amount of 200,091 dinars / ha. If we look at the share of subsidies in total income, we notice that it was at an extremely low level of only 0.46%. This data was obtained in that way when we multiplied the amount of subsidies per hectare with the total number of field crops, ie. 80,000 dinars • 4 = 320,000 dinars (which is the total amount of subsidies for all four field crops), and then divide this amount by the total income, ie. 320,000 dinars: 695,813 dinars = 0.46%.

In relation to the market environment, such as CEFTA countries and the European Union, our agricultural producers have significantly less state

support in production, so their profit or loss is primarily expressed as a result of realized prices (Tomić, 1997). The Government of the Republic of Serbia has set aside money for diesel fuel in 2019, which will have a minimal impact on incentives in 2019, because this measure covers only 20 hectares per farm (First Business Gazette of Farmers and Advisors in Serbia, 2017). In our conditions, the prevailing opinion is that the inputs needed by agriculture are expensive, which is why producers are losing economic interest in increasing production, especially intensive ones where significant investments are needed. The long-term depreciation of the prices of basic agricultural products, such as wheat, corn, soybeans, sunflowers and sugar beets, could often not provide even minimal depreciation, which led to the obsolescence of agricultural mechanization. Due to the stated inadequate and significantly disturbed price parities, there is a "spillover" of funds from agriculture to other industries. Lower prices of agricultural products favor the development of certain industries, the basis of which is cheap agricultural production. In this way, agricultural producers become economically exhausted and lose motivation for more serious market production.

5. CONCLUSION

Having in mind the growth of input prices with the reduction of prices of field products, which could be seen on the example of sugar beet, it indicates the growth of production costs and low productivity. Based on that, it can be concluded that the situation in this segment of agricultural production is becoming increasingly unfavorable from year to year which will greatly affect the volume, quality and structure of the next sowing. Agriculture on our farms is traditional and extensive (low productive, highly oscillatory and dependent on climatic factors), characterized by low marketability and the absence of production specializations. It is also useful to note that the economic size of agricultural holdings in Serbia averages about 6 thousand / euro per farm, which is extremely small compared to the average economic size of agricultural holdings in the European Union, where it is about 25 thousand / euro per farm.

From the aspect of the area of used agricultural land and the value of the SO on the farm, the so-called small and medium-sized agricultural farms, with high development constraints, primarily from the point of view of financial, human and physical resources. In order for small and medium-

sized agricultural farms in Serbia to become more competitive, it is necessary for farmers to be more actively engaged in removing their numerous internal restrictions, as well as for farms to receive support from agricultural policy makers through numerous measures aimed at growth and development in this sector. production. In order to achieve profitability of agricultural production, ie. profit or positive financial result, it is necessary that the total value of agricultural production is greater than the amount of total costs of agricultural production. Therefore, we compiled price calculations, in order to determine the production costs and cost prices of the obtained products on the analyzed agricultural farm in the Central Banat District.

We came to realize that the share of direct costs (raw materials) is high, which affected the increase in the production cost price, and as a result, this farm could not cover all costs, ie. realized a loss, which could be seen on the example of sugar beet in the amount of 56,270 dinars / ha. In addition to determining income and expenses, through the accounting procedure, there was an economic profit that justifies the invested capital, as could be seen in the example of corn, with an extra profit of 32,100 dinars / ha. The time period to which this economic calculation referred is at the one-year level, determined by the length of the production process of the analyzed field production. Since these were economic calculations, it was necessary to determine the entrepreneurial profit, which is the difference between income and expenses. The structure of income consists of: income from the sale of seeds, subsidies in the form of recourses for raw materials, recourses for insurance premiums; while the cost structure consists of: costs of engaging all factors of production as well as all opportunity costs. Opportunity costs include: owner's labor costs, interest on own operating capital, interest on own long-term invested capital, rent for own land as well as management fee. However, as the management fee is difficult to estimate, it was not included in the calculation of field production.

The decision to further engage in the production of analyzed field crops will depend on the expected level of profitability and future price movements on the domestic and world markets. The problem is reflected in the fact that the so-called creators of agrarian policy pushed agricultural producers into the market of ruthless monopolists and large purchasers and warehouses, who tailor and dictate the conditions of agricultural production in the country.

The banking sector also plays a big role in all this, as it determines the level of interest rates on the market and invests in agriculture, for the reason that the risk is the lowest in this area, so extra profits can be made. It is noticeable that large processing companies were created on the so-called "shark loan policy" which mutually determines the prices of agricultural products, which was joined by a large number of buyers.

Due to such and similar problems, the GDP of agriculture in the Republic of Serbia for the last three decades has grown annually from 0.40 to 0.45%, while in that period there were powerful agricultural companies that achieve high profitability, similar to those in advanced countries
In order to eliminate numerous shortcomings that accompany field production "from year to year", it is necessary to take a number of necessary measures, such as: change of land policy in the area of AP Vojvodina with the aim of increasing holdings; establishment of production groups in this part of field production; interesting connections for the cheapest possible purchase of raw materials; forming a larger supply of grain to wholesalers and processors; construction of storage space to sell grain when the price is best for producers; connecting through contracts of primary producers with the processing industry and exporters; reduction of liabilities through excises and VAT for fuel and raw materials, which would make higher profits; raising the professional qualifications and skills of growing field crops through education of producers in this area; greater participation of agricultural advisory services; as well as the inclusion of science in the process of crop production with clear analyzes of cultivation in changed climatic conditions.

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