ECONOMIC ANALYSIS OF THE ROLE OF AGRICULTURAL PRODUCTION IN MEETING THE DEFENSE NEEDS OF THE REPUBLIC OF SERBIA

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ABSTRACT

The comprehensive influence and importance of agricultural production on the economy of the Republic of Serbia and its connection with the defense system represent an interesting research topic. This topic has to be researched carefully due to the connection, mutual influence, and mutual intertwining of commodity reserves of food products, the economic system, the defense system, and the army as one of its components, with social and political factors, both internal and external. Since the beginning of the COVID-19 pandemic, global increases in food prices have been noticeable. This problem arose with the beginning of the conflict in Ukraine. It should be understood that the commodity reserve system of food products is a subsystem within a series of higher subsystems and systems, and that this is where its complexity and comprehensiveness lie.

Introduction

In modern society, in which national security and defense are of key importance, the importance of supporting and maintaining stable commodity reserves cannot be underestimated. These reserves represent the basis of the national response to major challenges, including natural disasters, conflicts, and other extraordinary circumstances that may threaten the normal functioning of society and the state. Establishing and maintaining the dynamic stability of the supply and demand relationship and the

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stability of the production and prices of agricultural products, i.e., the permanent food security of the population, is ensured by the system of market institutions, especially the unique system of agricultural commodity reserves, and primarily those products of vital importance for agro-industrial reproduction. In the context of this, agricultural production plays a vital role. Food is not only the main source of our basic need. It has a deeper and more complex impact on the stability of national security. The production of food and other agricultural products is closely related to the ability of the state to achieve an effective response in the event of a crisis or the needs for defense. Due to the exceptional importance of agriculture in ensuring the stability of the state, including the defense system as part of the national security system, special attention should be paid to the issue of agricultural production. Several questions are very important in light of that. The first question is related to the integration of agricultural production into the supply of commodity reserves. The second is linked to how it affects their readiness and efficiency. The third is connected to its contribution to general national stability.

The aim of this paper is to explore the importance of agricultural production for the economy of the Republic of Serbia and for the national commodity reserves that are of key importance for the defense system. In order to achieve this, we will take into account various dimensions, including the role of agricultural production, recent developments in the agricultural production of the Republic of Serbia, as well as the impact of global events on this important component of national security. A special purpose of this paper is to stimulate discussion about the importance of agricultural production and commodity reserves, with a better knowledge of level of readiness to respond to current and future challenges, risks, and threats from the sphere of food security.

We have not forgotten that the importance of this topic was emphasized even in ancient times, from which comes the sentence attributed to Socrates: "Warriors do not fight only with strong weapons. They also fight with strong food." In addition, we have a lesson to learn from Serbian history in the Great War and the appeal of Duke Zivojin Misic, who said that a country that does not feed its own army will feed another's army."

The importance of commodity reserves in the defense system in modern economic conditions

The institution of commodity reserves was established in Yugoslavia after the Second World War. It has been maintained in Serbia without interruption until today. Commodity reserves are mainly in the function of saving producers and the market. They have a role to calm the market, to mitigate price shocks and shocks in supply, as well as to maintain the guaranteed prices of some goods. Therefore, they are stocks of goods that ensure supply and stability on the market in cases of emergency, war, or market disturbances. They consist of basic agricultural and food products, meat from live cattle, industrial products, medicines and medical supplies, raw materials and reproduction materials for these products.

It should be noted that food is the largest part of the commodity reserves in the Republic of Serbia. It is understandable because war cannot be waged and economic and social policies in peace cannot be implemented if a country does not have food.

Two main facts have to be kept in mind about commodity reserves. The first is that they represent a subsystem of a higher system, the economic system. Second, their role is to ensure the stability of the economic system, especially in crisis, as well as its development and progress. Starting from the definition of a system as a set of elements that constitute it, thus creating a certain structure, they are in mutual interaction that is determined by certain principles and conditions of the way it functions. The economic system can be characterized as a set of institutions and mechanisms for making and implementing decisions that concern production, distribution, exchange, and consumption in a country over a certain period of time (Lindbeck, 1977).

The commodity reserves of the Republic of Serbia represent quantities of goods or raw materials that are purposefully stored on the national level in order to ensure availability in case of shortages, crisis situations, or emergency circumstances in the country. The Republic Directorate for Commodity Reserves performs state administration and professional tasks related to (Leković et al., 2023):

- organization of the commodity reserve system;
- education, accommodation, preservation, and renewal of the national commodity reserves;
- determining the volume, structure, and quality of the balance of commodity reserves;
- managing the flow of quantities with the aim of maintaining reserves at the necessary minimum level;
- construction of storage capacity for the needs of the national commodity reserves;
- financial, material, and record-keeping operations with commodity reserves, as well as other tasks in this area.

The Law on Commodity Reserves (Sluzbeni glasnik RS, 104/13, 145/14, and 95/18) stipulates that the national commodity reserves represent public property and they are managed by the government, and its the Directorate for Commodity Reserves, which has the status of a legal entity. The formation, utilization and renewal of commodity reserves in the Republic of Serbia, the construction and maintenance of storage space for the accommodation and storage of commodity reserves, as well as the manner of dealing with those reserves, are regulated by the Law on Commodity Reserves. Warehouses for the storage of commodity reserves represent a space for temporary storage of material assets in piece, bulk, and liquid form, which should be renewed after a certain period (Regodic, 2011). Commodity reserves are formed and utilized to ensure supply and stability on the market on any occasion (Zupur & Janjetovićc, 2023) such as:

- emergency situations including natural disasters, technical-technological accidents, catastrophes, and other major accidents and calamities as a result of which there is or may be an interruption in the basic supply or an insufficient or unstable basic supply;
- occurrence or immediate danger of the occurrence of serious disturbances on the market;
- state of emergency, or state of the war.

Cities, municipalities, companies, and institutions can create commodity reserves in accordance with their needs and specifics. The act on the establishment of commodity reserves determines the types and quantities of commodities, sources of funding, and other issues of importance for the establishment, preservation, and renewal of commodity reserves. Consent to this act is given by the Republic Directorate for Commodity Reserves (Curakovic, 2023). Commodity reserves consist of basic agricultural and food products, meat in live livestock, industrial products, medicines and sanitary materials, means for maintaining hygiene, as well as raw materials and reproductive material for these products. Additionally, in order to rationalize the operation of commodity reserves and the economy, monetary reserves can be formed. Commodity reserves of food items consist of: mercantile wheat, mercantile corn, wheat flour T-500, milk powder, table salt, sugar, edible sunflower oil, canned fish, permanent canned meat, beans, and rice.

As for the formation, distribution, utilization, and renewal of stocks of commodity reserves, it is carried out on the basis of a medium-term and annual program based on the balances of production, consumption, and foreign trade exchange. The medium-term program of commodity reserves is adopted for a period of five years and it contains of type, name, quantity, and quality of goods, territorial distribution and purpose. It is harmonized with the Development Plan of the Republic of Serbia and the Defense Plan of the Republic of Serbia. The medium-term program is adopted by the National Assembly of the Republic of Serbia on the proposal of the Government of the Republic of Serbia. Commodity reserves are formed by purchasing domestically produced goods and contracting the production of certain products. If there are not enough goods on the domestic market or they are not produced, goods reserves are formed by buying goods from abroad. Commodity reserves are dealt with in the manner and according to the regulations that apply to companies. In dealing with commodity reserves, the Republican Directorate for Commodity Reserves concludes contracts on purchase, sale, accommodation, storage, and renewal of commodity reserves, construction and provision of storage space for accommodation, and storage of commodity reserves, and other tasks within the scope of its work.

During a state of emergency, imminent danger of war or the war, the government of the Republic of Serbia decides on the formation, renewal, and use of commodity reserves (Inđić et al., 2023). Companies that, in accordance with the regulations, are obliged to produce certain goods in the event of war or an imminent threat of war are obliged to, based on an act of the Government of the Republic of Serbia, produce or sell goods

for education and replenishment of commodity reserves. Furthermore, Article 9 of the Law on Commodity Reserves (Sluzbeni glasnik RS, 104/13, 145/14, and 95/18) defines that commodity reserves that are kept under the jurisdiction of the Commodity Reserve Directorate can be given a priority loan from the ministries responsible for internal affairs or defense affairs, and the Serbian Armed Forces, in order to ensure the basic necessities of life and the smooth functioning of the defense system in conditions of possible disruptions in the supply system.

The connection between commodity reserves and the defense system can be multiple and crucial for national security. Some of the key points are (Gojković et al., 2023):

- Maintaining supply in emergency situations where commodity reserves play an important role in maintaining the supply of key resources in case of emergencies or crises. This can include food, fuel, medicine, building materials and other basic necessities. Maintaining sufficient commodity reserves allows the defense system to respond quickly and efficiently in the event of natural disasters, conflicts, or in the other crisis situations (Kellerman, 2016). Reserves of food products are one of the most important and safest sources for supplying consumers with food in all situations in which, for any reason, there are certain disruptions in production, distribution, and regular supply. The most common and most pronounced causes of these disorders are war and emergency situations. The main entities providing food products in the Republic of Serbia are the Republic Commodity Reserves (Službeni glasnik RS, 104/13, 145/14, and 95/18) and the Red Cross of Serbia. The international and domestic humanitarian aid, territorial capacities, reserves in households, and army reserves are recognized as alternative sources.
- Commodity reserves for the needs of the defense system require long-term planning and strategies. This includes needs analysis, risk assessment, identification of key commodities, and definition of procedures for management and replenishment of reserves. Effective planning and management of commodity reserves allow the defense system to be prepared for different scenarios and crisis situations (Baldovin et al., 2016).
- The connection between commodity reserves and the defense system may also require international cooperation. This may include information sharing, joint storage, mutual support in emergency situations, and the alignment of strategies. International cooperation can strengthen the defense system's ability to cope with challenges and increase security at the global level (Ngo & Park, 2016).

Analysis of agricultural production in the Republic of Serbia

Agriculture is an activity that deals with the cultivation of plants and animals with the aim of producing products that primarily meet the nutritional needs of the population (Milenković et al., 2023). The task of agricultural production is to produce enough food for all people. Due to the increase in the number of inhabitants on the planet,

there was a need for greater food production. The increase and variation in the price of food is the biggest challenge in the last few decades in agriculture, which has greatly changed the structure of production and farms, affected the size and directions of trade in agriculture, food security, significantly increased the income of farmers, as well as the price of resources and inputs in agriculture (Stoiljković et al., 2023). Perhaps the biggest change that the rise in food prices has brought about is a new way of thinking about the importance of agriculture. Nowadays, many people who never saw their future in agriculture have begun to invest in the production and processing of food. The 2001 Food Insecurity Report issued by the World Bank defined the term food security. Food security was defined as a situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and habits and enables an active and healthy life. Determining the level of food security is based on the Global Food Security Index (GFSI), which comprehensively examines food security through internationally established dimensions: availability, access, quality, and safety, including the factor called "natural resources and resilience" through which stability is assessed, i.e. the exposure of the country to the effects of climate change, the sensitivity and adaptability of natural resources, and the state of risks (Arsić & Kovač, 2022). The index ranks 113 developing and developed countries in the world according to their degree of food security.

Agricultural production plays a key role in national security, especially in terms of food security and ensuring a sustainable supply the population. The attributes that characterize the importance of agricultural production for national security are:

- It represents a starting point for providing sufficient food for the population. Maintaining stable and sustainable agricultural production is crucial for preventing food shortages, hunger, and social unrest. National security depends on a country's ability to provide enough food for its population (Devereux, 2006).
- Sustainable agricultural practices are important for long-term national security. This includes the application of agricultural techniques that reduce soil degradation, protect water resources, preserve biodiversity, and reduce the use of chemical agents. Sustainable agriculture ensures the long-term ability of the country to produce food and maintain agricultural resources (Tiliman, 2011).
- Stable agricultural production reduces dependence on food imports. In countries that are dependent on food imports, agricultural production plays a key role in reducing this dependence. The development of domestic agricultural production reduces the risk of supply interruptions, price fluctuations on the world market, and external economic shocks (Ruel & Minot, 2012). Reducing dependence on food imports strengthens the country's economic and security independence.
- Diversification of agricultural production, including diversity of crops and livestock, can reduce the risks of disease, pests, and climate disturbances. This helps to maintain stable food production and reduce the vulnerability of the agricultural sector to individual risk factors (FAO, 2017).

The territory of the Republic of Serbia has exceptional geographical, climatic, and pedological predispositions for agricultural production. According to the results of the 2012 Census of Agriculture, the total area of agricultural land in the territory of the Republic of Serbia is 3,861,477 hectares and has 631,552 agricultural holdings (Milošev, 2023). The climate is moderate-continental, and the average temperature during the year is 11 to 12 degrees Celsius. Favorable natural and climatic conditions promote the development of agriculture. The plain regions of Vojvodina, Kosovo Polje, Metohija, Pomoravlje, Posavina, Tamnava, Kruševac, and Leskovac Polje are suitable for mechanized agricultural and vegetable production. Hilly and hilly-mountain areas are favorable for the development of fruit, viticulture, and livestock production. Raspberry production is the most common in western Serbia, followed by the production of plums and apples. The mountainous areas of Zlatibor, Rudnik, Stara Planina, Kopaonik, and Sar-Planina are suitable for the development of sheep farming, cattle breeding, and forestry (Dastjerdi et al., 2022).

Serbia has very favorable natural conditions, such as land and climate, for diverse agricultural production, from plants to livestock, experienced producers, the best experts and scientists, as well as a world-recognized selection of numerous plant crops. The most important agricultural products of Serbia are corn, wheat flour, sunflower oil and meal, sugar beet and sugar, soybeans oil and protein products from the soy, potatoes, raspberries, apples, plums, cherries, grapes, pork, beef and poultry, meat, and milk. In Tables 1, 2 and 3, an analysis of plant production, livestock and meat and milk production in the Republic of Serbia in the period from 2019 to 2023 was carried out.

Table 1. Plant production in the Republic of Serbia

	2019	2020	2021	2022	2023
Production, thousand t t					
Wheat	2276	2 942	2 535	2874	3442
Rye	11	13	13	15	19
Corn	4 018	6 965	7 345	7873	6027
Sunflower	541	734	729	637	608
Tobacco	7	7	8	9	10
Sugar beet	2 513	2 325	2 305	2018	2048
Potato	589	488	702	665	614
Plums	331	430	559	583	413
Apples	379	460	500	489	513
Grapes	166	149	164	160	156

Source: Statistical calendar 2024, Statistical Office of the Republic of Serbia

Table 2. Number of livestock in the Republic of Serbia

	2019	2020	2021	2022	2023
Livestock, thousand pieces					
Cattle	899	878	898	886	860
Pigs	2 911	2 782	2 903	2 983	2 868
Sheep	1 704	1 712	1 642	1 685	1 695
Poultry	16 338	16 232	15 780	15 249	15 348

Source: Statistical calendar 2024, Statistical Office of the Republic of Serbia

Table 3. Production of meat and milk in the Republic of Serbia

	2019	2020	2021	2022	2023
Meat, thousand. T					
Beef	71	76	71	75	77
Pork	307	303	298	299	307
Sheep	30	32	34	31	31
Poultry	95	106	114	115	111
Milk, mil. liters					
Total	1 481	1 475	1 478	1 466	1451

Source: Statistical calendar 2024, Statistical Office of the Republic of Serbia

Production of agricultural goods and services measured by producer prices is an economic measure that includes the value of all goods and services produced in agriculture according to the prices that producers receive for those products. This measure aims to capture the actual value of production without including additional trade margins and other costs incurred in the supply chain from the producer to the end user. Production of agricultural goods and services includes everything produced in agriculture, including different types of crops, livestock, and the production of feed for livestock, but also services related to agriculture, such as land cultivation, production planning and management, etc. Producer prices represent what farmers receive for their products when they sell them on the market. These prices differ from the ratings that consumers pay in the end market because they include trade margins, taxes, transportation costs, etc. (Dimitrijević, 2021). Table 4 shows agricultural goods and services expressed in producer prices in the period from 2013 to 2023.

Table 4. Production of agricultural goods and services in producer prices

Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mil. RSD											
I	519959.5	502684.2	565521.3	584299.7	534779.5	589817.8	543746.5	589704.3	605291.2	667854.8	724332.4
II	509125.4	491597.1	552078.6	569276.2	520965.6	574817.9	529890.4	574703.9	589978.3	651631.7	707213.2
III	359103.1	324451.0	378832.9	390747.7	351927.4	419400.1	357056.3	398513.5	414528.6	473693.3	544202.2
IV	175221.3	138324.7	174602.0	178776.0	139584.0	164831.9	113759.6	157004.2	158628.8	186290.6	216992.9
V	46655.3	52805.6	51487.0	54392.7	48500.6	58939.9	58443.1	62530.5	63157.4	69350.1	89037.3
VI	17183.5	18693.3	16626.0	23688.2	17553.2	27062.5	20984.6	28649.1	33556.5	39973.7	26293.4
VII	27246.3	28985.5	27374.7	28813.2	35588.2	40579.0	32537.9	26097.1	31554.1	28125.3	35756.3
VIII	17870.0	12342.0	19102.0	13024.7	13641.5	13892.3	11686.6	13218.4	11805.3	13001.2	14031.3
IX	50859.5	53932.0	61567.1	56879.7	73669.8	74991.0	76995.0	68815.9	67045.1	89740.6	110217.5
X	23712.7	18.925.0	27534.5	34621.3	22794.7	38568.5	42111.7	41578.5	48249.0	46667.2	51352.1
XI	354.5	442.9	539.6	552.0	595.3	534.9	537.7	619.8	532.5	544.6	521.2
XII	150022.3	167146.1	173245.8	178528.4	169038.2	155417.8	172834.0	176190.4	175449.7	177938.3	163011.0
XIII	102774.2	113462.5	118892.8	123133.0	111012.3	104280.9	120477.8	114530.3	121969.3	123909.1	111828.5
XIV	29058.9	31377.2	32406.8	32114.4	31703.4	30352.6	31039.7	33686.7	32412.0	29158.1	31209.4
XV	48768.0	58641.6	60982.8	65764.6	57097.8	54272.3	66198.5	57503.1	63582.6	65256.8	55812.1
XVI	60.9	377.2	203.2	151.3	77.3	366.8	383.2	35.9	320.4	120.2	493.6
XVII	9314.9	7800.5	8121.4	10107.9	8971.1	5998.2	8415.6	8298.6	10611.7	13856.6	16349.3
XVIII	15571.5	15266.1	17178.6	14994.7	13162.7	13291.1	14440.7	15006.0	15042.5	15517.4	7964.1
XIX	47248.1	53683.5	54353.0	55395.5	58026.0	51136.8	52356.3	61660.1	53480.5	54029.2	51182.6
XX	34212.1	36776.5	38017.9	38459.0	37309.9	35047.9	35387.5	44261.1	37192.3	37350.0	34419.6

Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mil. RSD											
XXI	10809.9	14678.0	13395.1	14970.9	15507.4	13740.5	14504.0	13357.3	13558.5	13619.5	13967.7
XXII	2226.1	2229.0	2940.0	1965.6	5208.7	2348.5	2464.8	4041.7	2729.6	3059.7	2795.2
XXIII	10834.1	11087.1	13442.6	15023.5	13813.9	14999.9	13856.1	15000.5	15313.0	16223.2	17119.2

Note: Agricultural goods and services are categorized as follows: I - Production of agricultural goods and services; II - Production of agricultural goods; III - Plant production; IV - Cereals (including seeds); V- Industrial plants; VI- Fodder plants; VII - Vegetables and horticultural products; VIII - Potatoes (including seeds); IX – Fruits; X – Wine; XI - Other plant products; XII - Livestock production; XIII- Livestock; XIV – Cattle; XV – Pigs; XVI – Horses; XVII - Sheep and goats; XVIII – Poultry; XIX - Production of livestock products; XX – Milk; XXI – Eggs; XXII - Other livestock products; XXIII - Agricultural services;

Source: Statistical calendar 2024. Statistical Office of the Republic of Serbia

By analyzing the processed data from the Statistical Office of the Republic of Serbia, we gain insight into the noticeable growth in agricultural production in most segments of agricultural production in Serbia on the national level. However, the circumstances and aggravating factors in which the agricultural sector has found itself over time are not shown in graphs and tables. One of the recent well-known global circumstances that hit the world market is certainly closely related to the COVID-19 virus pandemic. It has brought a number of challenges to the agricultural sector, including work disruptions, logistical problems, market problems, and price uncertainty. The effects varied from region to region. However, they generally led to significant changes in the agricultural sector. Many countries have had to implement support measures to help farmers facing these challenges and secure food supplies. Comparing the data from 2020, when the crisis occurred, with data from the previous calendar year, 2019, we see that production achieved higher values compared to the previous year. This led to the conclusion that the state had created appropriate mechanisms to overcome the problem and that a series of measures that were undertaken had been successful.

Table 5 shows a comparative quarterly analysis of GDP and other production sides for the period from 2020 to 2022. The analysis showed that in the fourth quarter of 2022, real GDP growth of 0.4% was achieved compared to the same period of the previous year. The positive movement of GDP in this quarter was most significantly influenced by the service sector. Apart from the trade, a significant negative contribution to the movement of GDP was made by the construction sector and the agriculture sector (Golubović & Janković, 2023).

The exports of the agricultural sector in 2022 acccount for a drop of 4.4% compared with the previous year. In the tearms of the share of total exports, this drop was from 6.1% in 2021 to 4.6% in 2022. The cumulative drop of 9.1% was recorded in the export of grain, except rice, legumes, and oilseeds, a group that accounts for 64.9% of the entire sector's exports in the observed period and contributed the most to this result. Exports of apple and stone fruits, the next group in terms of participation with a value of 12.6%, recorded a decrease of 0.4% in 2022 compared to 2021. On the other hand, the growth

of exports by 10% in this sector was recorded by the group of growing vegetables, root, and tuberous plants, which contribute 4.3% to the exports of this sector. From the import side, the agriculture, forestry, and fishing sectors recorded a growth of 27.7% in 2022 compared to 2021, as well as a share of 2.4% in total imports. The group with the largest participation in this sector, with a value of 21% was the cultivation of grain, except rice, legumes, and oilseeds, wich records a growth of 64% in 2022. Next in terms of participation, with a value of 15.2%, are the following groups: cultivation of vegetables. root and tuberous plants, which achieved an increase in imports of 78.4%, as well as the cultivation of plants for the preparation of beverages, which recorded an increase in imports of this sector of 64% and participation of 10.9%.

Table 5. Comparative analysis of GDP and other production sides

	2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GDP	5.3	-6.2	-1.3	-1.0	1.7	13.8	7.8	7.2	4.1	3.8	1.0	0.4
Agriculture	2.3	2.5	2.4	2.2	-5.9	-5.4	-5.6	-5.8	-8.4	-8.6	-8.5	-7.8
Industry	4.3	-7.5	3.5	1.6	4.4	15.7	2.3	4.0	2.0	4.6	-0.4	1.2
Construction	24.0	-0.2	-14.7	-7.5	19.8	18.3	19.4	14.4	-5.7	-6.9	-12.1	-12.5
Trade	4.1	-8.3	1.8	0.3	8.2	23.4	10.6	10.1	7.5	5.4	2.6	0.3
Services. except trade	5.5	-6.3	-2.7	-1.2	-1.2	11.2	10.1	8.7	5.8	5.9	3.9	3.4
Net taxes	3.3	-7.7	-2.0	-2.5	-0.7	16.7	9.1	8.1	8.2	5.1	2.5	1.1

Note: Q - Quarter

Source: Trends, IV quarter 2022, Statistical Office of the Republic of Serbia

In 2022, the biggest impact on the growth of total consumer prices was the annual increase in the price of meat of 20.3%. The increase in the price of meat was mostly influenced by the increase in the price of boneless pork, boneless beef, beef, and chicken fillet, whose participation in the structure of the annual rate of increase in the price of meat accounted for 43.7%. The increase in the prices of milk, cheese, and eggs has increased its impact on total consumer prices since mid-2022, primarily due to the increase in the prices of yogurt, fruit yogurt, yogurt with the addition of cereals, sour milk, kefir, and fresh cheese of all kinds, and chicken eggs, contributing to the overall structure of the growth rate of consumer prices for 2022 of 9.6%. The mid-2022 drought contributed to the prices of bread and cereal and to overall consumer price growth. The biggest contribution to the annual increase in the prices of bread and cereals, with a value of 18.5%, was the increase in the prices of white bread, wheat flour, pasta made of white flour, and savory pastries, participating in the structure of the overall rate of growth of the prices of bread and cereals with 62.2%. The price of vegetables at 2022 was predominantly determined by the price of potatoes, especially red, tomatoes, and peppers, resulting in an annual growth rate of 21.3% (Bogovac, 2023).

The most important branch of plant products is agriculture and vegetable growing, which in 2022 will contribute 74.5% of the total value of plant production. This is followed by fruit growing, with a share of 23.8%, and viticulture, which counts 1.8% of the share.

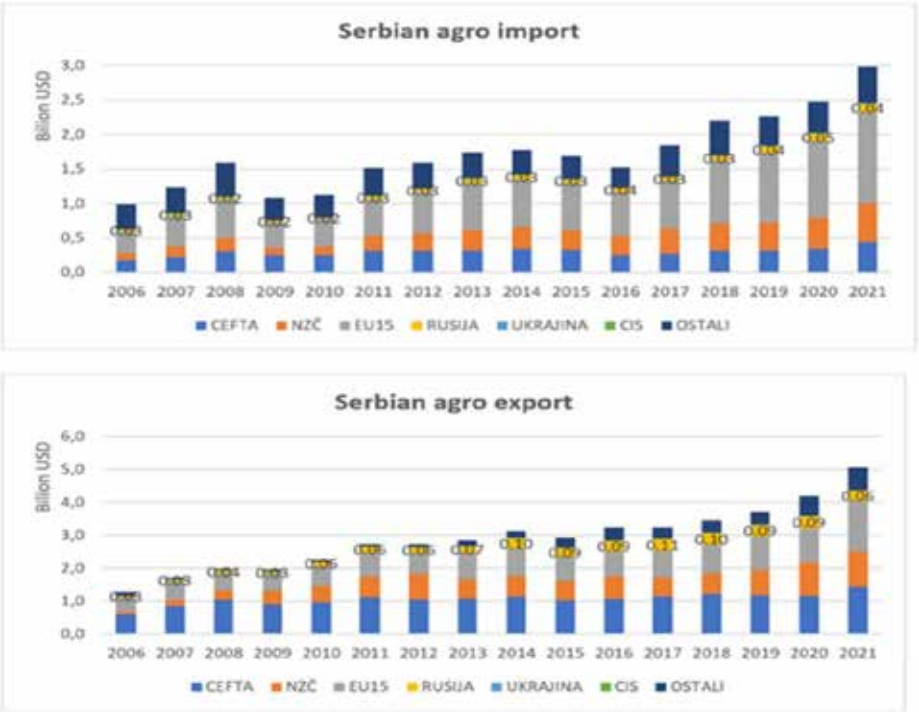
In 2022, plant production was 11.3% lower than in the previous year. This decline was primarily influenced by unfavorable climatic conditions, which led to a 16.7% drop in agricultural and vegetable production. On the other hand, fruit production, whose participation in the total value of plant production is 23.8%, achieved a growth of 9.3% in 2022 compared to the previous year. Although the very beginning of the year gave optimistic results, as time progressed, the weather had a very unfavorable effect on agricultural and vegetable production. Beside the year 2022, we can treat 2000, 2003, 2007, 2012, and 2017 as "dry years" for agriculture, when average yields and total production were also far below average.

Estimates show that farms producing cow's milk distribute about 59% of the total production to purchasing dairy stations (Bogovac et al., 2023). From nearly 41% of the amount of cow's milk that remains on the farm, about 10% is used for feeding members of the farm and livestock on the farm, about 22% is processed into dairy products, mainly cheese and cream, and the rest, about 9%, is sold to direct consumers. According to the same source, losses on the farm are 0.1% and can be treated as insignificant. The representation of cow's milk in the total production of milk on farms is about 97%, and the rest is made up of sheep's and goat's milk. In 2022, the production of drinking cow's milk in dairy is 1.2% higher than in 2021. Observed quarterly, in the IV quarter of 2022, there was a growth in the production of consumer cow's milk of 30.8% compared to the same quarter of the previous year.

The degree of influence of agricultural production on the level of commodity reserves

As we have seen from the attachment, agricultural production and commodity reserves are closely related. An additional challenge for maintaining the level of commodity reserves is represented by crises that can have various complex impacts on Serbian agriculture, including the supply of resources, prices, economic stability, and market conditions. The exact impact depends on the dynamics of conflict development and the reactions of states and markets to such situations. On the February, 24, 2022, armed conflicts began on the territory of Ukraine. The crisis is still current and further complicates the already complex situation of Serbian agriculture. Since the beginning of the COVID-19 pandemic, we have witnessed a global increase in food prices. Agricultural input prices and logistics costs were rising long before the start of the conflict in Ukraine. With the outbreak of conflict in Ukraine, the situation in the food sector became even more complex and complicated. The report of the consulting firm SEEDEV entitled "The impact of the war in Ukraine on the agricultural sector in Serbia" shows that the Russian Federation and Ukraine were two significant markets for Serbian agribusiness.

Figure 1. Import and export of agricultural products of the Republic of Serbia



Source: Report of the consulting firm SEEDEV. Serbian agriculture: The impact of the war in Ukraine, 2022

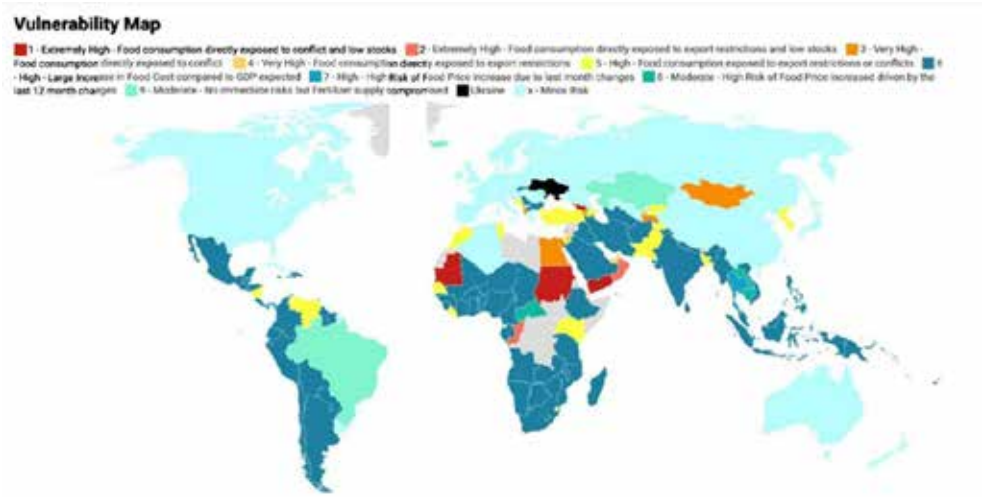
Figure 1 shows the percentage of participation in foreign trade by country. CEFTA countries including Albania, Bosnia and Herzegovina, North Macedonia, Moldova, Serbia and Montenegro, NZC - new member countries of EU, EU15 includes Belgium, Denmark, Germany, Finland, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Spain, the United Kingdom and Sweden, Ukraine and Commonwealth of Independent States countries including Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan, as well as others.

According to research (SEEDEV, 2022), the export of agricultural products from Serbia to Russia is less than 10%, and the import is about 2%. For the last five years, Serbian exports to Russia have stagnated, while total exports from Serbia have been growing. The main agricultural export item to Russia is apples. Serbian apple producers were focused on the Russian market because of the high prices of their products. This has changed since local apple production increased and competition from Moldova, Turkey, and Azerbaijan became stronger. Since the beginning of the war, transport and logistics have become very difficult and more expensive. The devaluation of the Russian ruble made Serbian production more expensive for local consumers and, therefore, less competitive. Apart from apples, Serbia also exports strawberries, peaches, and nectarines to Russia. The main import product is tobacco.

Ukraine is a large producer of important agricultural products, which Serbia also exports. This is the reason why Ukraine is not a significant foreign trade partner for Serbia, accounting for only 0.2% of Serbia's agricultural foreign trade. The main agricultural export products to Ukraine were: seeds, mainly sunflower seeds with a value of $2.2 million, corn seeds with a value of $1.1 million, planting material, dairy products, and fruit. The main imports from Ukraine are confectionery products, soy, soy products, and some tobacco products.

The report highlights the inappropriate and unpredictable responses of various governments to the crisis, such as the introduction of export bans and limiting the prices of food products, which can only lead to further disruptions in the market. Figure 2 shows the map of vulnerability (The Russia-Ukraine Crisis, 2022). It was created on March 28, 2022, as a result of an assessment of the current situation, by systematizing available data on the state of agriculture, price changes, and others.

Figure 2. Vulnerability map



Source: The Russia-Ukraine Crisis: Implications for Global and Regional Food Security and Potential Policy Responses, 2022

This, as well as similar research and projections, can be extremely useful in predicting agricultural crises in order to properly manage commodity reserves, reduce the possibility of negative impacts on food supply, and contribute to price stabilization. Considering that the character of economic management is determined by the character of the economic system itself, in order to develop and improve the system of commodity reserves of food products as an essential element of supporting the functioning of the defense system, it is necessary to undertake further activities in the direction of developing an effective system of commodity reserves of food products. These activities include:

1) The development of agricultural and food production and distribution in the forthcoming period has to be better coordinated with consumption. In order to ensure a greater degree of harmony, conformity, and stability in the system of agro-industrial production and the entire economic system is a necessity. It is extremely important to include the production of the individual sector of agriculture in the market system as much as possible.

2) The policy of establishing the prices of food products has an important role in ensuring the harmonious development of food production and the market for food products, too. Simultaneously, it is necessary to strive and encourage prices to be freed from the role of an instrument of economic and social policy that was imposed on them in the previous socio-economic development and to develop their natural function as an accompanying phenomenon of commodity exchange. That is why it is necessary to create conditions for the gradual liberalization of the prices of food products i.e., that the producers themselves decide on the prices depending on the market conditions. Nevertheless, one should be aware that the orientation towards the free formation of prices according to market conditions does not mean absolute freedom of their movement. The art of regulating prices is to allow their free formation, under the influence of supply and demand, and to resort to state interventions only in the event of major disruptions and in order to protect one's own producers and consumers. The mentioned interventions should have a corrective effect and not be a practice. The commodity reserve system is one of the important factors in the protective price system. Therefore, a tighter functional connection between the system of commodity reserves and the system of protective prices appears to be an important prerequisite for maintaining the stable development of agro-industrial production. In order to assess when it is necessary to react through commodity reserves, it is expedient to introduce a protective price category for a certain number of items i.e. the basic food items. The level of protective prices should not be set below the level of the average cost price of that product and should contain the average production costs and the average profit of the economy. Intervention with commodity reserves would be carried out in the event of a large and long-lasting deviation from the protective prices. The main aim of such actions should be the protection of the producer if the selling price is far below the protective price or the consumer if the selling price is far above the protective price.

3) Import and export policies represent significant factors and unique instruments stabilizing the market for food products and development of domestic food production. Import and export of basic food products should be carried out on the basis of a unique balance of production, processing, consumption, reserves, and import, i.e., export of a specific product, and should be for the purpose of both protecting domestic producers and consumers.

4) Improvement of efficiency and rationality in order to ensure a higher degree of efficiency and rationality in the system of commodity reserves is a priority as well. It is necessary to develop, coordinate, direct, coordinate, and control reserves of food products at all levels, in all subsystems, which comprise the national commodity reserves, commodity reserves in production companies, turnover and stocks in households.

5) Improvement of the principle of completeness and uniqueness to ensure the principle of completeness and uniqueness of the system of commodity reserves represents a crucial task, additionally. It is important to enable the system of commodity reserves to act in regular and extraordinary situations. In other words, the integrity of permanent, strategic and marketable commodity reserves should be maintained. It is also important that the system of commodity reserves develop as a functional unity of all forms of commodity reserves, i.e. commodity reserves in raw materials, finished products, spare parts, money, precious metals, and livestock.

Due to all that was previously mentioned and the importance of providing vital life needs that are the first to be hit in crisis situations, within the framework of a comprehensive, unified system of commodity reserves, the relative organizational and functional independence of food product reserves should be ensured. Food reserve products should be set up as a separate sector in the overall system of commodity reserves.

All the mentioned measures are also necessary from the aspect of ensuring the safety and functioning of the defense system, because without the establishment of a safe and functional system of commodity reserves of food products, a defense system capable of responding to the challenges and threats of the modern environment cannot be built.

Precisely from the aspect of ensuring the security of the functioning of the defense system, in the coming period it is necessary to additionally increase the level of stocks, which most countries are doing in order to ensure the stability of supply to their own markets and to ensure the prerequisites for adequate response in crisis situations. Also, it is necessary to establish regular and more frequent inspections of storekeepers to whom commodity reserves are entrusted by the Republic's Directorate for Commodity Reserves to prevent more and more frequent malpractices by which individuals gain illegal profits, and by doing so, they endanger not only the functioning of the defense system, but that act can also be characterized as an "attack on the state."

Conclusion

The importance of agricultural production for the survival of a country, such as the Republic of Serbia, is undeniable. It is not only a source of food but also the foundation of Serbian identity, culture, and economy. Agricultural resources represent a key segment irreplaceable for social progress and stability. In addition, the defense system has deep responsibilities in protecting the security and sovereignty of the state. Stability is key to survival, and that stability rests on the stability of supply.

As we have explored, the dynamic challenges of the modern world can have a major impact on agricultural production. Unfavorable market prices, natural disasters, and geopolitical instability are just some of the factors that can shake the stability of food production. Consequently, they assumed the role of solving pressing problems that were reflected in the lack of raw materials, spare parts, and some vital food products, and precisely because of this, they could not fulfill their basic tasks in terms of functioning as an element of the economic system and an essential factor for establishing and regulating the market economy,

which is its function as a factor of economic development. It was shown that commodity reserves for agricultural production became a means of eliminating the consequences of various unfavorable imbalance trends in the supply of certain goods, and they performed their strategic function less within the systems of extended social reproduction, economic development, single market price stabilization, and the simlar. This imposes the need to review and analyze economic trends, especially from the 1970s to today, in order to assess the conditions in which commodity reserves could perform their basic and strategic functions in the economic development and economic system of our country.

Commodity reserves are without a doubt a key mechanism that contributes to the stabilization of supply and supports the defense system in cases of crisis. The synergy between agriculture and defense has the potential to ensure the safety and stability of society in the most necessary moments. This integration can ensure the continuity of the food supply even in the most unpredictable situations. Also, the research of new ways to optimize agricultural production that can meet the needs of the defense system can be encouraged. However, this integration requires fundamental reforms in state policy and institutional structures. The government of the Republic of Serbia should develop strategies that include a coherent vision of both sectors but also invest in supply, education, and research. Cross-sector cooperation and information sharing become crucial to achieving goals. Despite specific challenges, the integration of agriculture and defense can strengthen the structure of the national defense system and provide a basis for stability and progress.

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Conflict of interests

The authors declare no conflict of interest.

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