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DEVELOPMENT PERSPECTIVES OF AGRICULTURE OF THE REPUBLIC OF SERBIA – IPARD III PROGRAM

[1]Gordana Radović[150], [2]Radovan Pejanović[151], [3]Zorica Vasiljević[152]

[1] Institute of Agricultural Economics and Development Academy of Agriculture of Serbia, Belgrade, Serbia
[2] University in Novi Sad, Faculty of Agriculture, Novi Sad, and Development Academy of Agriculture of Serbia, Belgrade, Serbia
[3]University in Belgrade, Faculty of Agriculture, Belgrade-Zemun, and Development Academy of Agriculture of Serbia, Belgrade, Serbia
e-mail: gordana_r@iep.bg.ac.rs

ABSTRACT

The aim of the paper is to present the development perspectives of agriculture and rural development in the Republic of Serbia with regard to the possibility of funding from the IPARD III program. The Republic of Serbia has at its disposal a total of 588 million euros within this financial instrument of the European Union in the 2021-2027 program period. The main goals of the IPARD III program are the following: (a) increasing the competitiveness, efficiency and sustainability of agricultural production; (b) mitigating the negative effects of climate change; (c) improvement of the economic position of agricultural holdings; (d) rural development; (e) reducing the depopulation of rural areas and stimulating the employment of young people in rural economies; (f) building efficient public administration in the field of agriculture and rural development in the Republic of Serbia. In the current period, four measures of the IPARD III program have been accredited, namely: Measure 1 - Investments in physical assets of agricultural holdings; Measure 3 - Investments in physical assets, processing and marketing of agricultural and fishery products; Measure 7 - Diversification of agricultural holdings and business development and Measure 9 - Technical assistance. Together with the financial support of the IPARD III program, new funding opportunities are available, namely: (a) within Measure 1 and Measure 3 – development perspective of production and processing in the Fishery Sector; (b) within Measure 7 - development perspectives in the Sector of direct marketing of agricultural and food products, the home-made products as well as the Sector of small-scale services. The authors conclude that the implementation of the IPARD III program enables significant development perspectives, both for agriculture and rural economies, in terms of activating resources that have been underutilized until now.

This should enable overall rural development and alleviate the depopulation of rural areas in the Republic of Serbia. The paper uses the following methods: desk research, descriptive method, methods of analysis and synthesis, as well as the method of descriptive statistics.

Keywords: *agriculture, rural development, financing, IPARD III program, Serbia*

[150] https://orcid.org/0000-0001-9770-6306
[151] https://orcid.org/0009-0008-3896-5410
[152] https://orcid.org/0000-0002-3076-3303

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INTRODUCTION

The Republic of Serbia has adequate natural resources for the development of agricultural production. The resources primarily refer to around 3.9 million hectares of arable agricultural land, which has a favorable structure and relatively good quality. According to the 2023 Census, there are 508,325 agricultural farms in the Republic of Serbia, and within them 99% or 506,323 are family farms (Census of Agriculture, 2023). The number of agricultural holdings recorded a continuous decline between the last censuses, which is the result of consolidation of agricultural holdings, depopulation of rural areas, but also less and less interested residents in engaging in this activity due to evident problems in its development. For example, the total number of agricultural holdings according to the Census of Agriculture conducted in 2012 was 564,541 (decrease in 2023 by 10%), and according to the Census conducted in 2003 even 778,891 (decrease in 2023 by 35%). On the other hand, the growth of the average size of the agricultural property in the last three decades is evident, but it is still insufficient to achieve economy and profitability in production. In particular, the average size of the agricultural holding was about 3 ha according to the Census of Agriculture in 2003, 5.2 ha according to the Census of Agriculture in 2012 and 6.4 ha according to the Census of Agriculture in 2023.

Most agricultural farms produce only for their own needs, processing and adding value to agricultural products is insufficient (Paraušić, 2023). The underdevelopment of agriculture in the Republic of Serbia is also reflected in the use of outdated mechanization, insufficient use of mineral fertilizers and the application of irrigation systems. All of the above mentioned result in low yields per unit of agricultural production, i.e. low profitability (Pejanović, 2013; Božić & Bogdanov & Ševarlić, 2011). According to statistical data, 86% of the total number of tractors are over 20 years old, as the most represented agricultural machinery in Serbia (Radović & Simikić & Alimpić, 2022). The biological specificities of agriculture are known, which primarily relate to the high risks of agricultural production and the organic character of the production cycle (Vasiljević, 1998), which requires greater application of economic protection, that is, agricultural insurance. This is especially pronounced in the current period, which is characterized by increasingly pronounced climate changes. However, due to the low profitability of production, agricultural subjects in Serbia mostly do not insure their production. Specifically, only 5.4% of the total number of agricultural holdings in Serbia insured their production in 2023 (Radović, 2024).

The basic development limitation of agricultural production in the Republic of Serbia refers to the lack of financial resources (Pejanović & Njegovan, 2011; Radović, 2014), and this is also the biggest cause of the poor economic position of farmers in their domicile conditions of business. The agricultural budget as a financial instrument of agricultural policy since its establishment in 1996, until today, has been an insufficient source of financing the current and development needs of farmers in the Republic of Serbia (Pejanović & Radović, 2013).

Therefore, agricultural entities have high expectations from the IPARD program, as a source of financing, which is available to the Republic of Serbia in the period before accession to the European Union, that is, during the period of European integration.

The Republic of Serbia has at its disposal a total of 588 million euros within the framework of the IPARD III program. The main goals of the IPARD III program are the following: (a) increasing the competitiveness, efficiency and sustainability of agricultural production; (b) mitigating the negative effects of climate change; (c) improvement of the economic position of agricultural holdings; (d) rural development; (e) reducing the depopulation of rural areas and stimulating the employment of young people in rural economies; (f) building efficient public administration in the field of agriculture and rural development in the Republic of Serbia. In the current period, four measures of the IPARD III program have been accredited, namely: Measure 1 - Investments in physical property of agricultural farms; Measure 3 - Investments in physical assets, processing and marketing of agricultural and fishery products, Measure 7 - Diversification of agricultural holdings and business development and Measure 9 - Technical assistance. With the financial support of the IPARD III program, new financing opportunities are available, viewed in relation to the IPARD II program, namely: (a) within Measure 1 and Measure 3 - development perspective of production and processing in the Fisheries Sector; (b) within the framework of Measure 7 - development perspectives in the Sector of direct marketing of agricultural and food products and home-made products and the Sector of small-scale services.

MATERIAL AND METHODS OF WORK

The aim of the paper is to present the development perspectives of agriculture and rural development in the Republic of Serbia with regard to the possibility of financing from the IPARD III program, that is, to identify in which areas of agriculture this financial instrument could contribute. Data sources are data available on the website of the Republic Institute of Statistics, as well as on the website of the Management Body for the IPARD program of the Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia. The paper uses the following methods: desk research, descriptive method, methods of analysis and synthesis, as well as the method of descriptive statistics.

RESULTS AND DISCUSSION

In order to identify in which areas the financial instrument IPARD III, in accordance with the defined framework, could contribute to the development of agriculture, the research uses data from the Agricultural Census, which was carried out in 2023, as indicators of the (under)development of agriculture in the Republic of Serbia. According to these data, the age of agricultural machinery is mostly more than 20 years (Table 1).

Based on the analysis of the structure of the used agricultural machinery, we can state the following: (a) in the total number of single-axle tractors, tractors over 20 years old prevail and they make up 63.20%; (b) tractors older than 20 years predominate in the total number of two-axle tractors and they make up 73.83%; (c) in the total number of universal grain harvesters, combine harvesters over 20 years old prevail and they make up 60.39%; (d) in the total number of silage harvesters, harvesters older than 20 years prevail and they make up 77.13%; (e) in the total number of corn pickers, pickers over 20 years of age predominate and they make up 65.02%.

The only exception is other combine harvesters, in whose structure combine

harvesters between 6 and 10 years of age predominate and they make up 31.56% of the total number of these combine harvesters (Table 1).

Table 1. Type and number of agricultural machinery according to age

Type of agricultural machinery	Age of agricultural machinery (in years)						Total
	1	1-5	6-10	11-15	16-20	over 20	
Single-axle tractors	8,555	4,123	17,768	16,748	14,755	106,404	168,353
(in %)	5.09	2.45	10.55	9.95	8.76	63.20	100.00
Two-axle tractors	7,088	13,660	24,500	37,693	43,310	356,246	482,497
(in %)	1.47	2.83	5.08	7.81	8.98	73.83	100.00
Universal grain combine	3,870	2,131	2,140	2,627	2,523	20,267	33,558
(in %)	11.53	6.35	6.38	7.83	7.52	60.39	100.00
Silage combine	1,351	169	440	329	967	10,980	14,236
(in %)	9.49	1.19	3.09	2.31	6.79	77.13	100.00
Other combines	101	254	2,697	1,897	969	2,629	8,547
(in %)	1.18	2.97	31.56	22.19	11.34	30.76	100.00
Corn pickers	634	76	1,298	6,487	3,338	21,987	33,820
(in %)	1.87	0.22	3.84	19.18	9.87	65.02	100.00

Source: https://data.stat.gov.rs/Home/Result/1300020701?languageCode=sr-Cyrl

According to the same data source (Agricultural Census, 2023), one tractor cultivates an average of 6.7 ha of used agricultural land, and 7 out of 10 agricultural farms have their own tractor. Only 138,139 or 27.5% of the total number of agricultural holdings have irrigation systems. Only 8.3% of the used agricultural land is irrigated. The area of irrigated land is dominated by arable land (72%), orchards (23%), vineyards (2%) and other production areas (3%). An indicator of the insufficient development of vegetable production is the fact that the areas under greenhouses make up only 13% of the total areas under vegetables. In the structure of used renewable energy sources, solar energy prevails (37%), followed by wind (33%), hydropower (10%), biomass (7%). Other renewable energy sources participate with 13%. (Census of Agriculture, 2023). The application of the system for precision agriculture in the Republic of Serbia in 2023 is shown in Table 2.

Table 2. Number of farms using precision agriculture systems

A type of system for precision agriculture	Systems for precision agriculture	Systems for precise monitoring of crop conditions	Modern technologies for monitoring the health status of livestock	Silomix trailers for feed of livestock	Automatic livestock feeders	Automatic air temperature and humidity regulators in facilities for housing livestock	Milking robots
Number of agricultural holdings	1,075	621	828	858	2,917	477	75

Source:https://data.stat.gov.rs/Home/Result/1300020704?languageCode=sr-Cyrl

By analysis of the data shown in Table 2, it can be concluded that: (a) systems for precision agriculture are used by only 0.21% of agricultural holdings; (b) systems for precise monitoring of crop condition 0.12%; (c) modern technologies for monitoring the health status of livestock 0.16%; (d) silomiks trailers for animal feed 0.17%; (e) automatic cattle feeders 0.57%; (f) automatic air temperature and humidity regulators in livestock accommodation facilities 0.09%; (g) milking robots 0.01% of the total number of agricultural holdings in the Republic of Serbia.

In the structure of livestock production in Serbia in 2023, compared to 2018, growth was recorded only in the number of beehives, by 38%, while a decline was recorded in all other types of livestock production. Specifically, in the mentioned period, the number of cattle, pigs, sheep, goats and poultry decreased by 18%, 31%, 5%, 32% and 7%, respectively (Census of Agriculture, 2023).

Organic agriculture has been developing in the Republic of Serbia since the 1980s, but it is still underdeveloped. In support of this, the data testify that: (a) agricultural areas under this production make up only 0.9% of the used agricultural land; (b) the participation of cattle in organic agriculture in the total number of cattle is 1.2%; (c) the participation of sheep in organic farming in the total number of sheep is 0.9%; (d) the share of goats in organic farming in the total number of goats is 0.4%; (e) the participation of poultry in organic agriculture in the total number of poultry is 0.2%; (f) the participation of pigs in organic agriculture in the total number of pigs is only 0.01% (Census of Agriculture, 2023).

Financing of agricultural development in the Republic of Serbia in the current period is possible from the IPARD III program. Within the accredited measures of importance for the development of primary agricultural production is Measure 1, and for the development of processing of agricultural products – Measure 3 (table 3).

Within Measure 1, it is possible to finance investments in the following sectors: milk, meat, eggs, fisheries, fruit, vegetables, grapes, cereals and industrial plants. Potential beneficiaries of these investments can be: private persons – owners of commercial family farms, entrepreneurs, agricultural cooperatives and business companies. Within Measure 3, it is possible to finance investments in the processing and marketing sectors: milk, meat, eggs, fish, fruit, vegetables, grapes, grains and industrial plants. Potential beneficiaries of these investments, in accordance with the defined regulations within the IPARD III program, can be agricultural cooperatives, entrepreneurs and business companies (Radović, Pejanović, Vasiljević, 2025).

In the Republic of Serbia, other profitable activities that can be developed in rural areas, which are connected with agriculture and jointly contribute to rural development, are insufficiently developed. According to the results of the last Census of Agriculture in 2023 it is evident that: (a) 26.2% of the total number of agricultural holdings were engaged in fruit and vegetable processing; (b) in the milk processing 26% of the total number of agricultural holdings; (c) in the activities related to forestry 10% of the total number of agricultural holdings; (d) in the meat processing 9.5% of the total number of agricultural farms; (e) in tourism, 1.4% of the total number of agricultural holdings (Census of Agriculture, 2023).

Table 3. Funding opportunities – Measure 1 and Measure 3 of the IPARD III program

	Measure 1 Investments in physical assets of agricultural holdings	Measure 3 investments in physical assets - processing and marketing of agricultural and fishery products
Goal of realization	- mitigating the negative effects of climate change; - energy production from renewable sources; - sustainable management of natural resources (water, soil and air); - to strengthen the position of farmers in the food chain; - to provide support to young farmers.	- increasing the competitiveness of the agricultural and food sector; - improving the efficiency and sustainability of the food industry. This process needs to be implemented while respecting ecological standards, overcoming the challenges imposed by climate change, encouraging the production of energy from renewable sources, as well as the development of a circular economy.
Potential investments	Investments in the construction and equipping of buildings, raising perennial production and mother plants, procurement of new equipment, machines and mechanization, computer software and hardware.	Investments in the construction and equipping of buildings, acquisition of new equipment, machines and mechanization, acquisition of computer software and hardware.
Incentive amounts	Eligible investment costs in the amount of 20,000 to 1,000,000 euros. The total support to which the user can exercise the right is 2,000,000 euros, during the implementation of the IPARD III program.	The amount of eligible expenses is from 20,000 euros to 1,300,000 euros. Total support per user can amount to 2,500,000 euros during the entire period of realization of the IPARD III program.
Intensity of grant support	-up to 60% of the total acceptable investment costs; -up to 65% of the total acceptable costs for investments in mountainous areas; -up to 70% for investments made by young agricultural producers and producers of certified organic products in primary agricultural production. An additional 10% for investments related to waste and wastewater management. The total amount of support cannot exceed 75% of the investment value.	Up to 50% of the total eligible investment costs. Support is increased by 10% for investments related to: - waste water management; -circular economy; -renewable energy sources.

Source: https://ipard.gov.rs/projects/mera-1/; https://ipard.gov.rs/projects/mera-3/

Financing of the development of other profitable activities in rural areas exists within Measure 7 of the IPARD III program in the following sectors: (a) direct sales of agricultural and food products and home-made products; (b) rural tourism; (c) small scale service. Potential beneficiaries of this support can be: natural persons - holders of commercial family agricultural farms, entrepreneurs and companies (micro and small legal entities). Potential investments can relate to the construction and equipping of facilities for performing non-agricultural activities, as well as for the production of energy from renewable sources (https://ipard.gov.rs/projects/mera-7/).

Table 4. Amounts of investments by sectors – Measure 7 of the IPARD III program

Sector type:	Potential investment amounts:
Sector of direct sales of products	Construction/reconstruction with facility equipment: (a) a minimum amount of 5,000 euros; (b) a maximum amount of 300,000 euros.
	For furnishing facilities: (a) a minimum amount of 5,000 euros; (b) a maximum amount of 100,000 euros.
Rural tourism sector	Construction/reconstruction/equipment of facilities: (a) a minimum amount of 20,000 euros; (b) a maximum amount of 300,000 euros.
Small-scale service sector	Construction/reconstruction with facility equipment: (a) a minimum amount of 5,000 euros; (b) a maximum amount of 300,000 euros. Equipment of facilities: (a) a minimum amount of 5,000 euros; (b) a maximum amount of 200,000 euros.
If the project includes investments in more than one sector: (a) the minimum incentive amount is 200,000 euros; (b) the maximum amount of incentives is 300,000 euros. The maximum amount of incentives per beneficiary for Measure 7 of the IPARD III program is 600,000 euros.	

Source: https://ipard.gov.rs/projects/mera-7/

The intensity of non-refundable support is up to 60% of the total eligible investment costs. The potential users of this support can exercise their right to an additional 10% of support if: (a) investments are made by young farmers and producers of certified organic products; (b) investments are related to waste and wastewater management, use of energy from renewable sources or investments in the circular economy. The total amount of support cannot exceed 75% of the investment value (https://ipard.gov.rs/projects/mera-7/).

CONCLUSION

Based on the data presented in the paper and the analysis conducted, it can be concluded that agriculture is underdeveloped in the Republic of Serbia. The underdevelopment of agriculture is primarily reflected in the use of old agricultural machinery, insufficient application of irrigation systems and systems for precision agriculture.

Implementation of the IPARD III program enables significant development perspectives, both for agriculture and rural economies, in terms of activating resources that have been underutilized until now. This should enable overall rural development and alleviate the depopulation of rural areas in the Republic of Serbia. In order to take advantage of the financial opportunities of the IPARD III program, better information is needed for residents of rural areas, but also their better education for writing projects, which was one of the reasons for insufficient utilization of funds from the IPARD II program.

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