ECONOMIC EFFECTS OF WINE AND DRIED PLUMS PRODUCTION AT THE AGRICULTURAL HOLDINGS IN SERBIA[1]

Mladen Petrović[2], Marko Jeločnik[3], Jonel Subić[4]

Abstract

Agriculture and food production are among the most common economic activities in Serbia and are primarily carried out on family farms. The small average size of these farms, along with other structural characteristics, affects their productivity, limits their competitiveness in local and regional markets, and poses challenges to their overall sustainability. Consolidation of economic capacity, while maintaining market competitiveness regardless the type of agricultural production, can be achieved through joint investments and coordinated business operations of multiple farms organized under a legal entity such as an association, cooperative, or cluster. This paper presents a positive example of such collaboration, involving several farms engaged in fruit and grape production and processing, united within an agricultural cooperative in the Toplica District of southern Serbia. The study aims to demonstrate that economic barriers preventing individual farms from entering new business ventures can be overcome through joint investment. The methodology applied follows standard approaches for assessing the economic efficiency of investments. The results indicate that joint investment in grape and plum processing can be economically justified, both with and without the use of state subsidies.

Key words: Economic effects of investment, wine, dried plums, cooperative.

JEL[5]: Q12, Q14, E22

1 The research was supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Grants no. 451-03-136/2025-03/200009).

2 Mladen Petrović, M.Sc., Research Assistant, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 60 525 11 95, E-mail: mladen_p@iep.bg.ac.rs, ORCID: 0000-0002-4390-9711

3 Marko Jeločnik, Ph.D., Senior Research Associate, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 64 66 88 357, E-mail: marko_j@iep.bg.ac.rs, ORCID: 0000-0003-4875-1789

4 Jonel Subić, Ph.D., Principal Research Fellow, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 11 63 296 111, E-mail: jonel_s@iep.bg.ac.rs, ORCID: 0000-0003-1342-1325

5 Article info: Original Article, Received: 30th August 2025, Accepted: 25th September 2025. Paper has been also presented at the ICECO - 2025 conference, at 9-11th October 2025, organized by FEAM – ASE, Bucharest, Romania.

Introduction

The cultivation of fruits and grapes, as well as their subsequent processing, has a long-standing tradition and plays an important economic role in Serbian agriculture (Milić et al., 2011; Jelocnik et al., 2024a; Kljajic et al., 2024). Serbia possesses suitable natural resources and favorable climatic conditions for fruit and grape production across nearly its entire territory (Vujadinović Mandić et al., 2022; Stojanović, 2022). Specifically, among the available fruit species, more than 50% are plums, making them the dominant stone fruit. Plums are cultivated on nearly 75,000 hectares, mostly in extensive orchards, which ranks Serbia the first in Europe in terms of plum-growing area. Estimates indicate that over two-thirds of total plum production is used for strong alcoholic beverages (rakija), about one-quarter is consumed fresh, and slightly more than 5% is dried. Despite its economic significance and historical status as one of Serbia's top exporting agri-food products, plum production and processing today primarily serve the domestic market (Matković, 2015; Ćosić et al., 2021; Dimitrijević et al., 2022; Grujić Vučkovski, Nedeljković, 2023).

Regarding grape production and processing, grapes are cultivated on nearly 25,000 hectares, although vineyard areas have been gradually decreasing. Serbia is currently experiencing a wine production boom, with almost 500 registered wineries. The approximate ratio of domestic to imported grapes used in wine production is 60:40. In general, wine grape varieties occupy a larger share of vineyard areas than table grape varieties, which account for less than 10% of the total. White wine varieties dominate over red wine varieties (Korac et al., 2012; Milić et al., 2016; Jeločnik at al., 2024b; Jeločnik et al., 2025).

Family farms are the predominant type of agricultural holdings in both sectors under consideration in Serbia, reflecting the country's traditional structure of agricultural production and the central role of small-scale farms in the national agri-food system (Radosavljević, 2015; Vasiljević et al., 2017). These small farms also less frequently insure their production, as evidenced by the fact that only 12–15% of total crop production is insured in Serbia. Additionally, a characteristic of small farms is that, due to the fragmented land parcels typical of such holdings, transportation costs are consequently significantly higher (Petrović et al., 2020; Savić et al., 2020). Based on the total number of holdings with utilized agricultural land (over half a million), approximately 10% are engaged in grape production, while more than one-third are involved in plum cultivation to some extent. Currently, the average producer manages about 0.35 ha of vineyards and slightly over 0.4 ha of plum orchards (Keserovic, 2025).

Although the average farm engaged in grape or plum cultivation is economically weak and primarily involved in extensive production, certain changes have occurred over the past decade (Bulatović et al., 2013; Milić et al., 2018; Antić, Bulatović, 2023). Many farms have undertaken the renewal of old orchards and vineyards, establishing new plantations managed according to intensive plum and grape cultivation practices. At the same time, many of these farms have expanded into processing activities, including wine and fruit brandy production (e.g. rakija), plum drying, and the preparation of jams and juices. This shift in production objectives has encouraged producers to adopt new varieties, implement modern training systems and technical solutions, primarily equipment for specific agrotechnical practices and mechanization, obtain relevant certifications, and upgrade various elements of infrastructure and logistics. Additionally, they have invested in functional processing facilities equipped with advanced technology (Milošević, Milošević, 2018; Bulatović, 2020; Nikolić et al., 2021; Marković, 2024). These producers have also shifted their production approach, moving from a sole focus on maximizing yields to mastering the techniques required to achieve and manage the quality of agri-food products.

However, the majority of agricultural holdings engaged in grape and fruit cultivation and processing are small in size and economically too weak to invest in advanced production, both in terms of quality and volume, or even to access available credit lines. Consequently, they are often unable to move beyond natural consumption at the farm level (including family and friends) to meet local market demand. As a result, despite Serbia's favorable natural and climatic conditions for fruit and grape production, yields at individual family farms remain well below potential, reflecting extensive production and processing arising from small-scale, often semi-hobby operations (Narandžić et al., 2023).

An interesting fact is that, at the national level, there has been a moderate but noticeable increase in the number of distilleries and wineries, most of which are small-scale family businesses (Lekić et al., 2018; Adžić, 2023). These producers are capable of creating high-quality and flavorful products, but only in quantities sufficient to serve a limited geographic niche. Due to both internal and external economic constraints, they are not in a position to significantly expand production in the short term, leaving many local consumers unable even to taste and evaluate their products (Valčić, Zarić, 2022).

One possible way forward is for small farms to benefit from collective action through producers' groups, associations, or cooperatives. By pooling production capacities, available technology, and capital, these farms can surpass the critical threshold, transforming certain agri-food products from being virtually anonymous on the market into recognized players at the local or regional level (Paraušić, 2018).

Joint business ventures are officially recognized and supported in Serbian agriculture. Several state and international programs or funds, offered by competent ministries, primarily the Ministry of Agriculture, Forestry and Water Management and the Ministry of Rural Welfare, as well as relevant agencies and organizations, encourage collective production by farms across different agricultural sectors. These initiatives aim to enhance production and product competitiveness through teamwork, rather than supporting individual agricultural holdings alone (Subić, Jeločnik, 2021; Đurić, 2022; Jeločnik et al., 2023).

The main objective of this study is to conduct an economic analysis of a group (cooperative) investment aimed at expanding production and processing capacities related to plum (plum drying) and grape (wine production) cultivation, both with and without the use of state financial support.

Methodology

The methodological framework employed in this study involves commonly used methods for assessing the economic efficiency of agricultural investments. Specifically, dynamic methods, such as Net Present Value (NPV), Internal Rate of Return (IRR), and Dynamic Payback Period are applied, fully accounting for the time value of money (Subić et al., 2017; Subić et al., 2021; Jeločnik et al., 2022a; Jeločnik et al., 2022b). The planned investment is evaluated under two scenarios. The first scenario does not include state subsidies, while the second considers two forms of state support: regular support, where 40% of the total investment is refundable, and support for legal entities operating in marginal areas, where up to 50% of the investment may be reimbursed. The analysis is based on data obtained through in-depth interviews with the cooperative's management during the 2023/2024 production year. The data and resulting analyses are presented in the corresponding tables, with values expressed in euros (EUR).

Results with Discussion

The available natural resources, along with favorable edaphic and climatic conditions, support fruit growing and viticulture in southern Serbia. This region achieves a surplus in these agricultural sectors, particularly in the production of apples, plums, and grapes (Stevanović et al., 2018).

The observed legal entity, a cooperative, is located in the southern part of Serbia and has been operational for nearly two decades. It currently unites 10 members and several contractors. The cooperative has access to 25 hectares of young vineyards and orchards, planted in recent years, along with complete mechanization and processing

equipment, as well as suitable production facilities (primarily rented). No external labor is employed.

The cooperative's main business focus is fruit, predominantly plums and grape production and processing. Plums are processed into alcoholic beverages (rakija) or dried, while grapes are used for wine production. All products are sold on the local market.

The cooperative now aims to expand its business operations. Two financing scenarios are considered: funding the entire investment through its own assets combined with external sources (commercial credit), or partially financing the investment through available state support. The study evaluates the overall impact of the investment on enhancing the cooperative's business sustainability and examines the potential effect of the programmed state support for these purposes. Initially, expansion assumes self-financing supplemented by a credit line. Furthermore, the analysis explores the outcomes if the cooperative would like to apply for state support from the relevant Ministry under the cooperative development program.

In general, the invested assets will be used to purchase necessary equipment or to replace obsolete machinery and mechanization used in grape and plum production and processing (Table 1.).

Table 1. Investment object

no.	Element	Total (with VAT), in EUR
I	**Facilities**	**0.00**
1.	-	0.00
II	**Equipment and mechanization**	**125,564.61**
1.	Tractor (small for orchards) 4WD with cabin	27,900.00
2.	Equipment for plums processing (primarily washing line and destoning machine)	13,525.42
3.	Small modular dryer (with burner on natural gas)	10,479.41
4.	Planting drill (as part of tractor set)	3,667.53
5.	Mulcher	2,508.47
6.	Multi-practitioner distillery (200 l)	25,911.86
7.	Grape processing equipment	9,489.25
8.	Wine making equipment	32,082.66
Total		**125,564.61**

Source: Petrovic et al., 2025.

Table 2. Total investment

no.	Element	Entered assets	New investment	Total investment	Share in total investment (%)
I	**Fixed assets**	**4,237.29**	**125,564.61**	**129,801.90**	**90.91**
1.	Facilities	4,237.29	0.00	4,237.29	2.97
2.	Equipment and mechanization	0.00	125,564.61	125,564.61	87.94
II	**PWC**	**423.73**	**12,556.46**	**12,980.19**	**9.09**
Total		**4,661.02**	**138,121.07**	**142,782.09**	**100.00**

Source: Petrovic et al., 2025.

A part of the investment (30% of the total value) will be covered by the cooperative's own resources, while the rest will be financed through an appropriate credit line. In the subsequent analysis, the effects of the state subsidies obtained for this purpose will be presented. It is expected that, following the implementation of the investment and its continued utilization, the cooperative will achieve stable profits and enhance its overall business sustainability.

The total investment, including the required Permanent Working Capital (PWC), set at 10% of the initial amount, and certain assets contributed by the cooperative, is approximately 140,000 EUR (Table 2.).

Regarding investment financing, as mentioned earlier, the cooperative will borrow a part of the required assets from a commercial bank under favorable conditions, including an effective interest rate of 6%, equal annuities, a five-year loan term, and a one-year grace period. The sources of investment financing are presented in the following table (Table 3.).

Table 3. Sources of investment financing

no.	Element	Entered assets	New investment	Total investment	Share in total investment (%)
I	**Own resources**	**4,661.02**	**38,176.66**	**42,837.68**	**30.00**
1.	Fixed assets	4,237.29	25,620.20	29,857.49	20.91
2.	PWC	423.73	12,556.46	12,980.19	9.09
II	**External resources**	**0.00**	**99,944.41**	**99,944.41**	**70.00**
1.	Fixed assets	0.00	99,944.41	99,944.41	70.00
Total		**4,661.02**	**138,121.07**	**142,782.09**	**100.00**

Source: Petrovic et al., 2025.

The economic justification of the planned investment can be analyzed by considering or estimating the outcomes expected from its implementation and subsequent exploitation. The projected revenues derived from the investment (without state support) are presented in Table 4. Similarly, the structure of total costs supporting the investment and the cooperative's business operations is shown in Table 5. Since the credit line is approved for five years, all datasets are assumed and calculated for the same period.

Simultaneously, the dynamics of projected revenues and incurred costs have been assumed to reflect changes in the yields of agri-food products and the associated production costs, rather than remaining constant over the observed years. This is due to the anticipated increase in yields from the cooperative's vineyards and orchards, providing additional raw materials for processing. To some extent, the utilization of the implemented investment's capacities is expected to gradually rise in line with the increased inflow of raw materials. Meanwhile, selling and purchasing prices are assumed to remain constant throughout the observed period.

According to Table 4., by the fifth year, projected revenues are nearly 11.7 times higher than in the initial year of investment operation. With reference to Table 5., changes in the structure of total costs are also evident, primarily due to a more pronounced increase in material costs, whose share rises from 33% to 48% over the observed period, mainly reflecting their rapid growth in absolute terms. Apart from depreciation and interest, other categories of variable costs increase in line with the higher volume of processed raw materials. Overall costs are projected to increase by 77% during the observed period.

Determining or estimating all revenues and costs associated with the investment is necessary for the preparation of the Income Statement (Table 6.).

Table 4. Forming the incomes

no.	Products/ Services/ Subsidies	UM	Years														
			I			II			III			IV			V		
			Price	Volume	Total	Price	Volume	Total	Price	Volume	Total	Price	Volume	Total	Price	Volume	Total
1.	Selling incomes		23,728.81			62,288.14			116,525.42			176,271.19			276,271.19		
1.1	Wine	l	5.93	1,000.0	5,932.20	5.93	1,500.0	8,898.31	5.93	2,500.0	14,830.51	5.93	4,000.0	23,728.81	5.93	8,000.0	47,457.63
1.2	Dried plums	kg	2.54	7,000.0	17,796.61	2.54	21,000.0	53,389.83	2.54	40,000.0	101,694.92	2.54	60,000.0	152,542.37	2.54	90,000.0	228,813.56
1.3 Subsidies		EUR	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total					**23,728.81**			**62,288.14**			**116,525.42**			**176,271.19**			**276,271.19**

Source: Petrovic et al., 2025.

Table 5. Structure of derived costs

no.	Costs	Years				
		I	II	III	IV	V
I	**Material costs**	**17,233.09**	**32,460.12**	**47,960.74**	**42,598.52**	**44,504.15**
1.	Costs of used production material	17,233.09	32,460.12	47,960.74	42,598.52	44,504.15
II	**Intangible costs**	**35,595.99**	**46,437.35**	**48,503.85**	**48,824.67**	**49,120.98**
1.	Depreciation	12,662.39	12,662.39	12,662.39	12,662.39	12,662.39
2.	Labor	19,669.49	23,603.39	25,570.34	27,537.29	29,504.24
3.	Interest	0.00	5,819.43	4,336.38	2,762.33	1,091.69
4.	Costs of production services	2,219.92	2,959.89	4,036.22	3,964.14	3,964.14
5.	Other intangible costs	1,044.18	1,392.25	1,898.52	1,898.52	1,898.52
Total		**52,829.08**	**78,897.46**	**96,464.58**	**91,423.19**	**93,625.13**

Source: Petrovic et al., 2025.

Table 6. Income statement after implementing the investment

no.	Element	Years				
		I	II	III	IV	V
I	**Total incomes**	**23,728.81**	**62,288.14**	**116,525.42**	**176,271.19**	**276,271.19**
1.	Selling incomes	23,728.81	62,288.14	116,525.42	176,271.19	276,271.19
2.	Other incomes (subsidies)	0.00	0.00	0.00	0.00	0.00
II	**Total expenditures**	**52,829.08**	**78,897.46**	**96,464.58**	**91,423.19**	**93,625.13**
1.	Business expenditures	52,829.08	73,078.04	92,128.20	88,660.86	92,533.44
1.1.	Material costs	17,233.09	32,460.12	47,960.74	42,598.52	44,504.15
1.2.	Non-material costs without depreciation and interest	22,933.59	27,955.53	31,505.07	33,399.94	35,366.89
1.3.	Depreciation	12,662.39	12,662.39	12,662.39	12,662.39	12,662.39
2.	Financial expenditures	0.00	5,819.43	4,336.38	2,762.33	1,091.69
2.1.	Interest	0.00	5,819.43	4,336.38	2,762.33	1,091.69
III	**Gross Profit (I-II)**	**-29,100.27**	**-16,609.33**	**20,060.84**	**84,847.99**	**182,646.05**
IV	**Tax Income (15%)**	-4,365.04	-2,491.40	3,009.13	12,727.20	27,396.91
V	**Net Profit (III-IV)**	**-24,735.23**	**-14,117.93**	**17,051.71**	**72,120.80**	**155,249.15**

Source: Petrovic et al., 2025.

Table 7. Economic flow

no.	Element	Zero moment	Year				
			1	2	3	4	5
I	**Total Revenues**	**0,00**	**23,728.81**	**62,288.14**	**116,525.42**	**176,271.19**	**355,741.31**
1.	Total Incomes	0,00	23,728.81	62,288.14	116,525.42	176,271.19	276,271.19
2.	Salvage value	0,00	0.00	0.00	0.00	0.00	79,470.12
	2.1. Fixed assets	0,00					66,489.93
	2.2. PWC	0,00					12,980.19
II	**Total Expenditures**	**142,782.09**	**35,801.65**	**57,924.24**	**82,474.93**	**88,725.67**	**107,267.95**
3.	Investment value	142,782.09					
	3.1. In fixed assets	129,801.90					
	3.2. In PWC	12,980.19					
4.	Costs without depreciation and interest	0,00	40,166.69	60,415.64	79,465.81	75,998.47	79,871.05
5.	Tax income	0.00	-4,365.04	-2,491.40	3,009.13	12,727.20	27,396.91
III	**Net cash flow**	**-142,782.09**	**-12,072.83**	**4,363.89**	**34,050.49**	**87,545.52**	**248,473.36**

Source: Petrovic et al., 2025.

Table 8. NPV and IRR

no.	Element	Zero moment	Years					*Cumulative*
			I	II	III	IV	V	
0	1	2	3	4	5	6	7	8
1.	Net cash flow (economic flow), (columns 3 to 7)	-142,782.09	-12,072.83	4,363.89	34,050.49	87,545.52	248,473.36	***362,360.43***
2.	Discount rate (%)	7.00	7.00	7.00	7.00	7.00	7.00	
3.	Discount factor $(1+i)^{-n}$ i = discount rate; n = years	1.0000	0.9346	0.8734	0.8163	0.7629	0.7130	
4.	Present value of net cash flow (columns 3 to 7)	-142,782.09	-11,283.02	3,811.59	27,795.34	66,788.06	177,158.07	***264,270.04***
5.	**NPV**	**121,487.95**						
6.	**Relative NPV > i**	**0.85**						
7.	**IRR > i**	**22.08%**						

Source: Petrovic et al., 2025.

According to the calculated Income Statement for the observed period, the planned investment is projected to become profitable for the cooperative starting from the third year (Table 6.). Negative financial results in the initial years are primarily due to low sales revenues, as the newly established orchards and vineyards have not yet reached full production capacity.

As shown in Table 7., based on the projected cash flow from the investment, the cooperative's business is generally liquid, particularly from the third year onward. At the same time, dynamic indicators such as NPV, IRR, and DPP have

been calculated from the projected cash flow to assess the effectiveness of the invested assets (Tables 8. and 9.).

Table 9. Dynamic Payback Period

Years	Present value of net cash flow	Cumulative net cash flow
0	-142,782.09	-142,782.09
I	-11,283.02	-154,065.11
II	3,811.59	-150,253.52
III	27,795.34	-122,458.18
IV	66,788.06	-55,670.12
V	177,158.07	121,487.95

Source: Petrovic et al., 2025.

The invested assets are expected to be recovered within 4.31 years, or approximately 4 years and 4 months. As indicated in the previous tables, the investment in expanding the cooperative's business activities can be considered economically justified under the predefined investment conditions, even without the use of state subsidies.

Table 10. Value of indicators gained by the use of state support

Element	
Investment assets used in plums processing (drying) and wine making	
General facts	
Overall investment	142,782.09
In fixed assets	129,801.90
In PWC	12,980.19
Source of financing (own : credit / 30 : 70)	
Expected investment effects (dynamic assessment)	
Reimbursement of 40% of investment value	
NPV	161,386.99
IRR	29.14%
DPP	4 years and 1,07 months
Reimbursement of 50% of investment value	
NPV	171,361.74
IRR	31.14%
DPP	4 years and 0,39 months

Source: Petrovic et al., 2025.

The use of state support, either the regular reimbursement of 40%, or a reimbursement of up to 50% of the invested assets in marginal municipalities, positively affects the previously calculated results (Table 10.). Specifically, NPV could increase from approximately 33% to 41%, while IRR could rise from nearly 32% to 41%. At the same time, the repayment period could be shortened by roughly 2 to 3 months.

Conclusions

Historically, Serbian agriculture has been largely based on fruit growing, with plums among the dominant fruit species, and grape production. Both crops are subject to further processing. Plums are primarily processed into nationally recognized alcoholic beverages (rakija) or dried products, while grapes are processed into the wine. Production and processing have been predominantly organized on small, and occasionally medium-sized, family farms. Several factors, primarily of an economic nature, limit the production and processing of these agricultural products. One of potential ways to overcome these limitations is through collective production by multiple producers organized within cooperatives, associations, or clusters. Additionally, as official support for all fruit growing and viticulture sectors, state subsidies are available to cover part of initial investments in production establishment, process modernization, or capacity expansion, as well as annual support targeting the individual production cycles.

In the observed case study, a cooperative from southern Serbia is investing in capacities, including mechanization and equipment, to be used for plum and grape processing (plum drying and wine production). The derived research results, based on appliance of dynamic indicators for assessing the investment effectiveness, indicate that the considered investment can be economically justified under both applied scenarios, with or without the use of state subsidies. Furthermore, the results demonstrate that the applied subsidies significantly contribute to improving the cooperative's business sustainability.

Literature

1. Adžić, S. (2023). The way Serbian rakija distillers evaluate the quality and market position of their spirits. *Journal of Agricultural Sciences,* 68(2):217-236, https://doi.org/10.2298/JAS2302217A
2. Antić, K., Bulatović, B. (2023). *Market of Viticulture and Wine in the Republic of Serbia.* In: Rajić, Z., Dimitrijević, B. (eds.) Agribusiness, Food and Rural Areas-Perspectives and Challenges of Agenda 4.0, Faculty of Agriculture, Belgrade, Serbia, pp. 123-131.
3. Bulatović, M. (2020). *The state and forecast of fruit production and processing in Serbia*. Faculty of Agriculture, University of Novi Sad, Serbia.
4. Bulatović, M., Rajić, Z., Đoković, J. (2013). Development of fruit production and processing in the Republic of Serbia. *Ekonomika poljoprivrede,* 60(1):141-151.

5. Ćosić, M., Lipovac, A., Vujadinović Mandić, M., Vuković Vimić, A., Đurović, D., Nikolić, D. (2021). Water requirements in traditional plum producing regions of Serbia. *Acta Horticulturae,* 1322:209-214, https://doi.org/10.17660/ActaHortic.2021.1322.30
6. Dimitrijević, B., Bulatović, B., Zdravković, V., Vlajkovac, T. (2022). Economic viability of plum production on the family farm in the Republic of Serbia. *Journal of Agricultural, Food and Environmental Sciences (JAFES),* 76(6):30-37, https://doi.org/10.55302/JAFES22766030d
7. Đurić, K. (2022). Measures of support to the development of agricultural cooperatives in the Republic of Serbia. *Ekonomija - teorija i praksa,* 15(1):25-40, doi: 10.5937/etp2201025D
8. Grujić Vučkovski, B., Nedeljković, M. (2023). *Characteristics of production, trade and consumption of plums in Serbia*. In: Krstic, B. (edt.) VI International Scientific Conference "Village and Agriculture", Bijeljina University, Bijeljina, Republic of Srpska, BiH, pp. 55-65.
9. Jeločnik, M., Jakšić, D., Petrović, M. (2024a). Economic competitiveness of autochthonous (local) grapevine varieties for the production of white wines. *Ekonomika,* 70(2):13-26, https://doi.org/10.5937/ekonomika2402013J
10. Jeločnik, M., Jakšić, D., Petrović, M., Bradić, I. (2024b). Creating Added Value as a Step Towards Increasing Sustainability in Grape Production Sector. *Ekonomika,* 70(4):1-15, doi: 10.5937/ekonomika2404001J
11. Jeločnik, M., Nedeljković, M., Jakšić, D., Petrović, M. (2025). Selecting the proper white wine varieties according to multiple-criteria decision analysis: Case study Serbia. *Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development,* 25(1):517-527.
12. Jeločnik, M., Subić, J., Potrebić, V. (2022a). *Economic Aspects of Investment in Wheat Processing*. In: Subic et al. (eds.) II international scientific conference "Sustainable agriculture and rural development", Institute of Agricultural Economics, Belgrade, Serbia, pp. 301-308.
13. Jeločnik, M., Subić, J., Vasiljević, Z. (2023). Supporting programs for the development of cooperatives in the Republic of Serbia. *Ekonomika poljoprivrede,* 70(3):881-896, https://doi.org/10.59267/ekoPolj2303881J
14. Jeločnik, M., Subić, J., Zdravković, A. (2022b). Economic effects of investment in irrigation systems implementation at the small family farms. *Ekonomika poljoprivrede*, 69(3):793-817, doi: 10.5937/ekoPolj2203793J

15. Keserovic, Z. (2025). *Popis poljoprivrede 2023: Stanje u savremenoj proizvodnji voća u Srbiji i mogućnosti za njeno poboljšanje (Census of Agriculture 2023: State in contemporary fruit production in Serbia and possibilities for its advancement).* Statistical Office of Republic of Serbia (SORS), Belgrade, Serbia.
16. Kljajić, N., Vuković, P., Paraušić, V. (2024). Production and economic characteristics of sour cherry cultivation in the Republic of Serbia. *Western Balkan Journal of Agricultural Economics and Rural Development (WBJAERD),* 6(2):157-168, doi: 10.5937/WBJAE2402157K
17. Korac, N., Ivanisevic, D., Medic, M., Kuljancic, I., Ruml, M., Todic, S., Popov, M. (2012). *Table grape varieties for cool climates*. In: International symposium for agriculture and food - IV Macedonian Symposium for Viticulture and Wine Production, Ss. Cyril and Methodius University of Skopje, Skopje, North Macedonia, pp. 161-169.
18. Lekić, N., Savić, G., Knežević, S., Mitrović, A. (2018). The efficiency analysis in small wineries in the Republic of Serbia. *Economics of Agriculture,* 65(4):1529-1544, doi: 10.5937/ekoPolj1804529L
19. Marković, M. (2024). Development of resources of modern viticulture and wine production in the age of smart technologies. *Ekonomika,* 70(4):79-87, doi: 10.5937/ekonomika2404079S
20. Matković, M. (2015). Possibilities of plum cultivation in the Republic of Serbia. *Ekonomika poljoprivrede*, 62(4):1045-1060.
21. Milić, D., Galić, D., Vukoje, V. (2011). Possibilities for improvement of fruit production in Serbia. *Journal on Processing and Energy in Agriculture*, 15(1):27-30.
22. Milić, D., Glavaš Trbić, D., Tomaš Simin, M., Janković, D., Zekić, V. (2016). Economic characteristics of grape production in south Banat. *Ekonomika poljoprivrede,* 63(4):1187-1203, https://doi.org/10.5937/ekoPolj1604187M
23. Milić, D., Sredojević, Z., Lukač Bulatović, M. (2018). Economic impacts of investments in value-added products. *Journal on Processing and Energy in Agriculture,* 22(1):14-17.
24. Milošević, T., Milošević, N. (2018). *Plum (Prunus spp.) breeding*. In: Al-Khayri, J., Jain, S., Johnson, D. (eds.) Advances in Plant Breeding Strategies: Fruits, pp. 165-215, https://doi.org/10.1007/978-3-319-91944-7_5, Springer International Publishing, Cham, Switzerland.

25. Narandžić, T., Ružičić, S., Grubač, M., Pušić, M., Ostojić, J., Šarac, V., Ljubojević, M. (2023). Landscaping with fruits: Citizens' perceptions toward urban horticulture and design of urban gardens. *Horticulturae,* 9(10):1152, https://doi.org/10.3390/horticulturae9101152
26. Nikolić, D., Korać, N., Todić, S., Jakšić, D., Ivanišević, D. (2021). *Grapevine genetic diversity in Serbia*. In: I International conference on Vranac and other Montenegrin indigenous sorts of grapevine, Montenegrin Academy of Sciences and Arts, Podgorica, Montenegro, pp. 157-172.
27. Paraušić, V. (2018). Značaj i uloga udruženja poljoprivrednika u Srbiji. *Agroekonomika,* 47(80):43-51.
28. Petrovic, M., Subic, J., Jelocnik, J. (2025). *Data gained from in-depth interview with cooperative management*. Internal data, Institute of Agricultural Economics, Belgrade, Serbia.
29. Petrović, M., Tomić, V., Radišić, R., Ljiljanić, N. (2020). Analysis of insurance in agriculture of the Republic of Serbia in the period 2009-2018. *Western Balkan Journal of Agricultural Economics and Rural Development,* 2(2):99-109, https://doi.org/10.5937/WBJAE2002099P
30. Radosavljević, K. (2015). The competitiveness of agricultural products: Case study of plum production and sale. *Ekonomika preduzeca,* 63(7-8):449-460.
31. Savić, B., Petrović, M., Vasiljević, Z. (2020). The impact of transportation costs on economic performance in crop production. *Economics of Agriculture,* 67(3):683-697, https://doi.org/10.5937/ekoPolj2003683S
32. Stevanović, S., Stevanović, S., Janković Šoja, S. (2018). Regional characteristics of market production of fruit and grapes in Serbia. *Ekonomika poljoprivrede,* 65(1):201-214, doi: 10.5937/ekoPolj1801201S
33. Stojanović, Ž. (2022). *Agriculture in Serbia*. In: Manić, E., Nikitović, V., Djurović, P. (eds.) Geography of Serbia: Nature, People, Economy, pp. 199-206, https://doi.org/10.1007/978-3-030-74701-5_15, Springer, Cham, Switzerland.
34. Subić, J., Jeločnik, M. (2021). *Economic Effects of Public Support in Promotion of Cooperatives in Serbia.* In: Ignat et al. (eds.) X international conference Competetiveness of Agro-food and environmental economy. Faculty of Agro-Food and Environmental Economics, Bucharest, Romania, pp. 112-122.

35. Subić, J., Jeločnik, M., Nastić, L., Vasile, J. (2021). *Economic Effects of Plum Plantation Establishment.* In: Subic et al. (eds.) International scientific conference "Sustainable agriculture and rural development", Institute of Agricultural Economics, Belgrade, Serbia, pp. 149-162.
36. Subić, J., Kjajić, N., Jelocnik, M. (2017). Renewable energy use in raspberry production. *Ekonomika poljoprivrede*, 64(2):821-843, https://doi.org/10.5937/ekoPolj1702821S
37. Valčić, U., Zarić, V. (2022). Serbian wine producers' performance evaluation: A netnographic baseline study of wine industry in Serbia. *Ekonomika Poljoprivrede*, 69(1):211-225, https://doi.org/10.5937/ekoPolj2201211V
38. Vasiljević, Z., Popović, N., Dimitrijević, B., Vujović, D., Bulatović, B. (2017). Influence of the Governmental Investment Subsidies on Development of Serbian Viticulture. *Economic Themes*, 55(2):179-198, doi: 10.1515/ethemes-2017-0011
39. Vujadinović Mandić, M., Vuković Vimić, A., Ranković Vasić, Z., Đurović, D., Ćosić, M., Sotonica, D., Nikolic, D., Đurđević, V. (2022). Observed changes in climate conditions and weather-related risks in fruit and grape production in Serbia. *Atmosphere*, 13(6):948, https://doi.org/10.3390/atmos13060948