

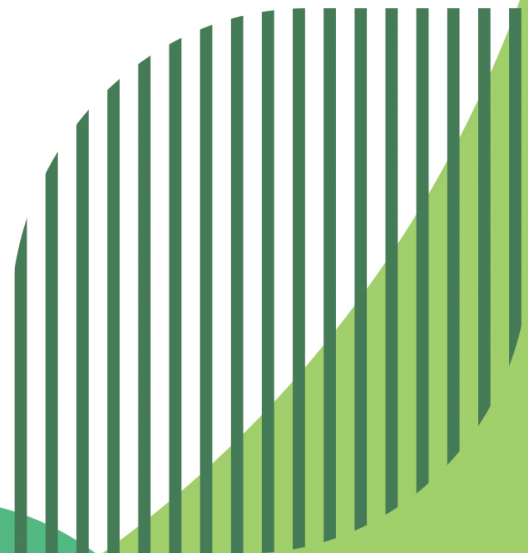


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SUSTAINABLE AGRICULTURE
FOR GREENER FUTURE

REPORT OF NEEDS FOR JMCE AGRIGREEN





Project acronym	AgriGREEN
Project full title	Jean Monnet Centre of Excellence: Sustainable Agriculture for Greener Future
Project number	101085183
Funding scheme	Erasmus+ Jean Monnet Centre of Excellence (ERASMUS-JMO-2022-HEI-TCH-RSCH)
Project start date	01/09/2022
Project duration	3 years

TITLE OF DOCUMENT	Report of needs for JMCE AgriGREEN
Work package	WP2
Deliverable	D2.1.
Responsible Team members	Danilo Đokić, Bojan Matkovski, Žana Jurjević, Stanislav Zekić, Marija Jeremić
Due date	30/11/2022
File name	AgriGREEN_Report of needs for JMCE AgriGREEN
Number of pages	52
Dissemination level	Public



Abstract	<p>This report will contain analysis of agricultural policy of EU and Serbia in order to find out what are the crucial agri-environmental issues. Also, brief analysis of agricultural sector will be given. After that, curriculum of the Faculty of Economics will be analysed in context of agri-environmental economics. Then, results of a survey of students of the Faculty of Economics in Subotica about the current level of knowledge of project activities at the University of Novi Sad and about the level of knowledge about EU policies and strategies in order to determine the needs for the construction of laboratories and centers of excellence. Based on this analysis, needs for AgriGREEN project are defined, as well as general and specific goals and deliverables.</p>
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VERSIONING AND CONTRIBUTION HISTORY

Versi on	Date	Description	Responsible members
1.0	20/11/2022	Draft version	Danilo Đokić, Bojan Matkovski, Žana Jurjević, Stanislav Zekić, Marija Jeremić
1.1	30/11/2022	Final	Danilo Đokić, Bojan Matkovski, Žana Jurjević, Stanislav Zekić, Marija Jeremić

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LIST OF ABBREVIATIONS

UNS – University of Novi Sad

EU – European Union

F2F – Farm to Fork Strategy

CAP – Common Agricultural Policy

SDG – Sustainable Development Goals

MAFWM – Ministry of Agriculture, Forestry, and Water Management of the Republic of Serbia



INTRODUCTION

The main objective of the Jean Monnet Centre of Excellence (JMCE): Sustainable Agriculture for Greener Future AgriGREEN project is to disseminate knowledge about the EU and its policies, with an emphasis on EU agricultural policy and Farm to Fork Strategy and high focus on the concept of agricultural sustainability. The stated objective will be realized through curricula innovation, intensive training course, panel discussions, scientific conferences, scientific research, workshops, competition. The main idea is to reach out to students from the Faculty of Economics (UNS), as it typically does not deal with EU issues. In that context, it is expected to build JMCE AgriGREEN (IT collaborating platform and two business labs, to conduct two courses and one intensive training course. In order to create a stronger connection between the experts from agribusiness companies, it is expected to hold six workshops where students will gain practical knowledge. In order to achieve openness to policymakers and the general public, three panel discussions in cooperation with the MAFWM will be organised to create recommendations for decision-makers in the context of agri-environmental policy. Also, this project includes research in areas crucial to F2F strategy by motivating researchers from different disciplines and different universities (from the EU) to cooperate, and it is expected that three scientific papers be published in highly ranked journals or conferences, as a result of the work on the project. This project will strengthen the knowledge of EU policies in the field of food production at UNS, foster dialogue through a panel discussion between policy-makers in Serbia and experts from UNS in cooperation with European universities, promote research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector and spread knowledge about new CAP reform and F2F strategy to the broader society.

The Report of needs is structured as follows: after the introduction the second part refers to short summary of the project. The third part refers to analysis of the new CAP and agricultural policy of Serbia, with special emphasis on environmental issues. Then, agricultural sector in Serbia is analysed in context of environmental friendly practices. After that, the Faculty of Economics curriculum is analysed in order to find out how much environmental issues are presented in lectures. This part is followed by survey on students knowledge about EU policies. All of this is done in order to define how AgriGREEN project can contribute to solving the agri-environmental problems in Serbia and to promotion of EU strategies that concern these questions.



SUMMARY

In the case of agriculture and food production, significant changes in EU policy have taken place over the past few years. First, the Farm to Fork (F2F) strategy was presented as part of the broader European Green Deal strategy adopted in 2019. The main idea of the F2F strategy is to redesign European food systems, which today account for nearly one-third of global GHG emissions, consume large amounts of natural resources, resulting in biodiversity loss and negative health impacts, and do not allow fair economic returns and livelihoods for all actors, in particular for primary producers. This strategy sets out regulatory and non-regulatory initiatives, with the common agricultural policies as crucial tools to support a just transition. On 2 December 2021, the agreement on the common agricultural policy (CAP) reform was formally adopted. The new legislation is focused on fairer, greener, and more performance-based CAP, which is due to begin in 2023. A concept of a greener CAP is closely related to the goals of the European Green Deal. So, there is a strong interrelation between CAP and European Green Deal (or Farm to Fork Strategy).

On the other hand, Serbia is in the process of European integration, which includes harmonization with CAP. Therefore, the new CAP reform and Farm to Fork strategy could be significant for the development of agricultural policy in Serbia and the agri-food sector. Several reasons support this claim. First, the Serbian agricultural sector has relatively high importance in the overall economy (according to the World Bank, agriculture share in GDP is 6.3% while in case of EU, it is 1.7%). Also, this sector is lagging in the competitiveness on the international market in comparison to EU. In accordance with these facts, agricultural policy of Serbia has been primarily focused on its economic goals. So, in the current agricultural policy of Serbia, very little attention has been focused on environmental goals, which arise problem of sustainable development of agriculture. It will be very difficult to create agricultural policy that will simultaneously boost economic and environmental performances of this sector. Second, according to F2F strategy organic farming needs to be further promoted due to its positive impact on biodiversity and potential job opportunities for young farmers. So, it has been seen as solution for sustainable development of agriculture in EU. In addition to the resource potential for organic production, Serbia is facing several significant problems that are slowing down the development of this sector. Probably the most significant constraints are insufficient domestic demand and inadequate institutional support. Third, there is a potential problem of the excess of nutrients in the environment in Serbia. In order to raise yields at the EU



level and become more competitive, Serbian farmers are highly motivated to use (or overuse) more chemical inputs, especially syntactic fertilizers. Due to this specific situation, it is necessary to spread knowledge about sustainable agricultural practices and potential technological solutions. Moreover, as mentioned in the F2F strategy, excess use of nutrients is a significant source of air, soil, water pollution, and climate impacts. At the end, probably the central problem of the whole agricultural sector in Serbia is a low level of farmer's education. According to Census of Agriculture of the Republic of Serbia, only 6.5% of agricultural managers have a high level of education in Serbia, and only 1.5% have graduated from HEI. Also, only 2.6% of farmers have a secondary education in the field of agriculture. Due to this limitation, it is necessary to strengthen the capacities in higher education in the field of agriculture and to provide adequate trainings and courses for future farmers.

The main objective of the AgriGREEN project is to disseminate knowledge about the EU and its policies, with an emphasis on EU agricultural policy and Farm to Fork Strategy and high focus on the concept of agricultural sustainability. The stated objective will be realized through: curricula innovation, intensive training course, panel discussions, scientific conferences, scientific researches, workshops, competitions. Main idea is to reach out to students from Department of agricultural economics and agribusiness (Faculty of Economics) at University of Novi Sad. These faculties not normally dealing with European Union issues. In order to achieve openness to policy makers and general public special advisors from Ministry of Agriculture, Forestry, and Water Management of the Republic of Serbia (MAFWM) will be in the project team.



NEW CAP AND IMPLICATION ON SERBIAN AGRICULTURAL POLICY

CAP 2023-2027

The creation of the new Common Agricultural Policy of the European Union (CAP) for 2023-2027 influenced several factors. First of all, the implementation of the new CAP was postponed to 2023 (instead of 2021) due to the global pandemic. In addition, the creation of the policy itself has been slowed down by Brexit. However, the most significant factor that influenced the conception of CAP is undoubtedly the increasing importance of the problems of climate change and ecology. Concern for the environment and climate change began at the end of the last century, intending to transform the existing global economic system. The emerging narrative in the public sphere calls for rapid and radical changes to reduce greenhouse gas emissions, as stipulated in the 2015 Paris Agreement on Climate Change. In this context of sustainable transition, agricultural production is moving towards the principles of agroecology. It includes the entire spectrum of sustainable agrotechnologies (reducing chemical fertilizers, pesticides, and inputs from outside farms).

Since the problem of constant growth and production has given rise to ecological problems and environmental degradation, the EU has created a new overall strategy called the European Green Deal to transform the entire EU economy into a resource-efficient, modern and competitive economy. The goal is for Europe to be the first climate-neutral continent, which implies that growth is ensured without intensive use of resources, and all this through the involvement of all countries member states and all individuals who will inevitably be affected by EU policies. Additionally, the Biodiversity Strategy until 2030 foresees radical changes. Some of the basic defined goals of this Strategy are:

- to reduce the use of chemical pesticides in production by 50%;
- to reduce nutritional losses by 50% while preventing further destruction of soil quality;
- reduction in fertilizer use by 20%;
- to increase organic arable land to 25% of the total arable land in the EU.

A central part of the European Green Deal is the food production sector because of its importance for society and the impact of agriculture on the environment. Emphasis is placed on the entire food chain with the reform of production, processing and distribution, and consumption towards sustainable practices, reducing food losses along the chain and



reducing food waste. In order to achieve the goals related to the reduction of negative impacts on the climate, loss of biodiversity, energy and food insecurity, which the European Green Deal foresees with particular emphasis on environmental issues, new policies and measures for agriculture are imposed. The role of agriculture in contributing to the given goals as solutions to problems precisely related to the formulated goals is undoubtedly significant, especially for the European Green Deal. Agriculture globally contributes to creating around 10-12% of harmful greenhouse gases, and this percentage is even higher if indirect processes associated with agriculture are included. The participation of agriculture in the destruction of biodiversity is also at a high level. Despite the high value of production that is explicitly realized in the EU, the costs that occur due to the degradation of water, land, and in general environmental costs that are not initially visible grow year by year.

For the agricultural sector, the F2F strategy is essential, the goal of which is to create a sustainable food system:

- has a neutral or positive effect on the environment;
- contributes to solving the problem of climate change;
- prevents the loss of biodiversity;
- enables food security and public health by ensuring that everyone has access to sufficient, safe, sustainable food of high nutritional value, and
- enables the availability of food while generating a fairer economic result, strengthens the competitiveness of the EU food sector, and promotes fair trade.

All of the stated goals are part of broader global goals related to the sustainability of the global system, namely the Sustainable Development Goals of the United Nations (Annex 1). The F2F and the European Green Deal are the backbone of the new EU agricultural policy for 2023-2027, which aims to build an economically, ecologically, and socially sustainable food system.

The CAP from 2023 to 2027 is based on ten specific objectives and several key reform areas. The specific goals are:

1. ensuring an adequate income for farmers,
2. increasing competitiveness,
3. improving the position of farmers in the food supply chain,
4. combating climate change,
5. protecting the environment,



6. preserving the landscape and biodiversity,
7. the survival of young people on agricultural farms,
8. revitalizing rural areas,
9. producing healthy and safe food,
10. encouraging innovation and education (European Commission, 2022a).

Figure 1. CAP objectives



In order to achieve these goals, there is a need of:

- a more significant budget for eco-schemes,
- increased environmental conditionality of support,
- greater investments in resource-efficient and sustainable production systems,
- and the construction of an agricultural advisory service based on an information system that includes ecological data, in addition to economic data.

The new reform focuses on striving to make CAP fairer. It means an equal distribution of payments among individuals and European Union members. In addition, particular emphasis is placed on socially vulnerable farms, young farmers, and gender equality. Similar to previous reforms, the focus is still on increasing the competitiveness of this sector. Unlike the previous budgets, and as a consequence of the current global crises, the new reform foresees special reserves to manage crises adequately.



What naturally arises as a question is an extent to which it will be possible to achieve what is foreseen. Also, the question is whether the entire food system of the EU will be shaken since new investments are necessary to achieve the given goals. Based on the results of modeling and various analyses, it is predicted that it is possible to reduce production and yield levels up to 30% for some crops in the EU. Furthermore, there is a necessity of increasing agricultural areas under organic production. The most important goals within the new agriculture strategy relate to ecological sustainability and climate change, which leads to an ungrateful trade-off situation between the goals of an economic, social, and ecological nature. This can affect the EU's difficulties in meeting the need for stable yields and achieving food security, especially in crises and turbulent periods.

Agricultural policy in Serbia

Agriculture in Serbia contributed about 7% to the formation of gross domestic product (GDP) and accounted for 19.4% of total employment. The previous period of socialism created a dual holding structure and a discrepancy between production structures. As a result, the family-owned farm is the basic form of agriculture production, with 99% of farms belonging to this category. According to data from the Statistical Office of the Republic of Serbia, almost the entire agricultural workforce is fully engaged in family farms (98.2%), while 1.8% of employees work for large companies or in small, private businesses. Half of the farms in Serbia use less than five hectares of arable land, which indicates that small and medium sized farms are the predominant structure for agricultural holdings.

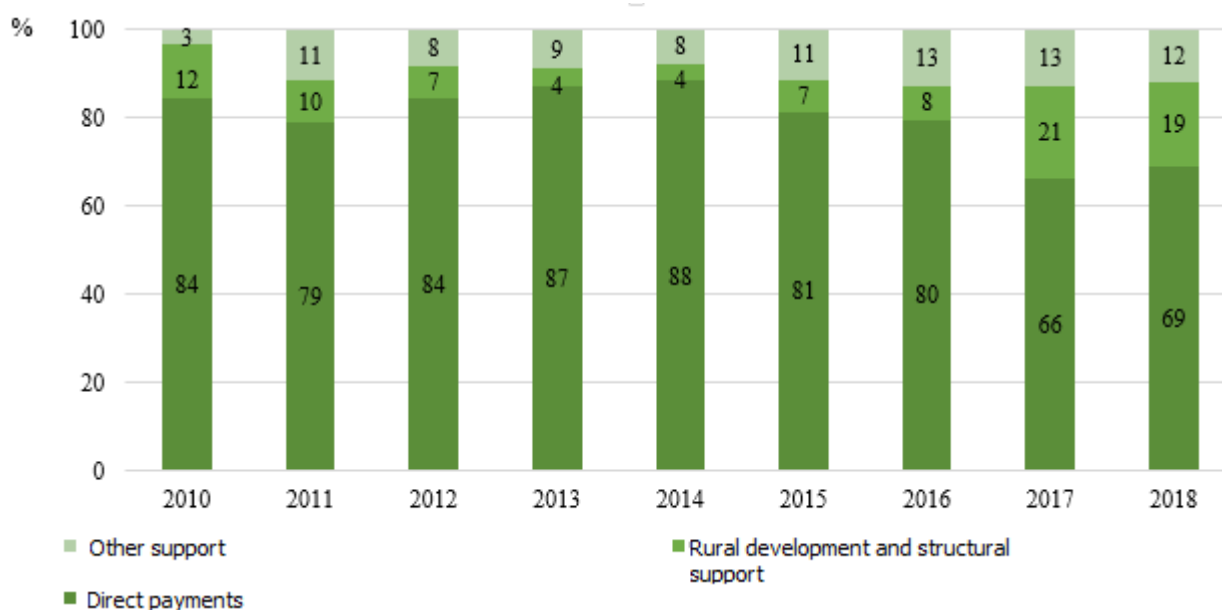
As a country aspiring to EU membership, Serbia must follow the European model of agricultural development. For this reason, the Strategy for agriculture and Rural Development for the Republic of Serbia (2014–2024) defined future goals for developing these sectors:

- production growth and producer income stability;
- growth of competitiveness with adaptation to the requirements of the domestic and foreign markets and technical and technological improvement of the agricultural sector;
- sustainable resource management and environmental protection;
- improving the quality of life in rural areas and reducing poverty,

- efficient management of public policies and improvement of the institutional framework for developing agriculture and rural areas.

Based on the structure of support measures, it is possible to determine the importance of individual goals. Most of Serbia's agricultural budget is spent on market support and direct payments (Figure 2). Direct payments based on the current area or the number of heads have a share of 50% in the total state payments, while 17% goes to direct payments based on production and 2% to subsidizing variable inputs. Of the measures that belong to the group of structural support and support for rural development, almost all funds are spent on improving the competitiveness of the agricultural and food sector. Similar to other developing countries, payments related to agroecology, organic production, and animal welfare are at the level of statistical error. Of the general support measures, the most significant are food safety measures and quality control, with a share of 10% of the total agricultural budget. 2% of the total funds are spent on research, development, advisory, and professional services. In the observed period, there was an increase in government expenditures for the agricultural sector. At the beginning of the period, the agricultural budget amounted to 191 million euros; in 2018, it amounted to 265 million. Payments per hectare of agricultural land amount to 76.5 euros. This structure of support measures indicates that the agricultural policy is mostly directed towards the achievement of the first goal - production growth and producer income stability.

Figure 2. Agricultural policy support in Serbia





Harmonization with the CAP has led to a change in how the Serbian agricultural budget is distributed, and since 2013, rural development measures have been created in accordance with the second pillar of the CAP, which includes agri-environmental payments. In other words, these incentives include support for programs related to investments in agriculture that aims to:

- improve competitiveness,
- improve conservation,
- improve the environment and natural resources ,
- to diversify income and improve quality of life in rural areas,
- prepare and implement local rural development strategies (local public–private partnerships),
- improve the system of knowledge creation and transfer.

Serbia's access to Pre-Accession Assistance for Rural Development (IPARD) funds contributes to the increase in the amount of funds for environmental measures. Due to the ongoing process of EU accession, a key issue is whether Serbian agriculture will be able to adequately adjust to rapid changes in market liberalization and international competition. As part of the process of stabilization and accession to the EU, the agricultural sector will be subject to significant changes in the upcoming agricultural policy measures and mechanisms. The creators of Serbia's agricultural policy will need to create instruments that will not only protect domestic production but also influence increased competitiveness in the international market. In creating an agricultural policy, there needs to be standardized monitoring and evaluation systems for assessing the impact of policy measures and evaluating the degree of alignment of policy goals and their results. These limitations in the coordination, creation, and implementation of policy in Serbia imply that rational distribution and effectiveness of budgetary support to agriculture cannot be guaranteed.

Potential implication of the new CAP on Serbian agricultural policy

The agricultural policy of the EU is one of the most complexes, so adapting it in the developing country is very difficult. Investing in agricultural policy is highly demanding in terms of regulation. The new agricultural policy of the EU finds additional conditions regarding the sustainability of agriculture in relation to "green payments" that were present in earlier frameworks. In the coming period, there will be the introduction of



"conditionality" and "multiple compliance" measures, which imply the obligation to fulfill the goals of sustainable development and climate-friendly production. In Serbia, the "Smart Specialization Strategy" was adopted, which, among other things, should contribute to the achievement of the sustainable development goals set by the United Nations, and in accordance with this, different areas are directed, including agriculture, which is additionally harmonized with EU policy. Agricultural policy reforms for the current period are defined in the Agriculture and Rural Development Strategy for 2014-2024. year, as well as in the plan of agriculture for the period 2022-2024. years. Sustainable agricultural production, the higher added value of agricultural and food products, and the more significant presence of technology and smart agriculture appear as new directions of agricultural development that will be emphasized in the future.

In order to improve Serbia's comparative advantages and competitiveness, it is necessary to increase productivity, which is below the EU average and improve the environmental impact of agriculture with greater resilience of farms to natural disasters. The issue of the sustainability of agricultural production in Serbia from the perspective of the possibility of applying new technologies indicates that Serbia is in a weaker position in terms of the farmers' education, which can be a complicating factor in the application of new technologies intended for more sustainable production. At the same time, one of the main goals for the new strategy of agriculture in the EU is an exceptional increase in cultivated areas under organic production, which in Serbia is at very low level. Favorable resource conditions in Serbia indicate that the potential of organic agriculture has yet to be fully utilized, even though the goals of increasing organic production have been defined as a separate category within the national agriculture strategy. The goals of sustainable agricultural development also require a greater application of adequate technology, which is difficult in Serbia due to the low-income potential of agricultural farms, which are predominantly traditional farms of small size.

In the context of the F2F strategy, which will also pose great challenges to the EU member states in terms of achieving the newly defined goals, it can be said that Serbia will find itself in an even more unfavorable position. The actions that must be implemented in order to ensure higher quality and food safety are more rigorous controls and measures, support for primary agricultural production in the transformation towards more ecologically sound production, and support for organic production. The implementation of the pre-accession program in the field of rural development IPARD will be of great importance. The main direction of the third call of this pre-accession program,



which will be implemented in 2023, is to support rural areas with measures aimed at strengthening farms to produce safer, more competitive, and more environmentally friendly food for both the domestic and foreign markets. The greatest environmental problem that could be expected concern water pollution and soil degradation. So from that aspect, agroecological measures and approaches to production towards integrated and organic agriculture are imposed as desirable directions for the future development of agriculture.

In the end, the critical question is how the creators of agricultural policy in Serbia should react to the new requirements regarding the environmental sustainability of agriculture. Agricultural policy reform in the direction of ecology is becoming a global necessity. However, the question is how radical such reforms should be in developing countries that have yet to reach the economic performance of developed countries. The solution is most likely in a phased adjustment because agriculture, especially the agri-food sector, are still very important for the entire economy of Serbia. In addition, current global crises, such as the Covid-19 pandemic and the Ukrainian crisis, have a significant impact on the global food system and may have severe consequences for the food security of less developed countries. Such global circumstances certainly slow „green“ reforms and bring the issue of self-sufficiency in food production back into focus. Also, there is a risk that the the European Green Deal will lead to many developing countries becoming dependent on technology imports from developed countries to support their sustainable transition. Precisely because of this, the focus of the creators of Serbia's agricultural policy, as well as other economic policies, should be investments in research and development of new green technologies, which could significantly impact economic development. It is undeniable that Serbia will direct its future directions of development towards more ecologically acceptable agricultural production and the entire food system due to adaptation to EU policies. However, the importance of strengthening agricultural capacities and supporting production to achieve food sovereignty and food security, which can be significantly undermined, especially in major global crises, must be addressed. The special challenges of implementing the new agricultural policy, which focuses on green goals, will be changing the awareness and behavior of agricultural producers and providing infrastructural and institutional support.



ENVIRONMENTAL FRIENDLY AGRICULTURE IN SERBIA

Organic agriculture

Organic production in the Republic of Serbia is defined by the Law on Organic Production, within which the basic principles are stated:

1. the principle of managing natural and biological processes based on ecological systems of using natural resources, with the application of methods that include:

- living organisms and mechanical production methods,
- the production of plants in the soil, livestock production, or aquaculture that respects the principles of sustainable pond exploitation,
- prohibition of the use of genetically modified organisms and products consisting of or derived from genetically modified organisms, except veterinary medicinal products,
- production processes based on risk assessment and appropriate preventive measures when necessary;

2. the principle of limited use of input raw materials (external inputs), which refers to the limitation of the use of input raw materials in organic production, whereby the following can be used:

- inputs from organic production,
- natural or naturally produced substances,
- slow-dissolving mineral fertilizers;

3. the principle of strict restriction of the use of chemically synthesized inputs, which refers to the strict restriction of the use of synthesized inputs in organic agriculture, except for:

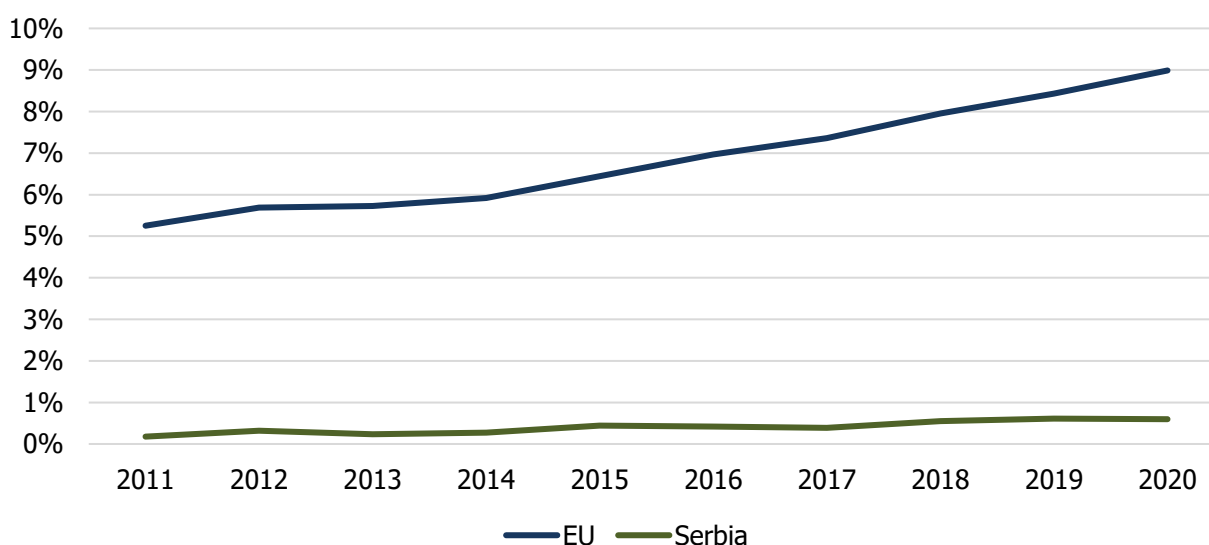
- if appropriate management systems do not provide satisfactory results,
- if the external inputs from point 2) of this article are not available on the market,
- if the use of external inputs from point 2) of this article has an unacceptable impact on the environment;

4. the principle of adaptation, which refers to the adaptation of organic production methods to regional and local climatic and agroecological conditions, sanitary conditions, the level of development, and specificities of the traditional way of cultivation;

5. the principle of maintaining and improving life in the soil and natural soil fertility, soil stability, and biological diversity, which prevents and disables soil compaction and erosion, as well as plant nutrition primarily through the soil ecosystem.

In Serbia, the share of areas under organic agriculture is very small, even negligible (below 1%). On the other hand, the share of organic production in the EU is significantly higher (in the three years, the average is more than 8%). Trends indicate that the area under organic agricultural production will continue to grow in the future (Figure X).

Figure 3. Agricultural Area under Organic production based on FAOSTAT (%)



It is possible to identify several limitations to the development of organic production in Serbia:

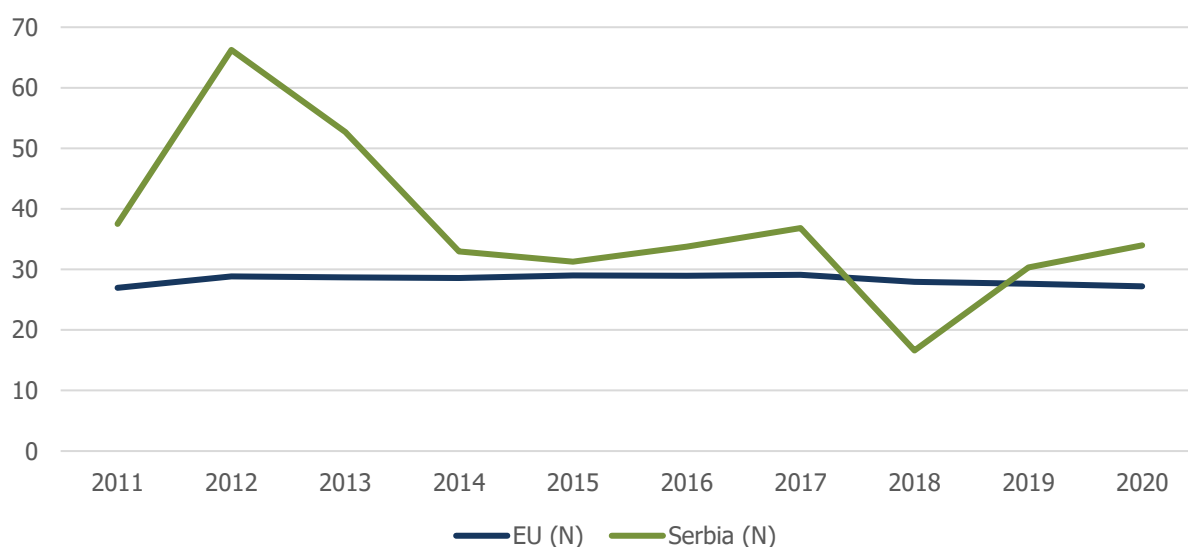
1. There is a need for strong consumer awareness of these products' importance that can create adequate demand for them.
2. Due to the higher production costs and consequently higher price of organic food than conventional, consumers must be willing to pay a higher price for such a product, which is often conditioned by the level of income.
3. Adequate legal regulation and standardization of products is necessary to make a clear difference between organic and conventional products.

Chemical inputs use in Serbian agriculture

According to the F2F strategy, reducing fertilizer and pesticide use is crucial to improve agriculture's environmental performance. However, due to a need for more data on pesticide use in Serbia, only fertilizer use will be analyzed.

The growth of agricultural production without proportional growth of agricultural areas was possible thanks to the additional investment of other inputs, such as labor, energy, and mineral fertilizer. The use of mineral fertilizers undoubtedly has a significant effect on the growth of the yield and the environment. The negative effect on the environment is multiple. First, during the actual production of nitrogen fertilizer, there is a large consumption of fossil fuels that leads to environmental pollution. Second, during use, when ammonia is released, it can bond with other gases that, lead to air pollution, and due to excessive use, it can also lead to groundwater pollution. The fact that it is one of the environmental pollution indicators prescribed by the European Commission speaks volumes about how important this indicator is. EU agriculture is among the most intensive at the global level thanks to the high use of mineral fertilizers, pesticides and modern mechanization. The efficiency of the use of mineral fertilizer can be observed by nitrogen fertilizer use per value of agricultural production (Figure 4).

Figure 4. Nitrogen fertilizer use per value of agricultural production based on FAOSTAT (kg/1000\$)





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In Serbia, the efficiency of mineral fertilizer use is at a lower level than in the EU (Figure 4). More importantly, it is pretty inconsistent compared to the EU. The Serbian agricultural sector needs 5 kg of nitrogen more than the EU to produce the exact value of agricultural output. This inefficiency is the consequence of the lower educational level of farmers education which can result in suboptimal use of fertilizers that endanger the environment.



(AGRI)ENVIRONMENTAL ECONOMICS AT UNIVERSITY OF NOVI SAD

At the Faculty of Economics in Subotica, the University of Novi Sad, a new study program called Economics with seven modules was accredited (Annex 2), which began to be carried out in the academic year 2021/22. year. The study program is conducted at two locations - at the institution's headquarters in Subotica and at the Department in Novi Sad. So far, two generations of students have enrolled in this study program. The first generation has about 600 students and the second has about 670 students. On the Agribusiness and Rural Development module, which students will attend from the 2023/24 school year, about 8-10% of the total number of students in the Economics study program is expected.

The previous study programs at the Faculty of Economics in Subotica did not include the subject of environmental protection to a significant extent. At the same time, the topic of Agri-Environment needed to be more present. The new curriculum brought significant innovations, but still only few subjects deal with environmental issues. In the second year, a compulsory subject called Introduction to Agricultural Economics is included in curriculum. Within this subject, a special chapter called Agriculture and the Environment is planned.



SURVEY ON STUDENTS KNOWLEDGE ABOUT EU POLICIES

Concept

Taking into account that the basic idea of the project is to reach as many students as possible at the Faculty of Economics in Subotica (University of Novi Sad), a questionnaire was created and distributed to students as a most important target group, via Google forms. The questionnaire consists of 9 questions aimed at determining the current level of students' knowledge about EU policies, with a special emphasis on European Green Deal and F2F strategy, and determining the current level of satisfaction with the organization of workshops and with the organization of the case study competition. The methodology of the Report of needs was based on:

- Creating a questionnaire for students in order to see the current level of knowledge about EU policies and the concept of sustainable agriculture.
- Distributing the questionnaire to students at the kick-off meeting.
- Collecting and processing questionnaire data.

Questionnaire

1. Are you familiar with project activities at the University of Novi Sad?

- Yes
- No
- Partially

2. How are you informed about AgriGREEN project?

- Promotional material (roll up banners)
- Social networks?
- Project presentation by project participants.

3. What is your current level of information about EU policies?

High

- Low
- Medium
- Non-existent



4. What is your current level of information about EU strategy „European Green Deal“?

- High
- Low
- Medium
- Non-existent

5. What is your current level of information about EU strategy „Farm to Fork“?

- High
- Low
- Medium
- Non-existent

6. Have you ever heard for the term „sustainable agriculture“?

- Yes
- No
- Partially

7. Are you satisfied with the organization of workshops as part of additional activities at the faculty so far?

- Yes
- No
- Partially

8. Are you satisfied with the organization of guest lectures by business representatives at the faculty so far?

- Yes
- No
- Partially

9. Are you satisfied with the organization of the case study competition at the Faculty so far?

- Yes
- No
- Partially



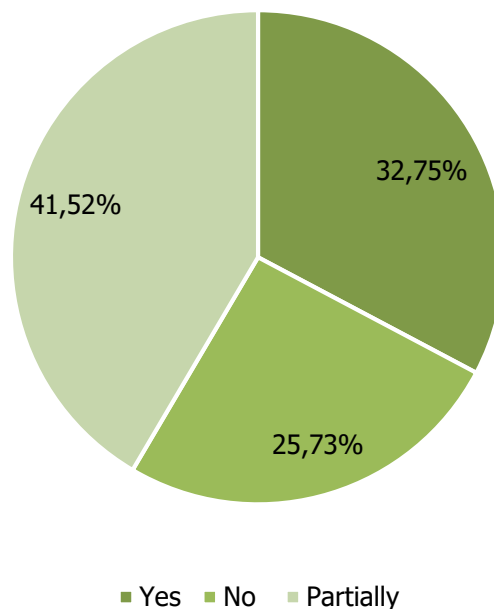
The Results

A questionnaire was created and distributed to students as a most important target group. The total number of students who answered the survey questions is 171.

Question 1. Are you familiar with project activities at the University of Novi Sad?

Figure 5 shows the current level of students' knowledge about project activities at the University of Novi Sad. It is evident that majority of students are only partially familiar (41.25%) with the project activities on the UNS. Then, 32.75% of the students claim to be familiar with project activities while 25.73% students are not familiar with the activities at all.

Figure 5. The level of knowledge of project activities at the University of Novi Sad

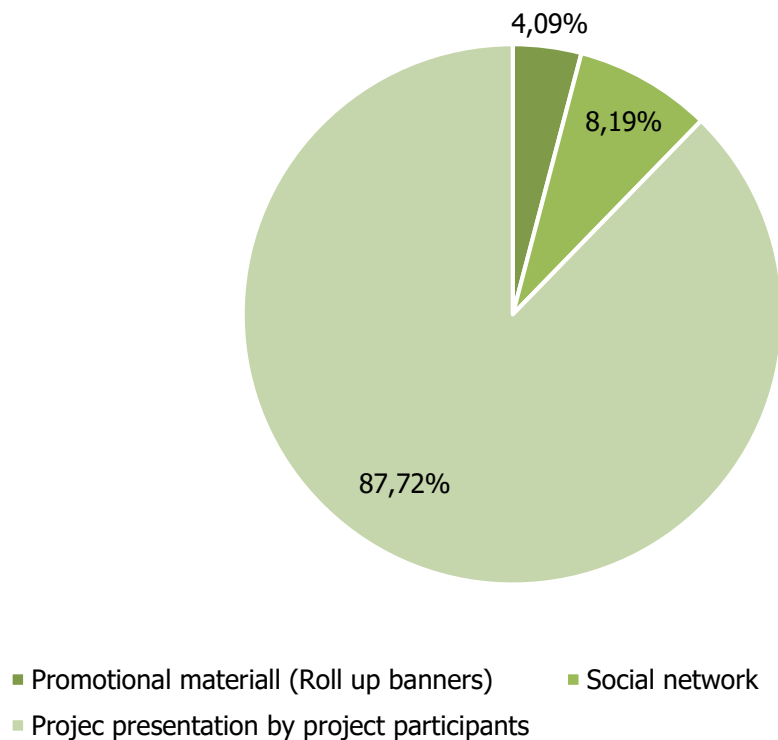




Question 2. How are you informed about AgriGREEN project?

To the second question about the level of information and the ways in which the students became familiar with the project AgriGREEN activities, the largest number of surveyed students (87.72%) answered that they became familiar with the activities on the basis of a presentation by the project representatives. Only 8.19% of students declared that they got to know about the project activities through social networks. The smallest percentage of surveyed students (4.09%) stated that they became familiar with the project activities through promotional materials (roll up banners etc.).

Figure 6. The source of information about AgriGREEN activities

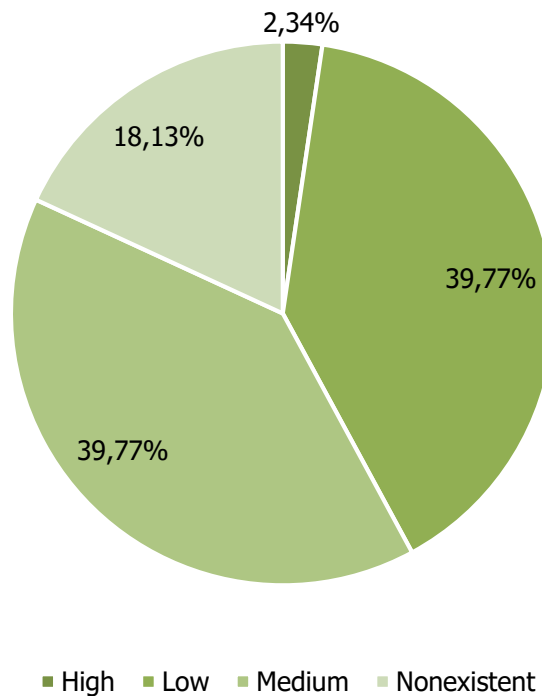




Question 3. What is your current level of information about EU policies?

The next question regarding the current level of knowledge about EU policies showed that the largest number of students have a medium (39.77%), or low level of knowledge (39.77%). Out of the total number of students, 18% said that they had little knowledge about EU policies, while only 2% declared that they had a high level of knowledge about EU policies.

Figure 7. The current level of information about EU policies

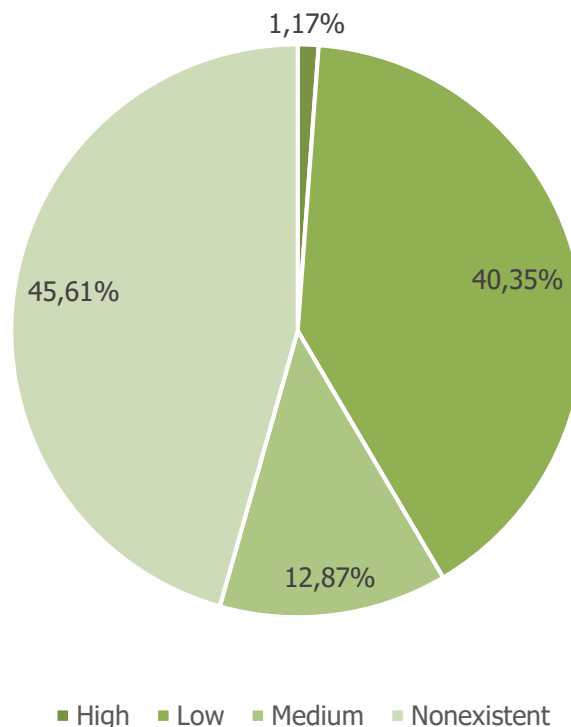




Question 4. What is your current level of information about EU strategy „European Green Deal“?

The Figure 8 indicate the results of the question about the current level of students' knowledge about the European Green Deal strategy. Namely, almost half of the total number of surveyed students (45.61%) declared that they did not have any level of knowledge about this strategy. Also, a very large number of students (40.35%) declared that their current level of knowledge about the European Green Deal strategy is quite low. Of the total number of students, 12.87% said they had a medium level of knowledge, while only 2% said they had a high level of knowledge about European Green Deal.

Figure 8. The current level of information about EU strategy European Green Deal

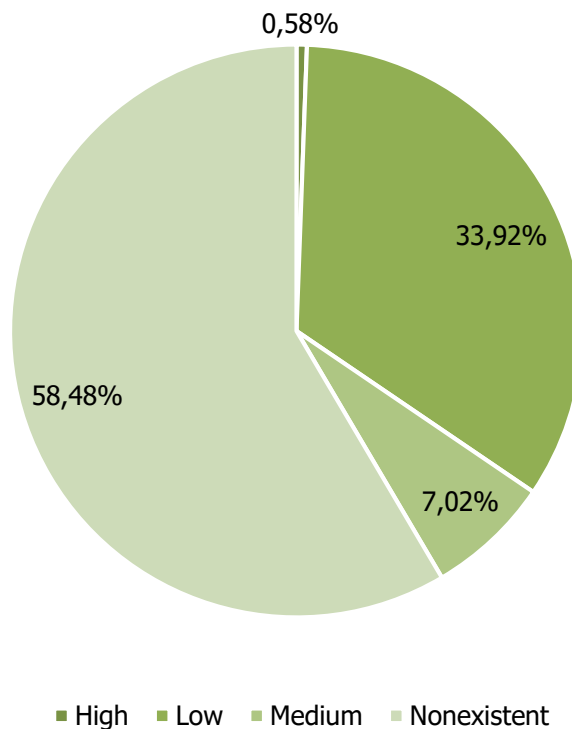




Question 5. What is your current level of information about EU strategy „Farm to Fork“?

Figure 9 indicate the students current level of knowledge about the F2F strategy of the EU. Almost 60% of the total number of surveyed students declared that they did not have any level of knowledge about this strategy. At the same time, even 33.92% of students declared that they have a very low level of previous knowledge about strategy. Of the total number of students, only 7% said they had a medium level of knowledge, while only 0.58% said they had a high level of knowledge.

Figure 9. The current level of information about EU strategy Farm to Fork

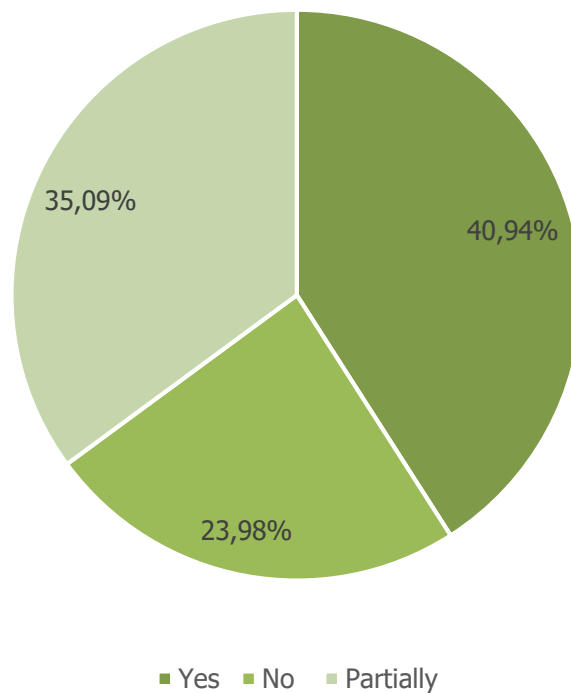




Question 6. Have you ever heard for the term „sustainable agriculture“?

Figure 10 shows the level of knowledge of the term sustainable agriculture. The largest number of surveyed students (40.94%) answered that they have heard and that they know about the term sustainable agriculture. Even 35.09% of surveyed students declared that they were only partially familiar with the term sustainable agriculture. The smallest percentage of surveyed students (23.98%) stated that they have never heard about the term sustainable agriculture.

Figure 10. The level of knowledge of the term sustainable agriculture

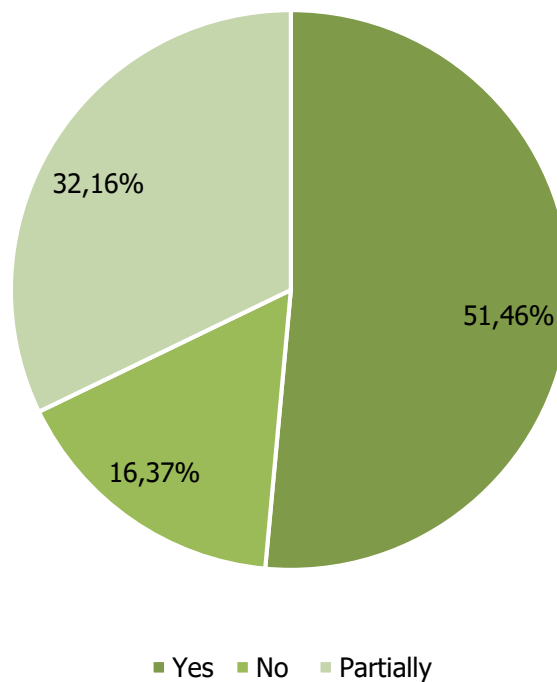




Question 7. Are you satisfied with the organization of workshops as part of additional activities at the faculty so far?

Figure 11 shows the current level of students' satisfaction with workshops organization at the Faculty of Economics in Subotica. It is evident that majority of students (51.46%) are satisfied with the workshop organization at the Faculty of Economics in Subotica. Then, 32.16% of the students claim to be partially satisfied with workshops organization while 16.37% students are not satisfied with this kind of activities at the Faculty.

Figure 11. The level of satisfaction with workshops organization at the Faculty of Economics in Subotica

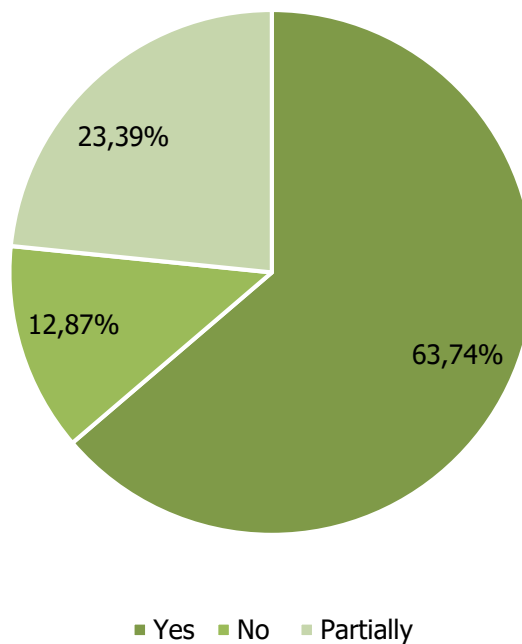




Question 8. Are you satisfied with the organization of guest lectures by business representatives at the faculty so far?

Concerning the level of satisfaction with business representative's guest lectures organization at the Faculty of Economics the greatest part of students (63.74%) claimed that are satisfied with these kind of activities. Of the total number of students, 23.39% said that they are partially satisfied with the organization of the guest lectures at the Faculty, while 12.87% answered that they are not satisfied

Figure 12. The level of satisfaction with business representative's guest lectures organization at the Faculty of Economics

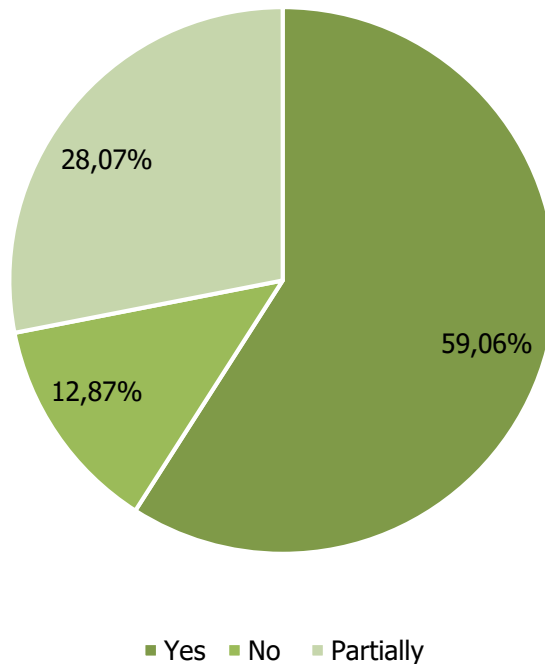




Question 9. Are you satisfied with the organization of the case study competition at the Faculty so far?

Figure 13 shows the level of student's satisfaction with case studies competition organization at the Faculty of Economics. Of the total number of students the greatest number (59.06%) declared that they are satisfied with case studies competition organization. Then, 28.07% of the students claim to be partially satisfied with workshops organization while 12.387% students are not satisfied with this kind of activities at all.

Figure 13. The level of satisfaction with case studies competition organization at the Faculty of Economics





NEEDS FOR AGRIGREEN AND CONTRIBUTION

Needs analysis

Based on the analysed current situation in the agricultural sector of Serbia and new developments in EU policy, the needs for this project stem from the following:

1. Radicalization of EU politics reform in the field of environment protection and need to raise awareness about F2F strategy;
2. The need to reform Serbia's agricultural policy and create a new agricultural development strategy;
3. Low level of education of farmers in Serbia and insufficient knowledge of the importance of sustainable agricultural development;
4. The need to improve the curriculum at the University of Novi Sad by involving crucial elements of F2F Strategy, such as sustainable development of agriculture;
5. Insufficiently developed organic food market in Serbia and low consumer awareness of the benefits of this product (which is reflected in low demand).

General objectives

So, the general goal of the AgriGREEN project is raising awareness of the importance of sustainable agricultural production in Serbia. That is, general objectives are:

- Strengthening knowledge of EU policies in the field of food production by including the F2F strategy and new CAP reform in the curricula of courses at the University of Novi Sad;
- Fostering dialogue through a panel discussion about crucial elements of F2F strategies and new CAP reforms between policy-makers in Serbia and experts from UNS in cooperation with European universities;
- Promoting research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector with special attention on organic production and environmental performances of analysed sector;
- Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.



Specific objectives

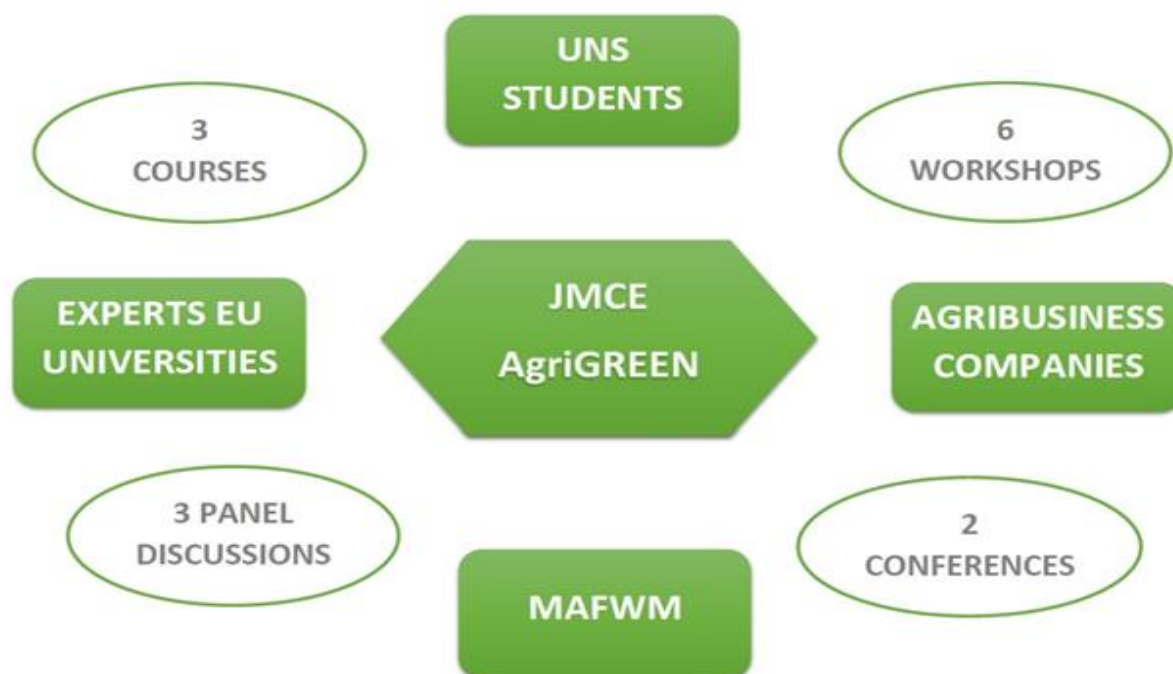
Specific objectives of the project are the following:

1. Building a Jean Monnet Centre of Excellence (JMCE) AgriGREEN that connects all key actors in the field of sustainable agriculture as a critical element of CAP and F2F (1 IT platform for collaboration in the JMCE AgriGREEN and establishing of 2 business labs in Subotica and Novi Sad);
2. Introducing and educating UNS students on current EU agricultural policy and F2F strategy, and ensure continuous exploitation of results by including key elements of CAP and F2F Strategy in curricula at Faculty of Economics (2 courses in Subotica and Novi Sad, 40 students per course, total 80 student; 1 intensive course in Novi Sad, total 40 students);
3. Encouraging research in areas crucial to the F2F strategy (such as ecology, organic production and innovation) by motivating researchers from different disciplines to cooperate (3 published papers in international scientific journals or international scientific conferences; 1 best paper award for 3 papers; 2 international scientific conferences in Subotica, 20 participants per conference, total 40 participants);
4. Create stronger connection between the experts from companies and UNS through workshops which will be held in cooperation with business representatives in which students will gain practical knowledge in the agri-food sector (6 workshop in Subotica and Novi Sad, 10 participants per workshop, total 60 participants);
5. Creating recommendations for decision-makers in the context of agricultural policy and new strategy (3 panel discussions, 60 participants per panel discussions, total 180 participants);
6. Disseminate project results and stimulate the creation of more Centre of Excellences in Serbia.

Deliverables

List of JMCE deliverables that deal with addressed issues is given in Annex 4. These deliverables are outcome of project activities that will be done in cooperation with other partners and stakeholders as it is showed in Figure 14 (Project partnership is given in Annex 3).

Figure 14. Project scheme



Deliverable 1. *Realized workshops on agri-environmental economics*

Academic staff and tutors from companies will together organize workshops on agri-environmental economics: management of organic food production and Agriculture 4.0. Tutors from companies will present some innovative methods in agricultural production, which are environmental friendly. Also, new digital technologies will be presented. Every workshop is going to have special case study, as the real problem challenge. The workshops will be organized two times by a year, so in total 6 workshops will be organized. These activities will contribute to general objectives of the project:



-
- Promoting research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector with special attention on organic production and environmental performances of analysed sector;
 - Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.

Deliverable 2. *Published minimum 3 papers in international scientific journals or international conferences*

During three years of the project, it is planned to do research on the subjects that are in the focus of the F2F strategy. First, research on the environmental and economic performance of Serbian and EU agriculture is planned based on available macroeconomic databases. Second, a survey of consumer and farmer attitudes about organic food is planned. For this research, subcontracting is envisaged by hiring a market agency to collect data for analysis. Also, researchers from other European universities will be involved. This should contribute to following objective:

- Promoting research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector with special attention on organic production and environmental performances of analysed sector.

Deliverable 3. *Panel discussions (3) has been realised*

Each year of the project, one panel discussion will be organized. Besides academic experts, in each event, representatives of the MAFWM will be involved as well as experts from European universities and agri-business companies. The first panel discussion will be realized in the project's first year and will be focused on European F2F strategy and Serbian agricultural policy. As a result of this discussion, a list of recommendations will be given to policymakers. It is crucial due to the need to create a new Strategy for Serbian agriculture (the actual Strategy ends in 2024). Second panel discussion is oriented on organic production in Serbia. Also, as a potential result, a list of recommendations will be given to policymakers in order to boost organic production in Serbia. Final panel discussion will be focused on Agriculture 4.0. Special attention will be paid to the digitalization of agriculture and the application of nanotechnology. The idea is for students and farmers to get acquainted with the latest technological achievements in the agricultural sector. This should contribute to following objective



- Fostering dialogue through a panel discussion about crucial elements of F2F strategies and new CAP reforms between policy-makers in Serbia and experts from UNS in cooperation with European universities;
- Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.

Deliverable 4. *Two Scientific conference has been realised*

The Faculty of Economics organizes an international scientific conference on strategic management every year. The idea is to organize a session within the existing conference, which would be closely related to the topic of the project (Sustainable Agriculture). The conference would be open to all researchers who submit an abstract. The session's theme would enable researchers from different disciplines, such as agricultural economics, ecology, agriculture, sociology, law, and philosophy. It contributes to general objective:

- Fostering dialogue through a panel discussion about crucial elements of F2F strategies and new CAP reforms between policy-makers in Serbia and experts from UNS in cooperation with European universities;
- Promoting research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector with special attention on organic production and environmental performances of analysed sector;
- Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.

Deliverable 5. *Award Competition ceremony realised*

In third year, AgriGREEN Award Competition for young researchers will be organised. This competition will be open to all students and young researchers of universities in Serbia. The competition will involve writing scientific papers or essays on a topic related to ecology and European values. The topic will be precisely defined at the beginning of the third year of the project, after the conducted research and panel discussions, to best suit the current needs. The best three works are expected to receive adequate awards. Also, it is planned to organize the award ceremony at UNS, where the works will be presented. This contributes to general objectives:



- Promoting research of EU agricultural policy and its impact on sustainable development of Serbia's agri-food sector with special attention on organic production and environmental performances of analysed sector;
- Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.

Deliverable 6. *Realized courses*

There is currently an Agricultural Policy of European Union course at the Faculty of Economics, which has been in the Faculty's curricula since the 2005/06 school year (in Subotica and Novi Sad). This course attends about 50 students annually by average. This course is implemented in the third year of bachelor academics studies, as an optional course. As a part of this, new lectures will be developed in first year of project and covers the following lectures:

- New reforms of Common Agricultural Policy of EU
- European Green Deal and Farm to fork strategy
- Environmental performances of European agriculture

The next step in the diffusion of knowledge about agricultural policy of the EU and sustainable development is the formation of a new course called Agricultural Policy and Sustainable Development, which in the new curricula of the Faculty of Economics for students of study program Economy – module Agribusiness and rural development (about 40 students). This course would be in the new curricula of the Faculty of Economics from the school 2023/24 year and represents upgraded version of course Agricultural policy of European Union which ends in second year of project. This course will be in curricula minimum seven years, as long as the cycle of accreditation of higher education institutions lasts in Serbia. The course will include topics related to the EU:

- Introduction to Agricultural policy
- Agricultural policy of the EU
- Agriculture and the environment
- Sustainable development of agriculture
- Organic production as a solution

This course contributes to general objectives:



-
- Strengthening knowledge of EU policies in the field of food production by including the F2F strategy and new CAP reform in the curricula of courses at the University of Novi Sad;
 - Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.

Deliverable 7. *Realized Intensive training course Agri-Environmental Economics*

In the third year of the AgriGREEN project intensive training course Agri-Environmental Economics and EU policy will be held at the Faculty of Economics and it will be open for students from whole UNS. This course contributes to general objectives:

- Strengthening knowledge of EU policies in the field of food production by including the F2F strategy and new CAP reform in the curricula of courses at the University of Novi Sad;
- Spread knowledge about new CAP reform and F2F strategy to the broader society (policy-makers, farmers, agri-food companies) through social media and cooperation with agricultural extension services of Serbia.



IMPACT OF AGRIGREEN

Through various events focusing on EU topics, the basic idea of the project is to make an impact on students, young researchers, policymakers, business representatives (farmers and agri-food companies).

Thanks to the planned events (courses, intensive courses, workshops), a significant increase in the number of students at UNS who will be acquainted with the given EU policies is expected. All students of the study program Agribusiness and rural development at Faculty of Economics will be required to attend the course Agricultural Policy and Sustainable Development. This course will be at curricula at least for seven years. In addition, students from other study programs and faculties will be involved through intensive training courses and workshops. Workshops will enable interested students and other stakeholders to connect theoretical and practical knowledge and further increase the quality of the cognitive process and the attractiveness of EU topics. In addition, business representatives will be involved in this way, and the promotion of European values will be diffused beyond the academic framework.

The program will also significantly affect teachers, especially younger teaching assistants who are just beginning their academic careers. This will be facilitated through the involvement of younger professors and assistants, both in courses and in intensive training courses. This project will also foster the engagement of young academics in teaching and research on EU subject, as coordinator and the majority of other members of project team are young researchers and teachers. Field of research of few researchers in their PhD dissertation are agricultural and rural development of Serbia in process of EU integration

The stated engagement in the teaching process will be supported by the research work as a continuation of the research efforts of the project team members. The project also envisages scientific research whose results will be published in respectable international scientific journals and presented at international scientific conferences. This means that research findings will be visible locally, regionally, and globally, and have a relatively broader impact on the diffusion of knowledge about the EU and its policies. Visibility will be provided through the project website, where all project results will be presented. Also, visibility will be achieved through the provision of information through social networks, which the project administrator will regularly update.



Finally, policymakers will be involved in a panel discussion on EU topics. One of the project results will be policy recommendations in the context of the current CAP and Farm to Fork Strategy. This recommendation could be the basis for developing a new agricultural strategy from the next period (after 2025) as the current Strategy ends in 2024. Potentially, the AgriGREEN project could significantly impact the future development of Serbian agricultural policy.

To sum up, after the project is finished, the target groups of stakeholders will be reached using the following channels:

- Students will be reached through series of lectures. This will be practice for promotion of activities of the JMCE AgriGREEN every year. Also, the list of previous participants will be kept in order to maintain the connection with them in the years to come and to use them as dissemination channels and promoters of activities based on AgriGREEN not only among potential participants, but also in companies where they will work.
- Teachers will be reached through scientific conferences where our teachers will promote the education program and AgriGREEN project, and also through formal and informal communication with colleagues. This will be the same channel for reaching other HEIs institutions in Serbia and the region. The consortium will continue to share information, knowledge, experience and good practice about the functioning of Centre of Excellence in order to improve their practice and provide as high as possible quality of participants' competencies.
- Companies: Every year local enterprise that hired newly finished students will be surveyed about the quality of the competencies that hired students bring to the enterprises for the purpose of improving the activities in the Centre of Excellence AgriGREEN.
- Professionals will be reached through their companies and through professional societies.
- Representatives of policy makers in Serbia (MAFWM), will be invited to the Panel Discussions and Final Conference in order to be informed about the benefits of the harmonizing Agri-environmental Policy with EU.



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ANNEX 1. SDGs of United Nations

SUSTAINABLE DEVELOPMENT GOALS





ANNEX 2. Study program Economics at UNS

Table 1. First year of the study program Economics

N	Title	Lectures	Tutorials	ESPB
1	Microeconomics	3	2	8
2	Business and financial mathematics	3	3	8
3	Information technologies	2	3	8
4	Foreign language (English or German)	2	2	5
5	Macroeconomics	3	3	10
6	Basics of accounting	3	3	8
7	Statistics	3	3	8
8	Foreign language 2 (English or German)	2	2	5
Total		21	21	60

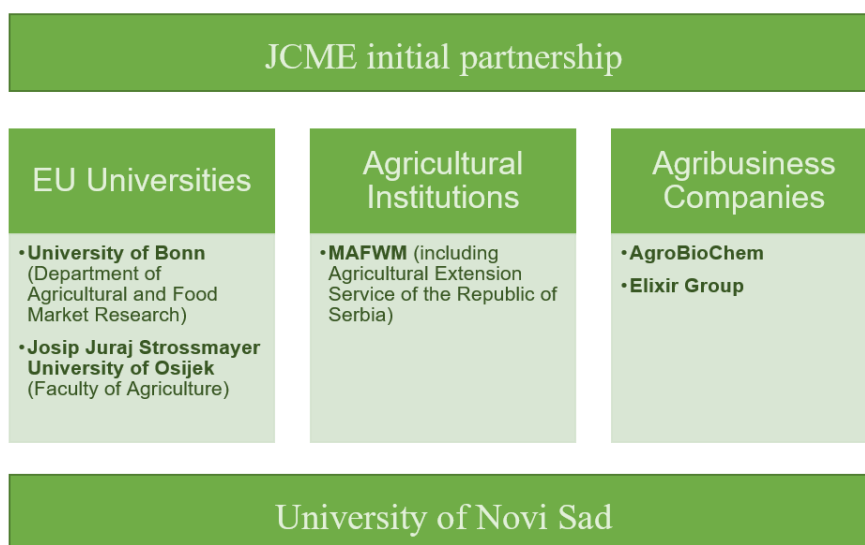
Table 2. Second year of the study program Economics

N	Title	Lectures	Tutorials	ESPB
1	Management	3	3	8
2	Monetary and public finance	3	2	8
3	Marketing	3	2	8
4	National economy	3	2	8
5	International economy	3	2	8
6	Marketing channels	3	2	7
7	Introduction to Agricultural Economics	3	2	7
8	Entrepreneurship	3	2	6
Total		24	17	60

ANNEX 3. Project partnership

As this Call allows only one high education institution (HEI) established in an EU Member State, a third country associated to the Programme or third country not associated to the Programme to apply, all cooperation arrangements with other HEIs are created informally. Initial online meetings are held with the University of Bonn (Department of Agricultural and Food Market Research) and the University of Osijek (Faculty of Agriculture) during writing project proposals. These two universities were chosen for two reasons. First, they have a long tradition of studying subjects related to agriculture. Secondly, the idea is for at least one university to be from the EU-6 area and a new member state such as Croatia. This cooperation will be necessary in case of research and panel discussions. Also, one of the team members (Dragan Milić) is the Special Advisor of MAFWM, which will enable cooperation with the MAFWM and stronger connections with policymakers, which is especially important in the case of creating policy recommendations. Finally, cooperation has been established with two companies that firmly commit to sustainable agricultural production: AgroBioChem (<https://www.agrobiochem.rs/en/all-products/>) and Elixir Group (<https://www.elixirgroup.rs/en/responsibility/>). Furthermore, it is envisaged that cooperation will be established with other European and regional universities as well as companies and organic farms that focus on sustainable agricultural production during the project.

Figure 15. JCME partnership





ANNEX 4. List of relevant JMCE deliverables

WP	Deliverable	Deliverable Name	Description
WP3	D3.2	Realized workshops on agri-environmental economics	The purpose of this workshop is to link theoretical knowledge from faculty educations with practical work from real companies. In realization of this 6 workshops tutuors from companies will be included.
WP4	D4.1	Published minimum 3 papers in international scientific journals or international conferences	Acceptance certificate (or published papers online depending of journals rules)
WP4	D4.2	Panel discussions (3) has been realised	The report of the event will consist of: invitation, agenda, signed presence list of at least 60 participants.
WP4	D4.3	Two Scientific conference has been realised	The report of the event will consist of: invitation, agenda, signed presence list of at least 20 participants.
WP4	D4.4	Award Competition ceremony realised	The report of the event will consist of: invitation, agenda, working papers, signed presence list of at least 50 participants on presentations of the best papers.
WP5	D5.1	Realized courses	The report of the event will consist of: invitation (, agenda, signed presence list of at least 40 students, as well as presentations used during the courses, and feedback questionnaire for participants.
WP5	D5.2	Realized Intensive training course Agri-Environmental Economics	The report of the event will consist of: invitation, agenda, signed presence list of at least 40 students



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